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Núcleo de Estudos em Desenvolvimento
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LATES

LABORATÓRIO DE ANÁLISES TERRITORIAIS E SETORIAIS

Does China's business matter to South America?

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June -2021

- The imports from China by South American countries increased significantly in the last decade.
- Observing the GTAP bilateral time series trade data, the share of imports from China by South America was **1.92%** in 1995 and **17.10%** in 2014.
- The import share in 2014 was equivalent to:
 - **21.84%** in **Chile**,
 - **20.58%** in **Paraguay**,
 - **19.03%** in **Peru**,
 - **18.38%** in **Uruguay**,
 - **16.87%** in **Colombia**, and
 - **16.37%** in **Brazil**.

- On one hand, from the **consumers' perspective**, it represents a benefit since there have been **more low-cost goods available**.
- On the other hand, from the **producers' perspective**, the **import penetration** has increased the **competition** and it has also led to a substitution effect in favor of Chinese goods.
- The main concern in South America is related to the **indirect effects**.
- The Chinese goods compete with some export goods from South America, particularly those to developed countries.

- Although competition exists, there is also a **complementarity** between the South American countries and Chinese economies in terms of their productive structure.
- The South American countries can take advantage of the expansion of China's market and of the increase of global production networks.

- This paper aims to explore the channels of interactions between China and South American countries.
- We explore the changes in the prices of China's traded goods through a global computable general equilibrium (GTAP) which considers some South American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, and Venezuela), China, and the Rest of the World.
- This price shock is justifiable due to the size of China and its influence on world prices.

Table 1 – Export shares, 2014 (%)

Regions		Destination											
		CHN	ARG	BOL	BRA	CHL	COL	ECU	PRY	PER	URY	VEN	ROW
Origin	CHN	0.00	0.41	0.06	1.67	0.65	0.46	0.17	0.10	0.34	0.10	0.26	95.76
	ARG	6.94	0.00	1.16	20.80	4.11	1.37	0.60	1.82	1.71	2.19	2.93	56.36
	BOL	2.65	21.01	0.00	31.78	1.28	4.59	0.94	0.56	5.12	0.07	1.07	30.94
	BRA	21.18	6.17	0.70	0.00	2.45	1.08	0.37	1.42	0.83	0.85	2.02	62.93
	CHL	25.79	1.13	1.31	5.59	0.00	1.21	0.69	0.22	1.94	0.21	0.66	61.27
	COL	12.80	0.38	0.24	2.86	1.65	0.00	3.08	0.03	1.99	0.04	3.20	73.74
	ECU	2.01	0.99	0.10	0.53	8.67	3.52	0.00	0.02	5.97	0.08	2.14	75.97
	PRY	0.79	1.98	1.36	17.16	9.73	0.62	0.64	0.00	1.99	1.91	0.48	63.34
	PER	18.40	0.28	1.65	4.27	3.93	3.03	2.34	0.03	0.00	0.09	1.28	64.70
	URY	23.92	4.41	0.47	20.92	1.41	0.42	0.34	1.31	1.49	0.00	4.47	40.86
	VEN	16.17	0.01	0.01	1.62	0.11	0.63	0.05	0.00	0.04	0.62	0.00	80.74
	ROW	11.14	0.23	0.02	1.10	0.26	0.30	0.11	0.03	0.17	0.04	0.16	86.45

Source: GTAP database (Aguilar et al., 2019).

Table 2 – Import shares, 2014 (%)

Regions		Destination											
		CHN	ARG	BOL	BRA	CHL	COL	ECU	PRY	PER	URY	VEN	ROW
Origin	CHN	0.00	14.77	15.19	16.37	21.84	16.87	15.73	20.58	19.03	18.38	14.89	14.18
	ARG	0.28	0.00	9.21	6.45	4.34	1.58	1.75	11.27	2.99	12.38	5.23	0.26
	BOL	0.02	4.23	0.00	1.76	0.24	0.94	0.48	0.61	1.60	0.07	0.34	0.03
	BRA	2.93	23.51	18.78	0.00	8.71	4.20	3.61	29.60	4.91	16.19	12.19	0.99
	CHL	1.13	1.36	11.07	1.84	0.00	1.49	2.12	1.45	3.61	1.28	1.25	0.31
	COL	0.46	0.37	1.63	0.77	1.51	0.00	7.74	0.16	3.03	0.18	4.96	0.30
	ECU	0.03	0.43	0.32	0.06	3.55	1.57	0.00	0.05	4.05	0.17	1.48	0.14
	PRY	0.00	0.24	1.15	0.57	1.10	0.08	0.20	0.00	0.37	1.16	0.09	0.03
	PER	0.44	0.18	7.55	0.76	2.39	2.01	3.91	0.10	0.00	0.28	1.32	0.17
	URY	0.13	0.67	0.50	0.87	0.20	0.06	0.13	1.09	0.35	0.00	1.07	0.03
	VEN	0.69	0.02	0.07	0.52	0.12	0.75	0.15	0.01	0.07	3.66	0.00	0.39
	ROW	93.90	54.22	34.54	70.03	56.01	70.46	64.19	35.08	60.01	46.24	57.18	83.17

Source: GTAP database (Aguilar et al., 2019).

Table 3 – Export shares to China by commodities, 2014 (%)

Com.	ARG	BOL	BRA	CHL	COL	ECU	PRY	PER	URY	VEN	ROW
grains	0.43	0.03	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.30
crops	64.92	0.06	35.06	5.66	0.09	25.22	9.04	3.23	62.88	0.00	2.08
animalprd	1.26	1.51	0.02	0.10	0.10	0.00	0.02	0.67	11.14	0.00	0.55
frsfsh	1.16	0.00	0.03	0.20	0.14	0.45	0.05	0.39	0.47	0.00	0.70
minergy	3.24	56.20	48.81	32.36	93.79	27.02	0.00	67.31	0.43	75.58	22.01
meatprd	3.24	0.00	1.08	0.54	0.00	0.00	0.00	0.00	17.38	0.00	0.33
otrfood	10.38	0.00	1.14	1.65	0.05	31.82	0.00	12.60	1.89	0.00	1.42
dairy	2.39	0.00	0.00	0.20	0.00	0.00	0.00	0.00	3.56	0.00	0.40
sugar	0.00	0.00	1.78	0.04	0.00	0.00	0.03	0.00	0.00	0.00	0.05
bt	2.57	0.00	0.69	0.90	0.00	0.01	0.00	0.00	0.01	0.00	0.37
textiles	0.05	0.00	0.02	0.00	0.02	0.00	0.00	0.07	0.02	0.00	1.47
waplea	5.93	1.45	2.18	0.11	0.55	0.43	37.16	0.10	1.17	0.07	0.88
woodpaper	0.63	5.41	3.90	7.65	0.06	6.02	5.09	0.63	0.60	0.00	1.85
chemicals	3.38	1.46	0.97	1.34	0.36	1.44	1.10	0.80	0.07	23.46	14.38
ferrous	0.10	0.05	1.18	0.03	2.44	0.01	1.28	0.08	0.00	0.23	2.12
metal	0.01	33.82	1.79	49.13	2.31	6.63	45.08	14.08	0.23	0.66	5.67
mquip	0.23	0.00	0.78	0.06	0.08	0.35	1.01	0.02	0.06	0.00	35.97
motor	0.07	0.00	0.52	0.00	0.00	0.02	0.00	0.00	0.00	0.00	7.49
mnfc	0.01	0.01	0.08	0.00	0.02	0.59	0.12	0.00	0.09	0.00	1.96
services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: GTAP database (Aguiar et al., 2019).

Table 4 – Import shares from China by commodities, 2014 (%)

Com.	ARG	BOL	BRA	CHL	COL	ECU	PRY	PER	URY	VEN	ROW
grains	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
crops	0.03	0.03	0.34	0.08	0.28	0.29	0.10	0.04	0.04	0.81	0.63
animalprd	0.04	0.02	0.07	0.02	0.02	0.02	0.00	0.04	0.05	0.01	0.26
frsfsh	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.09
minergy	0.66	0.05	0.09	0.02	0.11	0.16	0.01	0.02	0.01	0.07	0.31
meatprd	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
otrfood	0.41	0.62	1.23	1.17	0.64	0.39	0.20	0.68	0.69	0.16	1.65
dairy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
sugar	0.01	0.02	0.01	0.05	0.06	0.04	0.01	0.13	0.01	0.01	0.03
bt	0.00	0.02	0.00	0.01	0.14	0.00	0.03	0.01	0.00	0.00	0.12
textiles	4.25	5.66	6.50	5.64	6.54	3.99	3.98	6.44	2.96	2.66	4.55
waplea	4.48	6.26	7.04	23.28	6.12	4.98	4.96	8.18	12.38	5.52	12.78
woodpaper	1.06	1.68	1.05	1.33	1.53	1.73	0.69	1.59	0.83	1.04	1.96
chemicals	20.11	14.56	16.02	10.86	12.60	12.66	17.67	12.77	16.68	7.77	10.11
ferrous	2.20	12.03	6.71	8.47	9.17	15.62	3.06	12.70	2.41	9.95	5.54
metal	5.16	6.79	5.02	5.89	5.10	6.67	2.57	5.55	3.37	7.98	5.97
mquip	46.66	31.19	45.84	33.10	44.99	38.52	55.16	38.59	44.75	44.56	45.46
motor	11.36	16.83	6.38	5.36	7.08	10.54	8.10	8.85	11.57	15.86	4.12
mnfc	3.58	4.24	3.53	4.70	5.60	4.39	3.47	4.41	4.25	3.59	6.21
services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: GTAP database (Aguilar et al., 2019).

Table 5 – Trade complementary index, 2014

Regions		Importer										
		CHN	ARG	BOL	BRA	CHL	COL	ECU	PRY	PER	URY	VEN
Exporter	CHN	-	27.03	10.91	33.63	19.04	25.85	13.59	16.62	21.84	27.90	11,33
	ARG	26.75	-	29.87	54.84	33.57	35.33	27.35	43.69	35.92	46.36	17,19
	BOL	10.86	30.10	-	31.76	34.04	20.12	18.36	20.06	41.67	14.39	12,91
	BRA	33.17	55.35	31.14	-	42.85	38.56	27.25	36.01	43.13	45.31	21,01
	CHL	18.66	32.86	34.03	42.46	-	25.93	31.51	13.40	75.81	24.75	12,27
	COL	25.71	35.98	20.27	39.79	26.44	-	63.77	14.86	35.45	26.77	54,38
	ECU	13.24	25.44	17.52	26.42	30.59	62.42	-	11.25	31.78	18.78	54,94
	PRY	16.32	43.50	19.51	34.28	13.40	14.57	11.04	-	15.01	49.37	6,48
	PER	21.71	35.89	41.81	43.27	75.30	35.37	34.37	15.37	-	26.25	16,78
	URY	27.67	46.78	14.45	44.03	25.46	26.71	19.21	50.22	26.83	-	10,42
	VEN	11.37	17.46	12.87	21.66	12.39	54.91	57.82	6.70	16.67	10.59	-
	ROW	52.88	54.92	23.99	56.80	29.02	47.10	28.73	22.10	37.76	40.63	23,83
Average		21,53	33.77	21.36	35.75	28.51	32.24	27.75	20.86	31.82	27.59	20.13

Source: Own calculations.

- To explore the channels of interactions among China and South American countries, this study uses an **applied general equilibrium analysis**.
- We use a global **CGE model** derived from the **GTAP Data Base**.
- To capture the impact of China's business upon South American countries, we consider a **decrease in China's traded goods prices**.
- Our strategy is based on the idea that China currently has significant participation in the international market, the second-largest GDP in the world, and a solid exportation model, which gives the country an important price-forming status in the global foreign market.
- Based on this assumption, we implement a shock at the market price of all Chinese commodities.

- The Global Trade Analysis Project Data Base, version 10 (GTAP-10), was used in this study.
- To assess the systemic effects of the trade relationship among South American countries and China, we have used 2014 as the base year (reference year).
- Furthermore, we have aggregated the database to consider the following spatial dimension: China (CHN), Argentina (ARG), Bolivia (BOL), Brazil (BRA), Chile (CHL), Colombia (COL), Ecuador (ECU), Paraguay (PRY), Peru (PER), Uruguay (URY), Venezuela (VEN), and the Rest of the World (ROW).

Table 9 - Macroeconomic effects

Regions	Real GDP (%)	Export Volume (%)	Import Volume (%)	Terms of Trade (%)	Trade Balance (US\$ million)	Equivalent Variation (US\$ million)	Real Consumption (%)
China	6.3008	2.7767	-0.6070	-0.4842	20757.49	597357.94	6.3432
Argentina	0.0100	-0.4499	0.3391	0.1806	-742.42	441.72	0.0881
Bolivia	0.0098	-0.0439	0.0615	-0.0482	-294.28	33.31	0.1044
Brazil	0.0148	-0.6239	0.5024	0.2047	2606.58	1901.91	0.0868
Chile	0.0075	-0.1969	0.1341	0.0660	-259.54	227.55	0.0986
Colombia	0.0073	-0.3742	0.3292	0.0397	143.83	294.55	0.0858
Ecuador	0.0154	-0.4320	0.2332	0.1153	-345.38	124.50	0.1386
Paraguay	0.0222	-0.3283	0.1048	0.1373	281.06	21.17	0.0750
Peru	0.0016	-0.1677	0.2185	0.0648	210.58	180.26	0.0950
Uruguay	0.0664	-0.9112	0.4865	0.3241	128.43	95.96	0.1961
Venezuela	0.0116	-0.3066	0.4891	-0.0303	-653.68	406.53	0.0874
Rest of the World	0.0085	-0.3074	0.1142	0.0621	-21832.65	45458.45	0.0816

Source: Own calculations.

Table 10 – Welfare decomposition (US\$ million)

Regions	Resource Allocation Effect	Terms of Trade	Investment-Savings terms of trade	Total
China	52279.58	-11916.80	-53555.59	-13192.81
Argentina	54.94	147.36	239.42	441.72
Bolivia	3.25	-5.49	35.55	33.31
Brazil	358.53	542.68	1000.71	1901.91
Chile	19.51	55.47	152.57	227.55
Colombia	27.49	23.25	243.81	294.55
Ecuador	15.51	34.05	74.94	124.50
Paraguay	6.85	13.31	1.01	21.17
Peru	3.20	28.90	148.16	180.26
Uruguay	38.00	43.90	14.07	95.96
Venezuela	59.11	-14.36	361.78	406.53
Rest of the World	5401.85	11271.73	28784.99	45458.57
Total	58267.81	224.00	-22498.59	35993.22

Source: Own calculations.

Table 11 - Trade balance changes by subtotal* (US\$ million)

Com.	CHN	ARG	BOL	BRA	CHL	COL	ECU	PRY	PER	URY	VEN	ROW
grains	1167.57	-6.55	-0.28	-28.88	-3.69	-6.52	-2.04	-0.19	-3.15	-1.13	-6.52	-1108.62
crops	1124.10	8.77	-2.95	600.25	-15.05	1.46	3.66	9.56	-23.28	46.05	-11.58	-1740.99
animalprd	2020.06	4.32	-1.71	233.76	-6.83	-6.87	1.75	7.26	-23.32	19.98	-13.63	-2234.76
frsfsh	1046.14	-5.23	-0.47	-24.28	-4.33	-4.43	-0.63	0.32	-2.88	2.00	-5.33	-1000.87
minergy	75.48	-50.45	-17.16	305.18	5.62	384.14	92.49	28.65	40.75	11.68	290.61	-1166.98
meatprd	2170.94	-9.95	-1.47	87.50	-8.24	-16.33	-4.78	6.52	-7.29	53.35	-19.90	-2250.36
otrfood	9035.77	-14.97	-4.56	-133.84	-24.60	-58.82	13.23	6.34	-19.76	10.46	-72.12	-8737.13
dairy	487.31	-0.83	-0.45	-11.95	-1.63	-4.23	-1.25	0.45	-1.99	9.89	-5.32	-470.02
sugar	70.04	-1.35	-0.20	79.39	-0.55	-0.33	-0.33	0.16	-0.43	0.47	-1.87	-145.00
bt	3158.97	-18.64	-0.54	-113.86	-6.56	-20.14	-6.96	-1.74	-7.61	-6.62	-19.28	-2957.01
textiles	332.82	-19.07	-7.84	211.20	-44.61	4.09	-1.68	10.80	-2.24	12.96	-41.48	-454.96
waplea	3351.77	13.43	-15.87	108.57	-54.96	-4.03	-10.74	33.79	61.29	161.15	-168.15	-3476.25
woodpaper	52.00	9.25	-4.29	349.73	55.12	7.42	10.94	9.24	-2.08	33.44	-12.98	-507.78
chemicals	978.14	-184.90	-44.83	-224.67	-104.97	150.32	-2.14	23.98	12.89	-31.23	141.36	-713.93
ferrous	75.62	22.73	-9.62	445.00	-51.83	17.84	-74.07	4.90	19.95	-5.80	-3.96	-440.77
metal	135.66	1.58	-11.35	652.98	568.01	63.36	-9.27	23.82	164.96	22.71	-75.59	-1536.88
mquip	393.76	-32.92	-25.33	-47.35	-71.87	-81.78	-58.17	2.13	-45.36	-130.31	-121.85	219.04
motor	1172.15	-477.07	-120.99	-405.69	-426.94	-357.63	-329.81	64.10	22.82	-183.39	-440.74	1483.23
mnfc	200.46	-5.32	-10.10	163.15	-33.92	21.95	23.54	16.11	7.18	20.57	-40.08	-363.54
services	-6290.94	24.74	-14.25	360.39	-27.70	54.35	10.86	34.87	20.13	82.22	-25.26	5770.60
Total	20757.49	-742.42	-294.28	2606.58	-259.54	143.83	-345.38	281.06	210.58	128.43	-653.68	-21832.65

Source: Own calculations. Note: *The table shows the trade balance changes related to the decrease in China's traded prices of each commodity.

- The rapid economic growth, the degree of openness, and the dimension of China's economy has led to a controversial discussion in the literature.
- Thus, this paper has aimed to answer the following question:

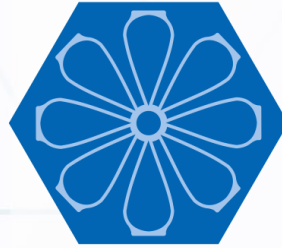
Does China's business matter to South America?

- By the exercise proposed, it is possible to affirm that China's business matters to South American countries.
- We observe that there is an unbalanced relationship between China and South America and that China can compete with South American countries in a third country situation, mainly in the European Union and the United States.

Is China's business good or not for South American countries?

There are positive and negative effects.

- Positive impacts were observed in terms of GDP, real consumption, and welfare in all countries. However, they are not balanced.
- Furthermore, we can also highlight the importance of imports. For all South American countries, there is a positive variation in imports.



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Thank you!!

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