UNICAMP

IE Instituto de Economia

NEIT NÚCLEO DE ECONOMIA INDUSTRIAL E DA TECNOLOGIA

II Seminario Internacional

America Latina y el Caribe Y China: condiciones y retos em el siglo XXI

CHINESE COMPETITION'S IMPACT ON THIRD MARKETS: AN ANALYSIS BY REGION AND TECHNOLOGICAL CATEGORY

Débora Belluci Módolo

Célio Hiratuka

México-DF - Mayo de 2014

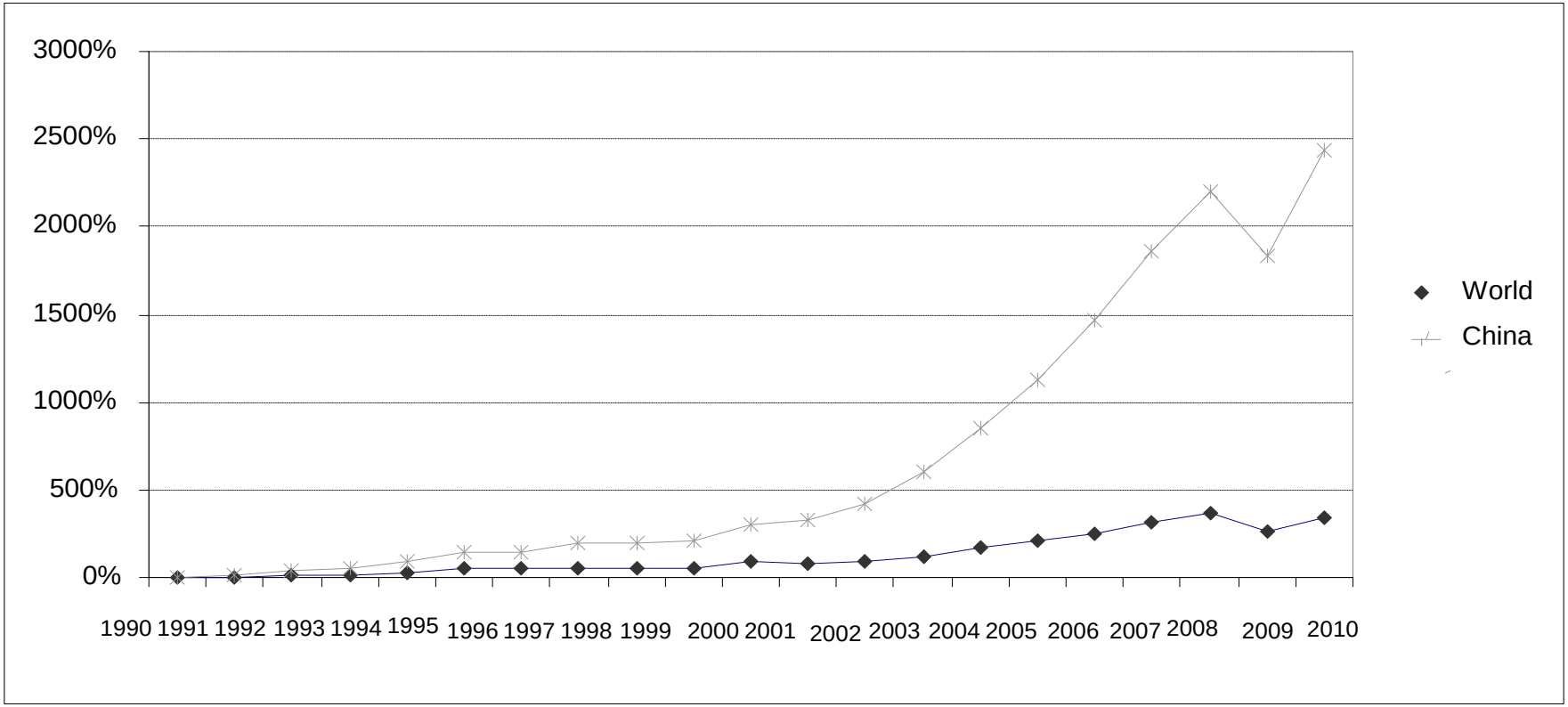
Outline

- Motivations
- Literature review on the Chinese competition in third markets
- Methodology – Gravity model with instrumental variable
- Results
- Final Remarks

Motivations

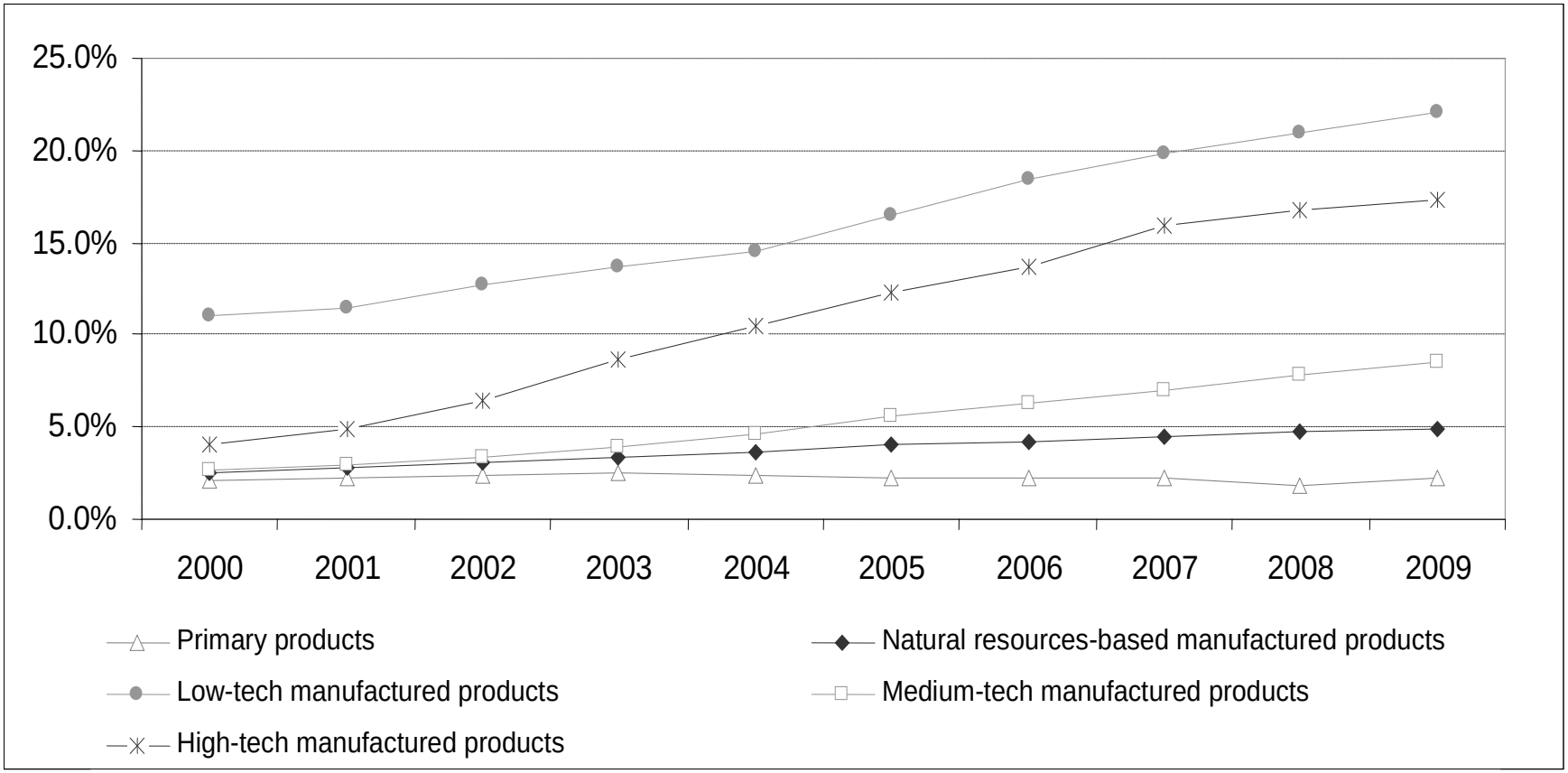
- Chinese economic expansion affects other global countries through a number of channels
- But the one that more directly and intensively impacts other economies is the international trade
- This impact is related not only with the extraordinary growth in volume of Chinese exports, but also with the change in the export pattern, that have evolved towards products which were significantly more sophisticated than expected for its per capita income level
- The contribution of this paper is to provide an overview of Chinese competition, covering different regions and technology categories in a comparative way.

Figure 1 – Chinese and global exports' cumulative growth, 1990 to 2010



Source: Own preparation using UN Comtrade's data.
Note: Cumulative growth based on exports data in current dollars

Figure 2 – Evolution of Chinese exports' share in the total of global exports by technological segment, 2000 to 2009



Source: Own preparation using UN Comtrade's data.
Note: Cumulative growth based on exports data in current dollars

Literature Review

- Several works trying to access the impact of china competition, especially in Asia and Latin America
- The results in general point out negative impacts of Chines competition, but with different methodologies
  - Direct Market-Share Comparison
  - Constant Market-Share
  - Similarity Index
  - General Equilibrium Models
  - Gravity Models

The Gravity model applied

$$\ln X_{ij,t} = \beta_0 + \beta_1 \ln CX_{j,t} + \beta_2 \ln Y_{i,t} + \beta_3 \ln Y_{j,t} + \beta_4 \ln R_{i,t} + \beta_5 \ln R_{j,t} + \beta_6 \ln D_{ij} + \beta_7 F_{ij} + \beta_8 L_{ij} + \beta_9 P_{ij} + \ln \varepsilon_{ij,t}$$

$$i = 1,\ldots,N; j = 1,\ldots,N; t = 1,\ldots,T$$

- β0 to β9 are the parameters to be estimated;
- Xij,t represents the exports from country i to country j;
- CXj,t refers to Chinese exports to country j;
- Yi,t and Yj,t correspond to GDP of the exporter and importer countries;
- Ri,t and Rj,t represent the per capita income of the exporter and importer countries;
- Dij is the distance between I and j;
- Fij refers to the binary variable to common border
- Lij corresponds to the binary variable to common official language;
- Pij is the binary variable to past colonial relationship;
- εij,t represents the random error term

The Gravity model applied

- Chinese exports' explanatory variable ($CX_{j,t}$) is potentially an endogenous variable to the model, because global factors present in the error term may meanwhile affect exports from country *i* to country *j*, and Chinese exports to country *j*.
- the distance variable between China and the exports target country j (CDj) may be introduced as a valid instrumental variable of Chinese exports (CXj,t), because it is plausible to consider it exogenous as well as significantly correlated to the endogenous CXj,t variable.
- Thus, equation (1) estimation is conducted by the least squares method with two stages
- The first stage consists on estimating the endogenous variable related to the exogenous variables and the instrumental variable by ordinary least squares. The second stage consists on estimating equation (1) by ordinary least squares, using the estimated values of ln CXj,t obtained in the first stage as an explanatory variable.

Results

	OLS	2SLS
Chinese exports	**0.590*** **	**-0.200*** **
	(0.007)	(0.022)
exporter GDP	1.131***	1.240***
	(0.005)	(0.007)
importer GDP	0.222***	1.052***
	(0.008)	(0.023)
exporter *per capita* income	0.311***	0.355***
	(0.009)	(0.010)
importer *per capita* income	0.0252***	0.0155**
	(0.006)	(0.007)
bilateral distance	-1.401***	-1.413***
	(0.009)	(0.010)
common border	0.993***	1.029***
	(0.046)	(0.051)
common language	0.939***	1.290***
	(0.024)	(0.027)
past colonial relationship	0.558***	0.354***
	(0.040)	(0.043)
Notes	73,918	73,918
R^2	0.759	0.698

Results

	Primary Products	Natural resources-based industry	Low-tech industry	Medium-tech industry	High-tech industry
Chinese exports	**0.203*** **	**0.149*** **	**-0.238*** **	**-0.376*** **	**0.022**
	(0.012)	(0.018)	(0.024)	(0.027)	(0.019)
exporter GDP	0.991***	1.020***	1.191***	1.287***	1.058***
	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)
importer GDP	0.680***	0.668***	1.047***	1.193***	0.810***
	(0.016)	(0.019)	(0.024)	(0.027)	(0.024)
exporter *per capita* income	-0.116***	0.252***	0.0620***	0.366***	0.683***
	(0.012)	(0.012)	(0.011)	(0.012)	(0.013)
importer *per capita* income	0.0949***	0.0570***	0.107***	-0.0937***	0.00848
	(0.010)	(0.008)	(0.007)	(0.008)	(0.009)
bilateral distance	-1.280***	-1.379***	-1.502***	-1.350***	-1.337***
	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)
common border	1.122***	0.995***	1.006***	1.304***	0.889***
	(0.047)	(0.048)	(0.050)	(0.052)	(0.055)
common language	0.901***	1.110***	1.310***	1.074***	1.317***
	(0.031)	(0.029)	(0.029)	(0.030)	(0.030)
past colonial relationship	0.866***	0.838***	0.565***	0.323***	0.347***
	(0.045)	(0.050)	(0.044)	(0.048)	(0.052)
Notes	61,362	68,106	68,589	65,802	60,803
R^2	0.536	0.626	0.647	0.645	0.664

Impacts by region

- Based on equation (1), but now interacting the Chinese exports variable ($CX_{j,t}$) with dummies of exporting region G_k, was possible to obtain an estimation of Chinese exports impact on different regions:

1 - Developing Asia ;

2 - Developed Asia ;

3 - Hong Kong and Macao ;

4 - Europe ;

5 - North America ;

6 - Central America and Mexico ;

7 - South America ;

8 - Rest of the World .

Results

	2SLS	Inclination Coefficient
CX - Chinese exports (Base Group: Developing Asia)	**-0.483*** **	**-0.483**
	(0.036)	
Developed Asia * CX	0.182***	**-0.301**
	(0.053)	
Hong Kong/Macao * CX	-0.351***	**-0.834**
	(0.090)	
Europe * CX	0.471***	**-0.012**
	(0.033)	
North Am. * CX	0.626***	**0.143**
	(0.038)	
Central Am./Mexico * CX	0.116**	**-0.367**
	(0.051)	
South Am. * CX	0.267***	**-0.216**
	(0.043)	
Rest of the World * CX	0.263***	**-0.220**
	(0.035)	
Notes	73,918	
R^2	0.686	

Results

	Primary Products	Natural resources-based industry	Low-tech industry	Medium-tech industry	High-tech industry
CX - Chinese exports (Base Group: Developing Asia)	0.212***	-0.0761**	-0.702***	-0.629***	-0.066*
Developed Asia * CX	0.326***	-0.032	-0.299***	-0.547	0.298***
Hong Kong/Macao * CX	-0.043***	-0.431***	-1.262***	-1107***	-0.343***
Europe * CX	0.191	0.141***	0.024***	-0.150***	0.218***
North Am. * CX	0.218	0.317***	0.015***	0.054***	0.295***
Central Am./Mexico * CX	0.144*	0.105***	-0.415***	-0.516*	-0.132
South Am. * CX	0.239	0.344***	-0.170***	-0.553	-0.374***
Rest of the World * CX	0.211	0.170***	-0.282***	-0.379***	0.020**
N. obs.	61,362	68,106	68,589	65,802	60,803
R^2	0.538	0.617	0.627	0.635	0.662

Final Remarks

- Developing Countries are most affected than developed regions
- Developing Asia and Mexico and Central America are the most affected regions in low and medium technologies products
- In High Tech products, Developing Asia and South America are the most affected regions (result for Mexico and C.A is negative but not significative)
- Positive impact observed for Developed Countries, especially for North America could indicate intra-product specialization and quality ladder and superior position on the value chains

Final Remarks

- The model didn't consider directly the effect of the growing demand of China for
  - Primary Commodities, that could compensate part of the negative effect in South America
  - Parts, components and Machinery, that could compensate part of the negative effect in Developed Countries and in Developing Asia
  - Mexico and C.A get less benefits from the Chinese Demand grow