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São Paulo, 30 de junho de 2009.

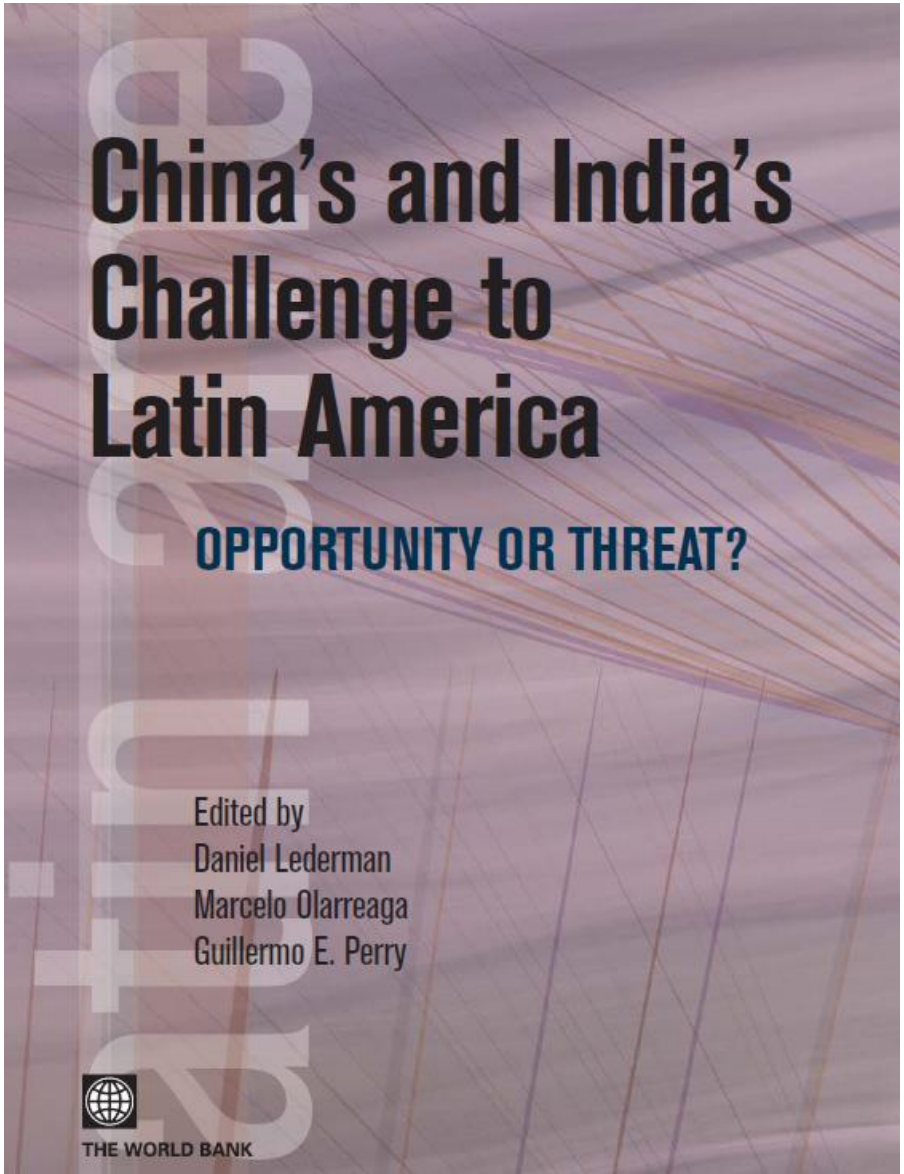
On the Need to Review Development Policies in Light of the Growth of China (and India)

A Presentation by Daniel Lederman

Office of the Chief Economist for Latin America & the Caribbean and Development Research Group

The World Bank

First, An Advertisement



Today: The Growth of China (& India) has been a blessing for Latin America and the Caribbean

- Evidence from the gravity model of trade using aggregate non-fuel bilateral merchandise data for LAC, 2000/4
  - Large demand for LAC exports, but low supply elasticities
  - Little evidence of substitution effects in 3rd markets
  - And potentially large effects through global commodity markets (not just bilateral flows!)
- Evidence from the KCM model of MNCs using aggregate and sectoral FCS global data, 1990/2003
  - Little evidence of substitution effects in 3rd markets
- But shifting toward NRs and knowledge-intensive industries

Why We Need to Review Development Policies

- Export Promotion and Low Bilateral Supply Elasticities
  - Helping the private sector “discover” new markets
  - Evidence that export promotion policies work (see Lederman, Olarreaga & Payton among others)
- Innovation and education policies
  - Wage-skill premia (skilled labor costs) depend on the aggregate supply and quality of education
  - Shift to natural resources and knowledge-intensive industries requires a long-term policy adjustment
- Inter-sectoral adjustments and safety nets, especially in some industries in some countries (e.g., Mexico, Central America)

The Growth of China (and India) in Latin American Trade

Annual average growth rate of exports of merchandise period 2000-2007

From/To	Rest of the World	China	India
LAC	13.8%	36.7%	26.9%
Argentina	15.5%	40.6%	31.7%
Brazil	12.0%	35.7%	10.9%

Fast growth due to demand (prices) or supply (quantities/varieties)?

The Growth of China in Latin American Trade

Export Shares (%)

	China			India		
	1992	2000	2008	19922	20002	20082
Argentina	1.05	3.03	9.13	0.17	1.66	1.18
Bolivia	0.00	0.38	1.16	0.09	0.09	0.07
Brazil	1.28	1.97	8.29	0.41	0.39	0.56
Chile	2.23	4.95	15.18	0.02	0.68	3.37
Colombia	0.05	0.22	1.18	0.00	0.02	0.04
Costa Rica	0.01	0.23	6.29	0.04	0.08	0.28
Ecuador	0.03	1.20	0.26	0.00	0.04	0.74
Guatemala	0.00	0.13	0.84	0.00	0.01	0.12
Mexico	0.10	0.19	0.70	0.01	0.06	0.54
Nicaragua	0.01	0.05	0.52	0.01	0.00	0.00
Peru	7.50	6.45	11.99	0.05	0.51	0.90
Uruguay	5.48	3.97	2.88	0.07	0.15	0.14
Venezuela	0.01	0.11	0.41	0.06	0.57	0.17
LAC	0.87	1.13	5.37	0.14	0.33	0.83

The Question Remains: Fast growth due to demand (prices) or supply (quantities/varieties)?

The Growth of China in Latin American Trade

Import Shares (%)

	China			India		
Column1	1992	2000	2008	19922	20002	20082
Argentina	1.15	4.58	12.37	0.19	0.57	0.86
Bolivia	0.66	3.13	7.59	0.13	0.17	0.57
Brazil	0.26	2.19	11.57	0.06	0.49	2.06
Chile	1.55	5.71	11.42	0.06	0.42	0.49
Colombia	0.40	3.03	11.47	0.07	0.55	1.33
Costa Rica	0.69	1.30	5.66	0.05	0.15	0.33
Ecuador	0.11	2.21	8.27	0.02	0.18	0.45
Guatemala	0.15	0.91	5.79	0.08	0.15	0.88
Mexico	0.65	1.60	11.24	0.06	0.16	0.44
Nicaragua	0.10	0.58	7.92	0.07	0.29	0.97
Peru	0.55	3.89	12.08	0.14	0.40	1.24
Uruguay	1.04	3.23	10.17	0.59	0.49	0.83
Venezuela	0.05	1.27	4.95	0.04	0.22	0.30
LAC	0.62	2.23	10.77	0.08	0.29	0.93

The Growth of China (and India) in *Global* Commodities Trade

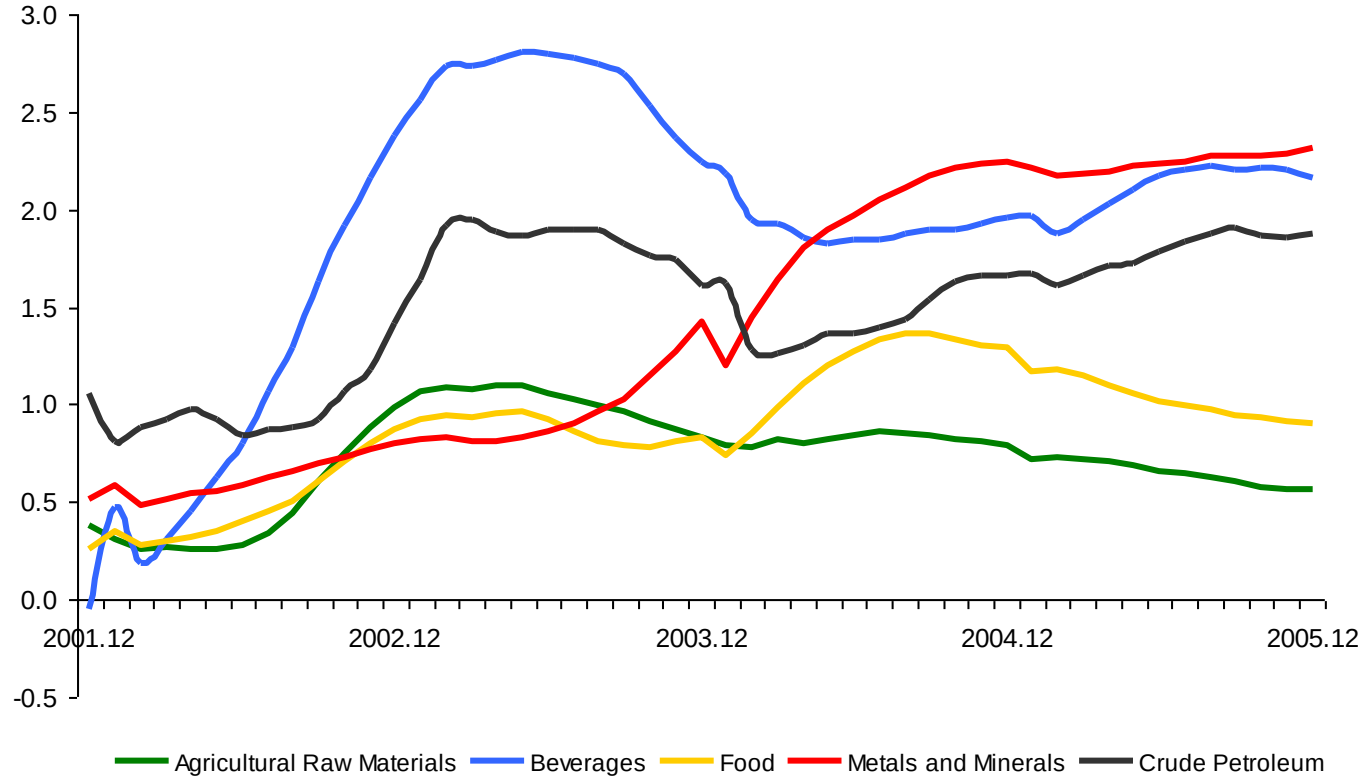
China's Share in Global Commodity Imports (percentages of global imports)

Product	1992	2000	2008
Sugar	5.873	1.939	3.533
Soya beans	0.427	23.187	64.118
Soya beans oils	7.332	4.787	38.146
Soya beans and soya beans oils	1.589	19.322	58.909
Petroleum	1.170	3.500	9.586
Copper	5.822	11.212	17.113
Nickel	2.549	2.219	14.185
Aluminium	2.132	5.204	3.346
Zinc	1.668	3.595	6.367
Tin	0.997	5.178	8.335

Source: UNCOMTRADE SITC Rev.3 classification

The Question Remains: Fast growth due to demand (prices) or supply (quantities/varieties)?

The Growth of China in *Global* Commodities Trade: The correlation between commodity prices and China's Industrial Production



Source: Calderón (2008).

The Growth of China (and India) as Global Locomotives: As Long as Elasticities Remain the Same…

Consensus Forecasts for GDP Growth Rates as of June 9th

Country	2007	2008	2009	2010
China	11.9	9.0	7.5	8.4
India	9.0	6.7	5.8	7.0
Brazil	5.4	5.1	-0.9	3.1
Argentina	8.7	7.0	-1.8	1.6
United States	2.2	1.1	-2.8	1.9
European Union	2.8	0.8	-4.1	0.3
Japan	2.0	-0.7	-6.6	1.3
Latin America & Caribbean	5.4	4.1	-2.4	2.5
World	3.8	2.0	-2.6	2.0

World Bank Projections as of June 21

Country	2007	2008	2009	2010	2011
China	13.0	9.0	6.5	7.5	8.5
India	9.0	6.1	5.1	8.0	8.5
Brazil	5.7	5.1	-1.1	2.5	4.1
Argentina	8.7	6.8	-1.5	1.9	2.1
United States	2.0	1.1	-3.0	1.8	2.5
European Union	2.7	0.6	-4.5	0.5	1.9
Japan	2.3	-0.7	-6.8	1.0	2.0
Latin America & Caribbean	5.8	4.2	-2.2	2.0	3.3
World	3.8	1.9	-2.9	2.0	3.2

China Gravity Results: Large Demand Elasticities, Low LAC Supply Elasticities

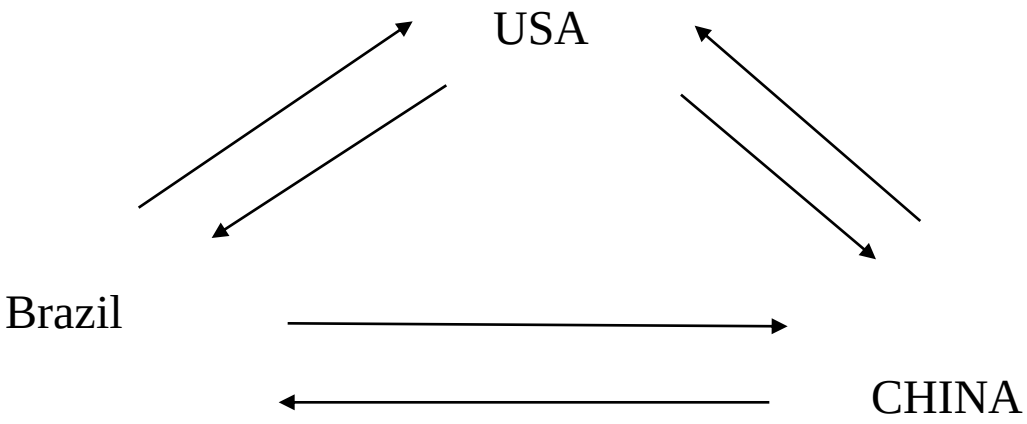
Trade Demand and Supply Elasticities of GDP for LAC-China Trade – Non-Fuel Merchandise Trade Data						
	OLS		Poisson		Negative Binomial	
	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value
Andean Countries						
Own supply	0.51	0.00	0.28	0.14	0.38	0.19
China demand	***3.40***	***0.00***	***3.01***	***0.00***	***4.42***	***0.00***
Caribbean Countries						
Own supply	0.15	0.19	-0.11	0.52	-0.81	0.24
China demand	***3.32***	***0.00***	***3.04***	***0.00***	***4.49***	***0.00***
Central America/Mexico						
Own supply	-0.03	0.89	-0.97	0.01	-2.10	0.00
China demand	***3.20***	***0.00***	***2.95***	***0.00***	***4.25***	***0.00***
Southern Cone						
Own supply	0.28	0.01	-0.03	0.70	-0.09	0.58
China demand	***3.59***	***0.00***	***3.19***	***0.00***	***4.69***	***0.00***
Observations	21480		21480		21480	

India Gravity Results: Large Demand Elasticities, Low LAC Supply Elasticities

Trade Demand and Supply Elasticities of GDP for LAC-India Trade – Non-Fuel Merchandise Trade Data						
	OLS		Poisson		Negative Binomial	
	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value
Andean Countries						
Own supply	0.29	0.35	0.28	0.25	-0.27	0.56
India demand	***1.84***	***0.00***	***1.62***	***0.00***	***2.99***	***0.00***
Caribbean Countries						
Own supply	-0.26	0.02	-0.21	0.21	-1.47	0.04
India demand	***1.87***	***0.00***	***1.55***	***0.00***	***2.78***	***0.00***
Central America/Mexico						
Own supply	-0.34	0.08	-1.40	0.00	-2.47	0.00
India demand	***1.76***	***0.00***	***1.74***	***0.00***	***2.72***	***0.00***
Southern Cone						
Own supply	0.39	0.00	-0.08	0.21	-0.09	0.50
India demand	***1.78***	***0.00***	***1.88***	***0.00***	***2.90***	***0.00***
Observations	21480		21480		21480	

Substitution Effects in 3rd Markets?

Note the Four Channels through which trade can affect LAC trade with 3rd Markets:

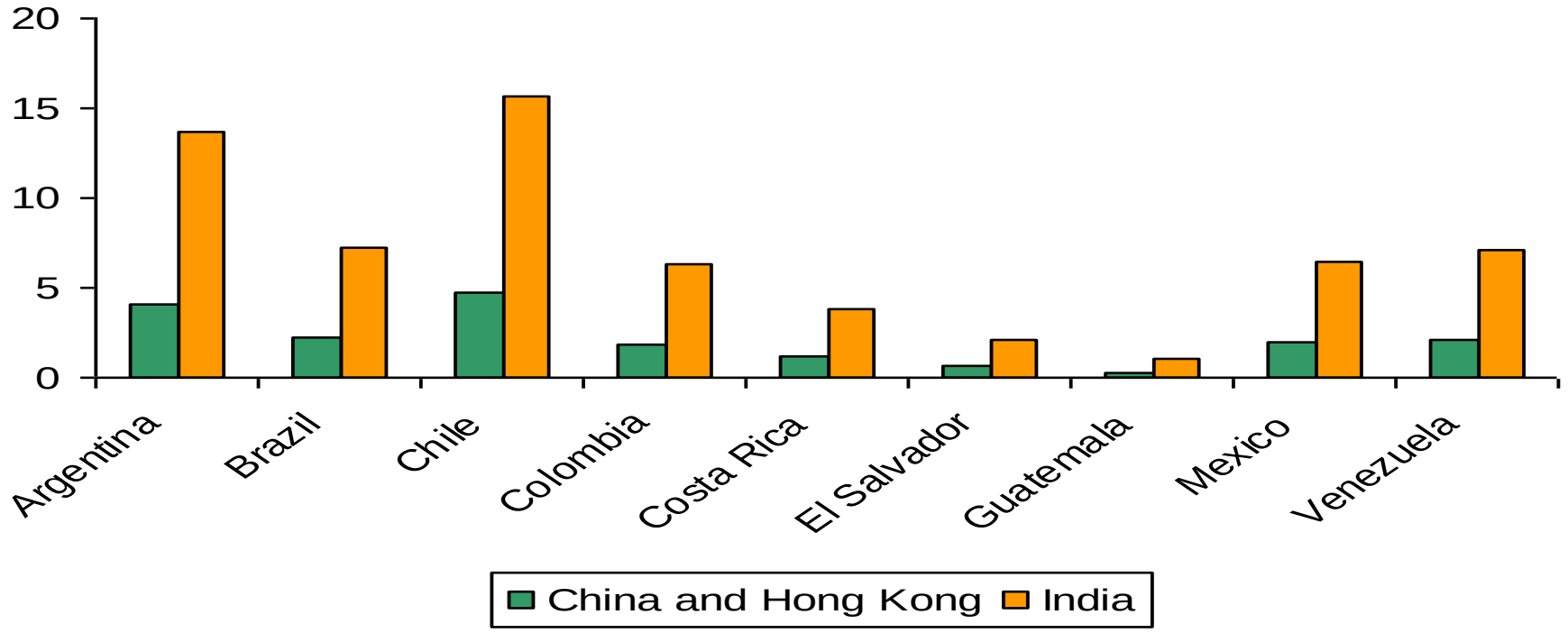


Aggregate Trade: Little (robust) Evidence of Substitution Effects in 3rd Markets

Table 3: Impact of China's Trade Flows on LAC Non-Fuel Exports to Third Countries						
	OLS		Poisson		Binomial	
	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value	Estimated Coeficient	P-Value
Andean Countries						
China exports to third countries	***0.06***	***0.10***	***0.11***	***0.38***	***0.14***	***0.15***
China imports from third countries	0.01	0.65	0.10	0.30	0.06	0.38
China Exports to Andean	-0.07	0.25	0.21	0.25	0.03	0.83
China Imports from Andean	-0.05	0.10	0.21	0.00	0.03	0.64
Caribbean Countries						
China exports to third countries	***-0.14***	***0.00***	***0.14***	***0.31***	***-0.06***	***0.74***
China imports from third countries	-0.04	0.27	0.08	0.33	0.04	0.76
China Exports Caribbean	-0.04	0.66	0.27	0.29	0.15	0.67
China Imports from Caribbean	0.00	0.82	0.02	0.46	0.09	0.03
Central America/Mexico						
China exports to third countries	***0.00***	***0.91***	***0.85***	***0.00***	***0.16***	***0.19***
China imports from third countries	-0.04	0.15	-0.25	0.00	0.00	0.98
China Exports to Central America	-0.03	0.31	-0.04	0.71	0.01	0.93
China Imports from Central America	0.03	0.10	0.06	0.40	0.10	0.08
Southern Cone						
China exports to third countries	***0.21***	***0.00***	***0.02***	***0.87***	***0.14***	***0.14***
China imports from third countries	0.02	0.51	0.19	0.05	0.06	0.33
China Exports to Southern Cone	0.05	0.56	0.05	0.72	0.30	0.08
China Imports from Southern Cone	0.02	0.64	0.45	0.00	0.21	0.09
Observations	15440		15440		15440	

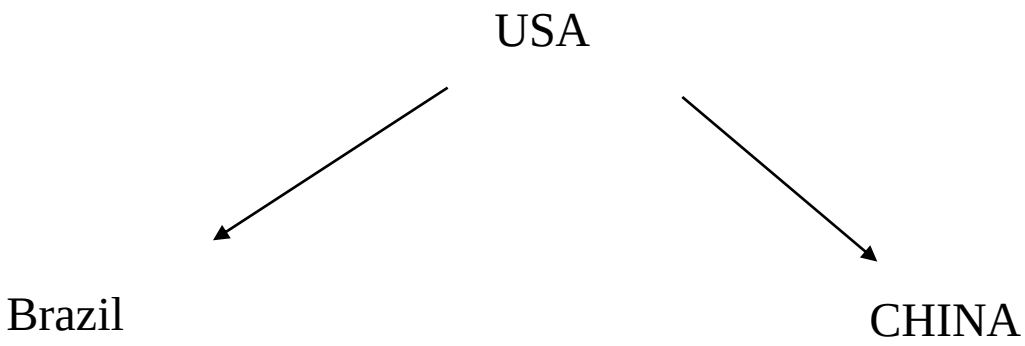
Foreign Capital: The Growth of China and India Is Not a Zero-Sum Game for LAC – Some Data

Foreign Capital Stocks (FCS) as a Share of GDP in LAC Relative to China and India, 2003



Competition for Foreign Capital?

Note the data constraint → only one channel through which China can affect FCS in LAC from 3rd Markets:



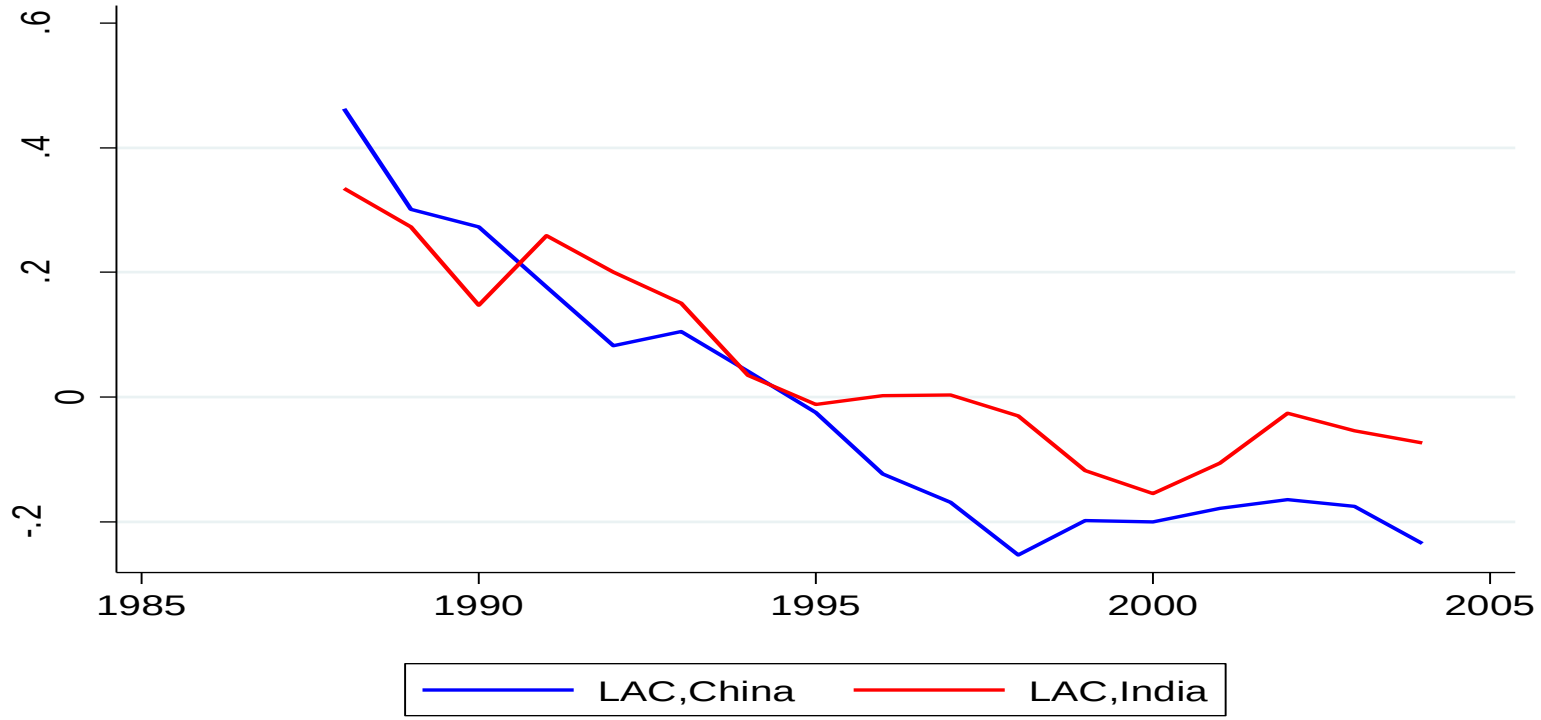
Some Results: Little Evidence of Substitution Effects in the FCS Data

	China and India Effects across LAC Sub Regions								
	Aggregate Data			U.S. Data			U.S. Data: Manufacturing		
	OLS	Poisson	Neg. Bin.	OLS	Poisson	Neg. Bin.	OLS	Poisson	Neg. Bin.
China's Effect in Central American Countries	0.45	0.22	0.13	0.02	0.20	0.05	-0.33	0.27	-0.06
	[0.00]**	[0.06]*	[0.02]**	[0.47]	[0.31]	[0.14]	[0.03]**	[0.29]	[0.56]
India's Effect in Central American Countries	0.34	0.18	0.02	0.01	-0.01	0.01	0.86	-0.10	0.16
	[0.01]**	[0.45]	[0.70]	[0.64]	[0.83]	[0.83]	[0.00]**	[0.89]	[0.46]
China's Effect on Andean Countries	0.48	0.29	0.18	0.03	0.11	0.13	0.07	0.37	-0.01
	[0.00]**	[0.02]**	[0.00]**	[0.40]	[0.15]	[0.02]**	[0.73]	[0.59]	[0.94]
India's Effect on Andean Countries	0.35	0.19	0.04	-0.02	-0.01	0.00	-0.03	-0.35	0.17
	[0.00]**	[0.06]*	[0.58]	[0.77]	[0.78]	[0.97]	[0.94]	[0.26]	[0.60]
China's Effect in Southern Cone's Countries	0.24	0.20	0.15	0.08	0.09	0.09	0.24	0.43	0.09
	[0.02]**	[0.01]**	[0.00]**	[0.00]**	[0.02]**	[0.03]**	[0.12]	[0.01]**	[0.63]
India's Effect in Southern Cone's Countries	0.59	0.28	0.15	-0.02	0.01	0.07	-0.37	-0.58	0.07
	[0.00]**	[0.02]**	[0.00]**	[0.60]	[0.90]	[0.17]	[0.13]	[0.05]*	[0.78]
Observations	9782	9295	9295	6690	4971	4971	6690	4971	4971
Number of Groups	1311	1055	1055	873	603	603	873	603	603

p-values in brackets correspond to the F-test of the null hypothesis that the effect = 0. All estimates come from estimations of the fully specified CKM, but other parameter estimates are not reported. * significant at 5%; ** significant at 1%.

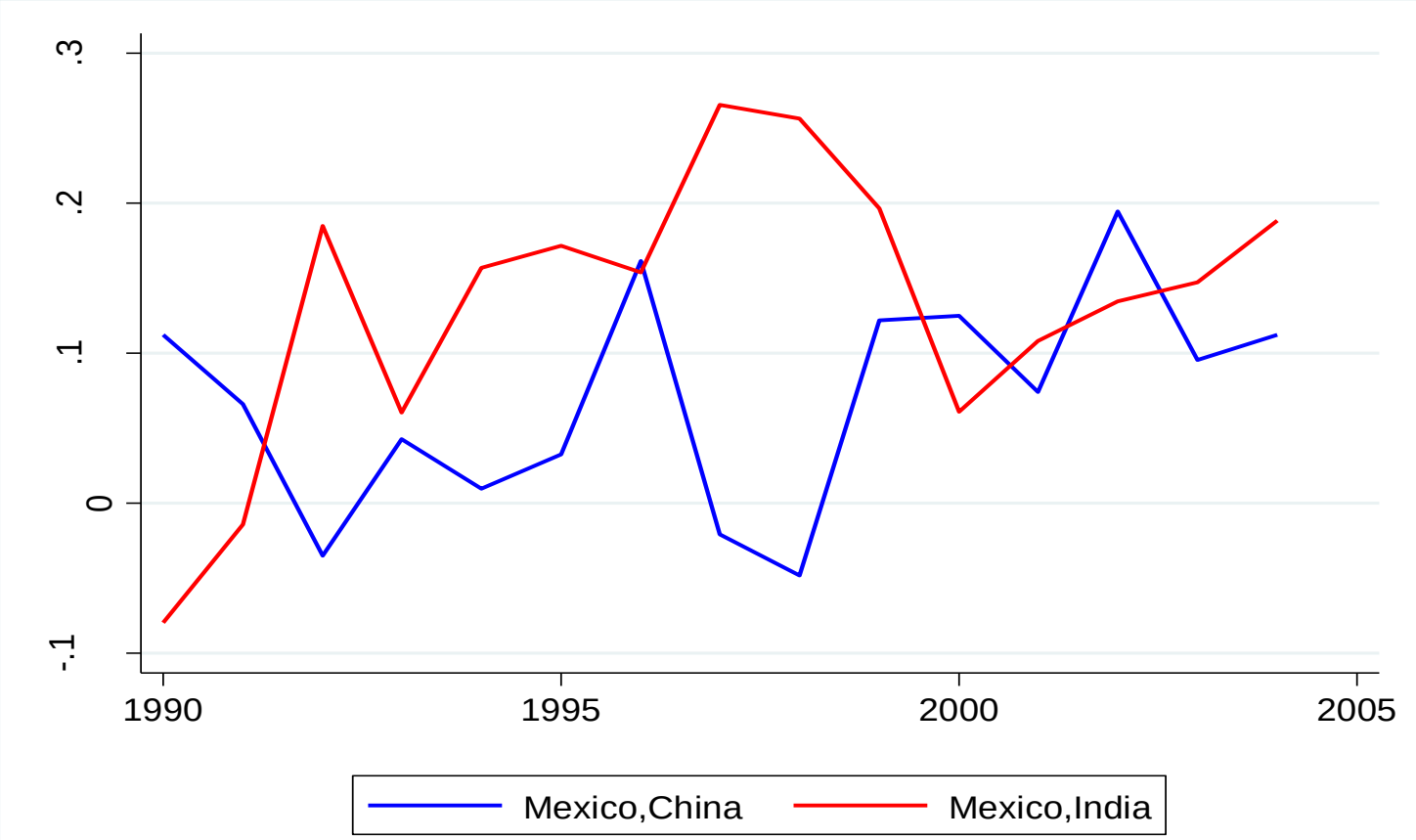
Latin America's Comparative Advantage Has Been Diverging from China's: What Factors of Production Are Benefitting?

Correlations Indexes of Comparative Advantage over Time



Source: Author's calculations

Bi-variate Correlations: Mexico as an Exception



Source: Author's calculations

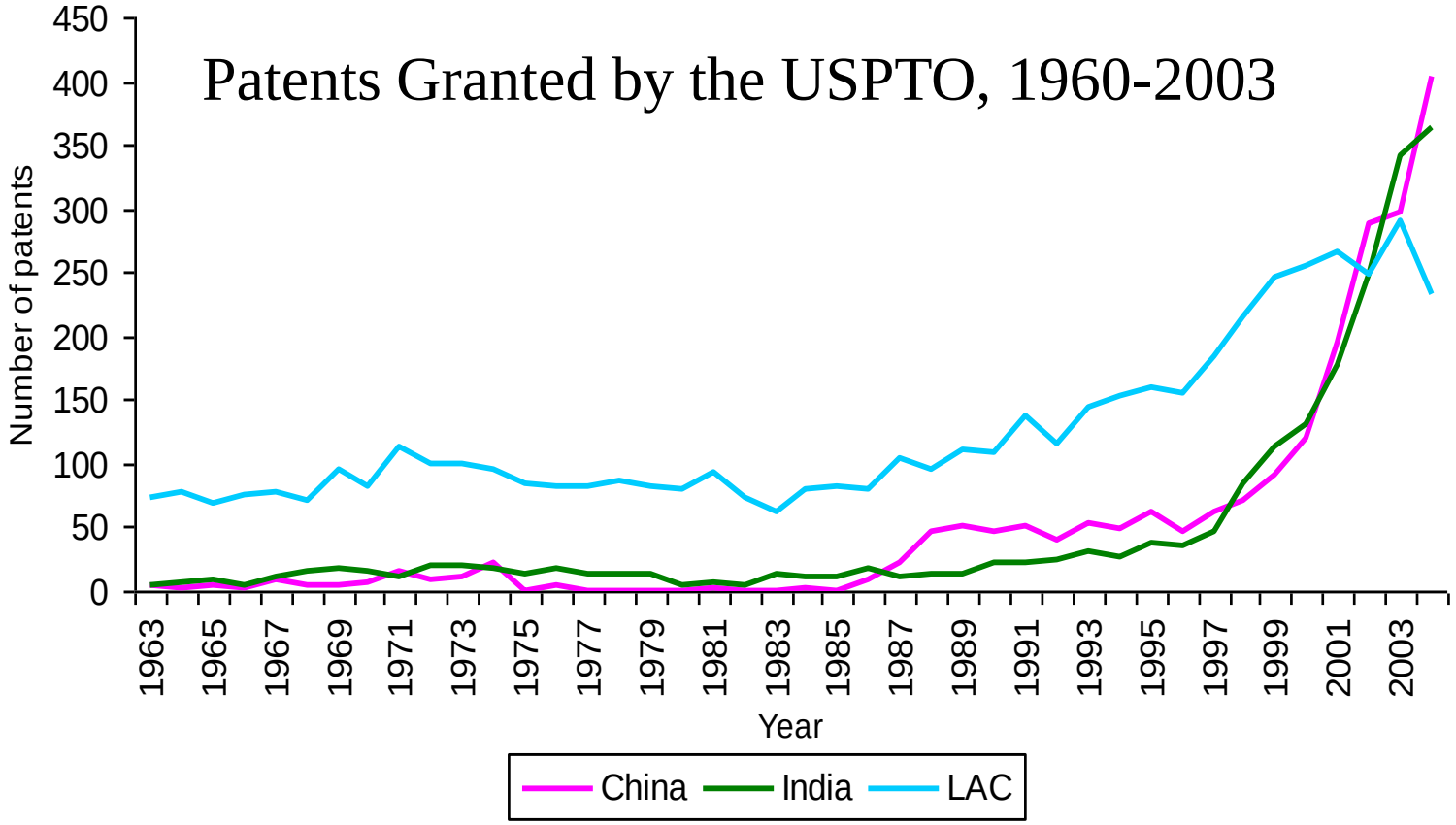
Regression Results – Diverging Comparative Advantages?

	LAC	Andean Countries	Central America	Mexico	Southern Cone
RCA China	-0.02 (0.04)	0.18 (0.08)*	-0.11 (0.04)**	0.09 (0.06)	-0.26 (0.05)**
RCA India	0.16 (0.03)**	-0.06 (0.06)	0.36 (0.06)**	0.03 (0.05)	0.36 (0.05)**
Bilateral net exports of LAC to China	-4.47e-06 (2.62e-06)	8.27e-07 (4.49e-07)	1.51e-06 (9.80e-07)	-6.71e-08 (2.21e-07)	8.63e-09 (9.52e-08)
Bilateral net exports of LAC to India	-1.84e-06 (3.59e-05)	1.08e-07 (1.97e-06)	-1.9e-05 (1.57e-05)	-7.94e-07 (1.64e-06)	1.01e-07 (7.95e-07)
Constant	-0.32 (0.36)	0.02 (0.37)	-0.26 (0.23)	-0.21 (0.06)**	0.09 (0.33)
R^2	0.06	0.05	0.15	0.02	0.12
Observations	8376	3236	2538	650	2587

Statistical Analysis – Diverging Comparative Advantages, Depending on What Factors of Production are Employed Intensively

	LAC	Andean countries	Central America	Mexico	Southern Cone
RCA China	0.03	0.05	-0.06	0.12	0.05
	(0.05)	(0.10)	(0.07)	(0.07)	(0.09)
RCA India	0.25	0.31	0.20	0.08	0.27
	(0.04)**	(0.09)*	(0.06)*	(0.06)	(0.07)*
RCA China*unskilled	-0.09	-0.23	0.07	-0.30	-0.11
	(0.05)	(0.09)*	(0.08)	(0.07)**	(0.08)
RCA China*skilled	0.39	0.38	0.22	0.42	0.44
	(0.06)**	(0.12)**	(0.10)**	(0.09)**	(0.11)**
RCA China*scien_K	0.04	0.27	0.11	-0.02	0.17
	(0.06)	(0.11)*	(0.09)	(0.09)	(0.10)
RCA China*nat_res	-0.21	-0.26	-0.49	0.51	-0.01
	(0.08)*	(0.15)	(0.13)**	(0.14)**	(0.15)
RCA India*unskilled	0.25	0.15	0.37	0.03	0.45
	(0.04)**	(0.08)	(0.07)**	(0.06)	(0.08)**
RCA India*skilled	0.23	0.34	0.01	0.18	0.12
	(0.05)**	(0.09)**	(0.09)	(0.07)**	(0.09)
RCA India*scien_K	-0.41	-0.92	-0.06	-0.24	-0.16
	(0.05)**	(0.10)**	(0.08)	(0.08)**	(0.09)
RCA India*nat_res	-0.37	-0.27	-0.18	-0.04	-0.78
	(0.05)**	(0.10)**	(0.09)**	(0.08)	(0.10)**
Unskilled	0.15	0.27	0.14	0.15	-0.09
	(0.06)*	(0.11)**	(0.09)	(0.09)	(0.09)
Skilled	-0.21	-0.20	-0.71	0.06	0.11
	(0.06)**	(0.12)	(0.11)**	(0.10)	(0.11)
Scientific Knowledge	0.55	0.81	-0.23	-0.09	0.85
	(0.07)**	(0.13)**	(0.10)**	(0.10)	(0.13)**
Natural Resources	2.44	2.88	1.93	0.21	2.53
	(0.08)**	(0.15)**	(0.12)**	(0.12)	(0.15)**

For Future Research: Not a Zero-Sum Game in Innovation and Patenting? Some Data



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