Trade Disruptions and Global Banking

Allen Berger[1] Freddy Pinzon-Puerto[2]

Peter Karlström[3] Matias Ossandon Busch[3,4]

[1]University of South Carolina;
[2]University of Chicago Booth School of Business;
[3]CEMLA;
[4]IWH;

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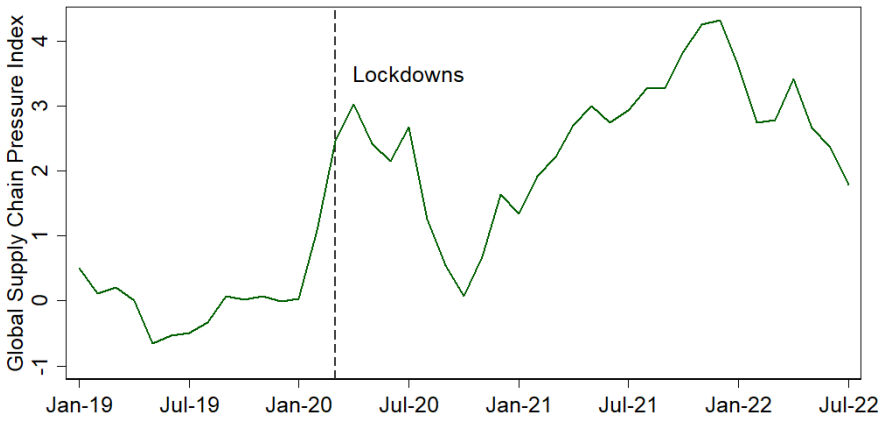
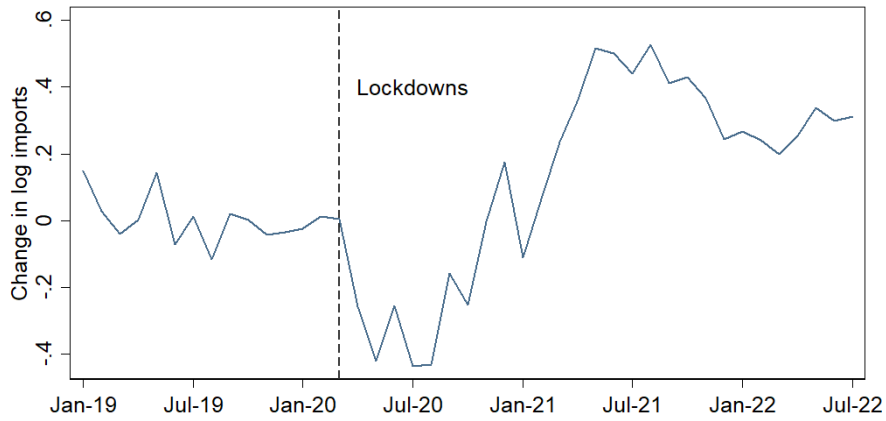
What is the paper about?

- Research question: Does global banking alleviate or exacerbate the transmission of major disruption shocks in global trade?
- Data:
  - Regional banking markets
  - Import flows to Brazil
  - Exposure to pandemic-related lockdowns in their trade partners abroad.
- Difference-in-differences approach
- Findings:
  - The presence of global banks at the municipal level is associated with a weakened transmission of trade disruptions to imports.
  - We claim global banks compensate for the effect of lockdowns by providing wider access to US dollar funding.
  - Using BIS data, we find that the benefit of global banks is stronger for imports from less financially connected jurisdictions.

Motivation – Trade shocks and global banks



(a) Global Supply Chain Pressure Index



(b) Brazil's imports, Δlog USD bill.

- Nowadays, trade conducted through global supply chains represents more than 70 percent of international trade.
- COVID-related lockdowns in 2020 led to severe disruptions in global supply chains affecting imports to Brazil.
- Does the presence of global banks exacerbate or attenuate the transmission of major disruptions in global trade?

Literature

The paper fills a gap in the literature on the interaction between financial globalization and trade.

- Cross-border financial integration and trade.
  Portes and Rey (2005); Bronzini and D'Ignazio (2005); Paravisini et al. (2017); Niepman and Schmidt-Eisenlohr (2017); Claessens and Van Horen (2021).
  ⇒ This paper: focus on whether globally-active banks, regardless of their ownership status, can facilitate imports when global trade is disrupted.

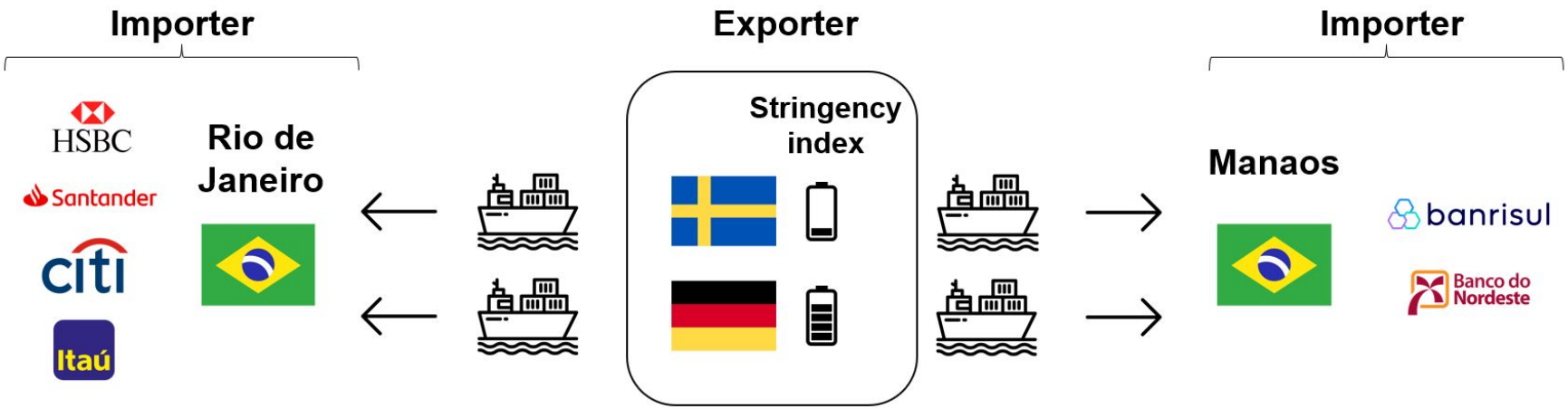
- Banks' lending and trade during times of economic turmoil.
  Amiti and Weinstein (2011); Paravisini et al. (2015); Amiti and Weinstein (2018).
  ⇒ This paper: shows that financial integration can enhance the resilience of buyer-supplier linkages when trade becomes impaired.

Research design

Identification strategy

- We draw conclusions from a difference-difference approach comparing import flows to municipalities within Brazil whose trade partners differ in terms of lockdown restrictions.
  - Exploit variation both in global banks' market penetration as well as in the exposure to plausible exogenous disruptions in import flows.
  - Control for import demand by saturating with municipality-month FE a model in which each municipality trades with multiple countries.
  - Confirm the results by exploring mechanisms through which global banking may operate: access to US dollar markets.

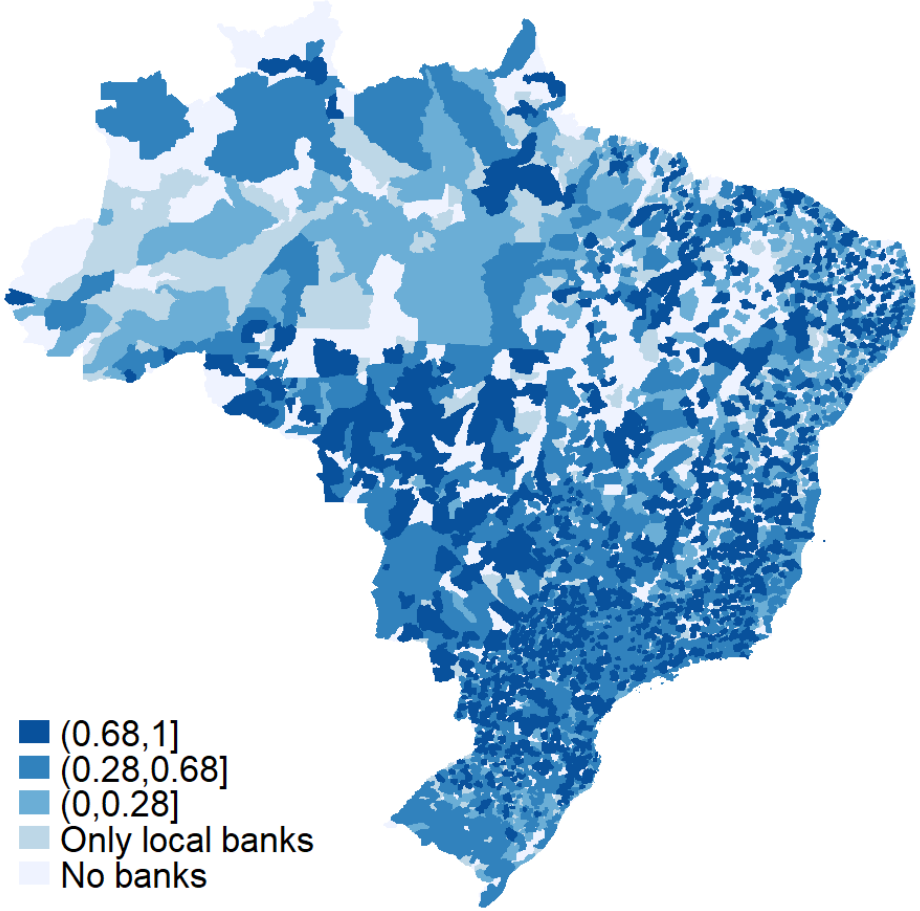
Research design (cont'd)



- Main identification challenges:
  - Endogeneity of trade shocks.
  - Omitted variables explaining the presence of global banks.
  - Omitted variable bias due to unobserved import demand.

Empirical Model (cont'd)

Regional distribution of global banks



- Sample consists of 2,597 municipalities importing goods on a monthly basis from around 180 countries over the period from 2019 to 2021, adding up to 1,983,875 observations.

Empirical Model

Difference-in-Difference setting

Model based on a panel at the municipality-country-month level:

$$\begin{aligned}\Delta Imports_{i,j,t} =& \alpha + \beta_1 Global_i^A + \beta_2 Post_t + \beta_3 Stringency_j + \beta_4 \left[Stringency_j \times Post_t\right] \\ &+ \beta_5 \left[Stringency_j \times Global_i^A\right] + \beta_6 \left[Post_t \times Global_i^A\right] \\ &+ \beta_7 \left[Stringency_j \times Post_t \times Global_i^A\right] + \mu_{i,t} + \gamma_j + \varepsilon_{i,j,t}\end{aligned} \tag{1}$$

1. $\Delta Imports_{i,j,t}$: log change in imports month-on-month.
2. $Global_i^A$: Market share of global banks' assets to total bank assets in municipality i before March 2020. Global banks are defined as those banks with a related entity active in the U.S. (including both foreign- and Brazilian-owned banks).
3. $Post_t$: binary variable equal to one following the pandemic's outbreak in March 2020.
4. $Stringency_j$: dummy variable equal to one for those countries with an average stringency index above the 75th percentile of the respective distribution.
5. $\mu_{i,t}$ municipality-month FE and γ_j country FE.

Results

Can global banks make trade flows more resilient?

Effects on imports in the presence of global banks

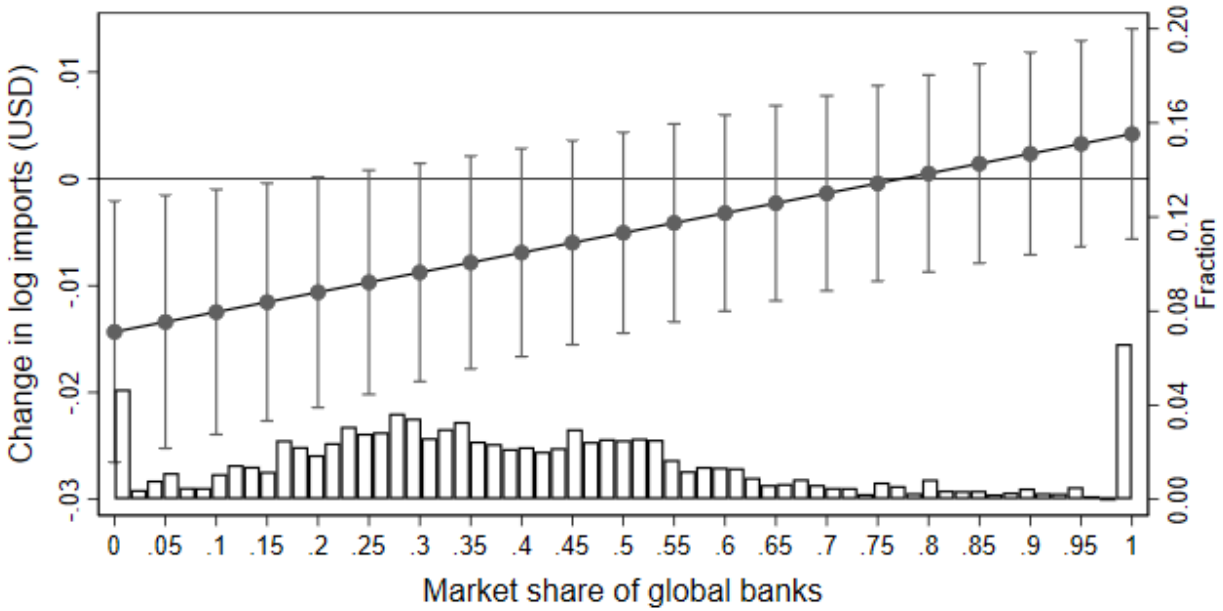
	(1)	(2)	(3)	(4)	(5)
			$\Delta Imports$		
Post	0.0297***	-	-	-	-
	(7.8639)				
Stringency	0.0055*	0.0066**	-	-	-
	(1.7524)	(2.0453)			
Stringency × *Post*	-0.0118*	-0.0143*	-0.0143*	-	-
	(-1.6577)	(-1.9263)	(-1.9263)		
$Global^A$	0.0066*	-	-	-	-
	(1.8567)				
Stringency × $Global^A$	-0.0112**	-0.0139**	-0.0149***	-0.0145**	-
	(-1.9813)	(-2.4683)	(-2.6955)	(-2.5984)	
Post × $Global^A$	-0.0218***	-	-	-	-
	(-3.5705)				
Stringency × *Post* × $Global^A$	0.0271**	0.0335***	0.0335***	0.0326***	0.0326***
	(2.4891)	(2.8100)	(2.8100)	(2.7307)	(2.7307)
Municipality-month FE	No	Yes	Yes	Yes	Yes
Country FE	No	No	Yes	No	No
Country-month FE	No	No	No	Yes	Yes
Country-municipality FE	No	No	No	No	Yes
Observations	1,983,875	1,976,675	1,976,675	1,976,650	1,976,650
R-squared	0.0000	0.0337	0.0337	0.0360	0.0380

Notes: Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Results (cont'd)

Marginal effects of stringency index on imports

Marginal effects of stringency measures on imports



- The distribution of global banks' market share is depicted on the x-axis.
- The upward slope provides evidence for that the presence of global banks helps to shield against trade shocks.
- Municipalities at the 75th percentile of global banks' market share distribution experienced a decrease in imports 0.5 pp smaller vs. those at the 25th percentile.

Results - Extensive margin

Can global banks make trade flows more resilient?

Table: Effects on imports in the presence of global banks

	(1)	(2)	(3)	(4)	(5)
			$\Delta Imports$		
Post	0.0233***	-	-	-	-
	(7.8474)				
Stringency	0.0032	0.0035	-	-	-
	(1.2207)	(1.2768)			
Stringency × *Post*	-0.0058	-0.0070	-0.0070	-	-
	(-1.0082)	(-1.1500)	(-1.1500)		
$\mathbf{I}(Global^A > p_{50})$	0.0020	-	-	-	-
	(1.1337)				
Stringency × $\mathbf{I}(Global^A > p_{50})$	-0.0048	-0.0054*	-0.0057*	-0.0056*	-
	(-1.5935)	(-1.7559)	(-1.8493)	(-1.8277)	
Post × $\mathbf{I}(Global^A > p_{50})$	-0.0052	-	-	-	-
	(-1.5190)				
Stringency × *Post* × $\mathbf{I}(Global^A > p_{50})$	0.0104*	0.0130**	0.0130**	0.0128**	0.0128**
	(1.8039)	(2.1542)	(2.1542)	(2.1304)	(2.1304)
Municipality-month FE	No	Yes	Yes	Yes	Yes
Country FE	No	No	Yes	No	No
Country-month FE	No	No	No	Yes	Yes
Country-municipality FE	No	No	No	No	Yes
Observations	1,983,875	1,976,675	1,976,675	1,976,650	1,976,650
R-squared	0.0000	0.0337	0.0337	0.0360	0.0380

Notes: Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Is it the global banks' presence what matters?

- Regional traits: results survive when including competing interaction terms with municipalities' size, export intensity, or imports' diversification.
- Country traits: results survive when including competing interaction terms with countries' size, economic development, distance, or export intensity.
- Bank traits: results survive when including competing interaction terms with banks' characteristics (banks' size, exposure to credit risk, whether the bank is domestic, etc.).

Horse race - municipality characteristics

Table: Horse race - municipality characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$\Delta Imports$							
$Strigency \times Post \times Global^A$	0.0335***	0.0331***	0.0330***	0.0342***	0.0309**	0.0306**	0.0323***	0.0334***
	(2.8100)	(2.6404)	(2.7404)	(2.7552)	(2.4631)	(2.4541)	(2.7161)	(2.7549)
$Strigency \times Post \times Exports/GDP_{pre}$		-0.0137						
		(-1.0205)						
$Strigency \times Post \times \log(GDP_{pre})$			-0.0005					
			(-0.1838)					
$Strigency \times Post \times \log(population_{pre})$				0.0006				
				(0.2105)				
$Strigency \times Post \times \log(X\_partners_{pre})$					-0.0009			
					(-0.2353)			
$Strigency \times Post \times \log(HHI_{pre})$						0.0036		
						(0.5933)		
$Strigency \times Post \times Dist\_harbour$							0.0019	
							(1.0637)	
$Strigency \times Post \times Urban$								0.0049
								(0.4940)
Observations	1,976,675	1,922,050	1,976,675	1,976,675	1,922,050	1,922,050	1,971,050	1,972,125
R-squared	0.0337	0.0292	0.0337	0.0337	0.0292	0.0292	0.0336	0.0337

NOTES: All specifications include country and municipality-month fixed effects. Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Horse race - bank characteristics

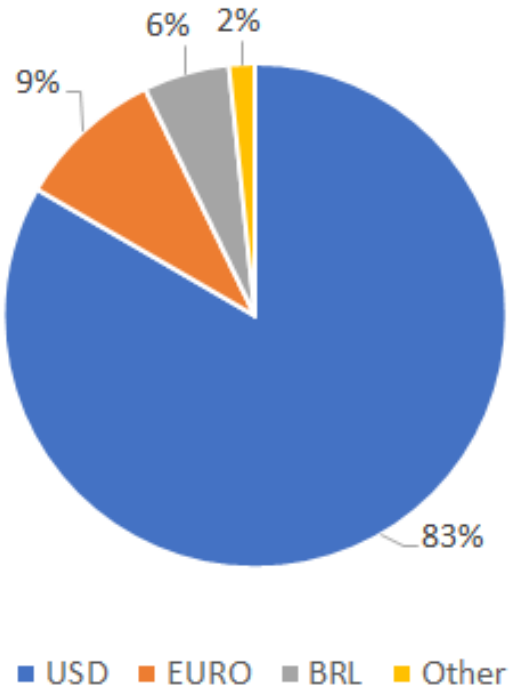
Table: Horse race - bank characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				$\Delta Imports$			
$Stringency \times Post \times Global^A$	0.0335***	0.0373***	0.0338***	0.0336***	0.0340***	0.0324***	0.0324***
	(2.8100)	(3.0604)	(2.8502)	(2.8265)	(2.8652)	(2.7305)	(2.7150)
$Stringency \times Post \times srank^A$		-0.0202					
		(-1.1724)					
$Stringency \times Post \times srankf^A$			-0.0145				
			(-0.9519)				
$Stringency \times Post \times drank^A$				0.6726			
				(0.6338)			
$Stringency \times Post \times crank^A$					1.2561		
					(1.1618)		
$Stringency \times Post \times bsfrank^A$						-0.4086**	
						(-2.1519)	
$Stringency \times Post \times riskrank^A$							1.7506
							(1.0889)
Observations	1,976,675	1,976,675	1,976,675	1,976,675	1,976,675	1,976,675	1,976,675
R-squared	0.0337	0.0337	0.0337	0.0337	0.0337	0.0337	0.0337

NOTES: All specifications include municipality-month fixed effects. Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Channels

How can global banks make trade flows more resilient?



Invoicing currency Brazilian imports 2018

- A US Dollar access hypothesis:
  - Global banks benefit from privileged access to FX markets by exploiting their global networks (see, e.g., Ivashina et al., 2015; Eguren-Martin et al., 2023).
  - We conjecture that our results could be explained by global banks benefiting from more stable access to US dollar liquidity abroad.

Channels (cont'd)

Table 2: Global banks' access to US dollars

	(1)	(2)	(3)	(4)	(5)
	$\Delta Imports$				
Post	0.0317***	-	-	-	-
	(8.1723)				
Strigency	0.0054	0.0059*	-	-	-
	(1.5629)	(1.6806)			
Strigency × *Post*	-0.0134*	-0.0148*	-0.0148*	-	-
	(-1.7893)	(-1.8615)	(-1.8615)		
RFX^A	0.2135	-	-	-	-
	(1.4370)				
Strigency × RFX^A	-0.4105	-0.4586*	-0.5090**	-0.4933*	-
	(-1.5971)	(-1.7580)	(-2.1320)	(-1.9152)	
Post × RFX^A	-1.0012***	-	-	-	-
	(-4.0976)				
Strigency × *Post* × RFX^A	1.1566**	1.2831***	1.2831***	1.2530**	1.2530**
	(2.5834)	(2.7030)	(2.7030)	(2.5607)	(2.5607)
Municipality-month FE	No	Yes	Yes	Yes	Yes
Country FE	No	No	Yes	No	No
Country-month FE	No	No	No	Yes	Yes
Country-municipality FE	No	No	No	No	Yes
Observations	1,983,875	1,976,675	1,976,675	1,976,650	1,976,650
R-squared	0.0000	0.0337	0.0337	0.0360	0.0380

Notes: Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

- RFX_i^A is the market-share weighted ratio of foreign interbank liabilities to total assets across banks (within each municipality).

Channels (cont'd)

Does it matter if exporting countries are financially disconnected with Brazil?

Table: Effects from financially disconnected countries

	(1)	(2)	(3)	(4)
	$\Delta Imports$			
	Loans*	No loans*	Loans* $\geq$ p75	Loans* $<$ p75
Strigency	-	-	-	-
Post	-	-	-	-
Strigency $\times$ *Post*	-0.0142	-0.0298***	0.0132	-0.0214**
	(-1.3019)	(-2.8099)	(0.7250)	(-2.1612)
RFX^A	-	-	-	-
Strigency $\times$ RFX^A	-0.3606	-1.3674***	0.6779	-0.7792***
	(-1.1469)	(-3.8399)	(1.0510)	(-2.9228)
Post	-	-	-	-
Strigency $\times$ *Post* $\times$ RFX^A	1.1456*	2.3696***	-0.0056	1.5100**
	(1.8240)	(3.1290)	(-0.0086)	(2.3410)
Observations	1,345,025	275,750	447,700	1,172,225
R-squared	0.0437	0.0921	0.1138	0.0400

Notes: All specifications include country and municipality-month fixed effects. Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

- Using BIS data, we find that the benefit of global banks is stronger for imports from less financially connected jurisdictions.

Robustness tests and additional results

- Foreign-ownership: The presence of foreign banks significantly decreases the negative impact of trade disruptions on imports compared to other rather autarkic regions.

- Alternative treatment: Results can be replicated with the Google COVID-19 Community Mobility indicator.

- Capital reallocation: Global banks have a stronger impact in regions with higher degrees of financial development (flight to safety?).

- Placebos: Results are not significant when taking random post-period threshold (e.g., March 2019). Results hold when using different treatment thresholds (e.g., 60th, 70th, 80th percentiles).

- Econometrics: Alternative clustering, fixed effects, plausible post-time windows, and country exclusion do not affect the findings.

Concluding remarks

- A larger presence of global banks – i.e. banks with an entity in the U.S. – attenuated the decrease in imports from COVID-related lockdowns.

- We find that that the benefit of global banks' presence can be attributed to the access to U.S. dollar funding during the pandemic shock.

- Our findings are robust to an exhaustive set of alternative specifications including controlling for local import demand and different definitions of global banks.

Appendix

Additional results

Results in areas with high and low financial development

	(1)	(2)	(3)	(4)
	Credit-to-GDP Ratio		Credit-deposit rate spread	
	($<$ p50)	($\geq$ p50)	($<$ p50)	($\geq$ p50)
Post	-	-	-	-
Stringency	-	-	-	-
Stringency $\times$ *Post*	-0.0083	-0.0241***	-0.0207**	-0.0069
	(-0.7813)	(-3.2131)	(-2.1850)	(-0.8154)
Global^A	-	-	-	-
Stringency $\times$ *Global*^{A}	-0.0029	-0.0335***	-0.0370***	0.0098
	(-0.3805)	(-3.7808)	(-4.2554)	(1.3698)
Post $\times$ *Global*^{A}	-	-	-	-
Stringency $\times$ *Post* $\times$ *Global*^{A}	0.0152	0.0614***	0.0523***	0.0120
	(0.9733)	(4.3951)	(3.1841)	(0.9259)
Observations	975,150	1,001,525	952,850	1,023,825
R-squared	0.0350	0.0322	0.0348	0.0328

Notes: All specifications include country and municipality-month fixed effects. Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Additional results

Heterogeneous effects across different types of goods

	(1)	(2)	(3)
	$\Delta Imports$		
	All	Consumption	Intermediate
Post	-	-	-
Stringency	-	-	-
Stringency × *Post*	-0.0143*	-0.0069	-0.0118
	(-1.9263)	(-0.8536)	(-1.4217)
$Global^A$	-	-	-
Stringency × $Global^A$	-0.0149***	-0.0041	-0.0148**
	(-2.6955)	(-0.4168)	(-2.3761)
Post × $Global^A$	-	-	-
Stringency × *Post* × $Global^A$	0.0335***	0.0211	0.0267**
	(2.8100)	(1.1529)	(2.0513)
Observations	1,976,675	1,009,900	1,683,100
R-squared	0.0337	0.0402	0.0374

Notes: All specifications include country and municipality-month fixed effects. Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Additional results

Import flows from foreign banks' home countries

	(1)	(2)
	Δ *Imports from EU*	
Post	-	-
Stringency	-	-
Stringency $\times$ *Post*	-0.0156**	-0.0194
	(-2.068)	(-1.246)
$\mathbf{I}(EU^A > p_{50})$	-	
Stringency $\times$ $\mathbf{I}(EU^A > p_{50})$	-0.00328	
	(-0.318)	
Post $\times$ $\mathbf{I}(EU^A > p_{50})$	-	
Stringency $\times$ *Post* $\times$ $\mathbf{I}(EU^A > p_{50})$	-0.0151	
	(-0.917)	
EU^A		-
Stringency $\times$ EU^A		0.0492**
		(2.290)
Post $\times$ EU^A		-
Stringency $\times$ *Post* $\times$ EU^A		-0.0577*
		(-1.872)
Observations	339,775	851,600
R-squared	0.061	0.026

Notes: All specifications include country and municipality-month fixed effects. Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Additional results

Results using the community mobility indicator

	(1)	(2)
	$\Delta Imports$	
$Stringency_{str} \times Post$	-0.0167**	
	(0.0066)	
$Stringency_{str} \times Global_i^A$	-0.0153***	
	(0.0052)	
$Stringency_{str} \times Post \times Global_i^A$	0.0332***	
	(0.0108)	
$Stringency_{mob} \times Post$		-0.0137**
		(0.0068)
$Stringency_{mob} \times Global_i^A$		-0.0103
		(0.0065)
$Stringency_{mob} \times Post \times Global_i^A$		0.0195*
		(0.0116)
Constant	0.0104***	0.0108***
	(0.0010)	(0.0015)
Observations	2,088,950	2,088,950
R-squared	0.0326	0.0326

Notes: All specifications include country and municipality-month fixed effects. Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Empirical Model (cont'd)

Data sources

- Panel dataset:
  - 25 periods (2020m3-2022m3)
  - 79,355 idvars (import municipality-country relationships)
  - 2596 municipalities.
  - 1,983,875 observations.

Summary Statistics

	Mean	Std. Dev.	p25	p50	p75	Min.	Max.
Imports to Brasil							
Imports (USD)	167,066	3,359,079	0	0	0	0	1,915,693,133
Log change in imports	0.008	2.739	0	0	0	-19.943	19.943
Global banks presence							
$Global^A$	0.500	0.356	0.212	0.451	0.881	0	1
$Global^C$	0.594	0.354	0.337	0.590	0.983	0	1
RFX^A	0.014	0.008	0.008	0.011	0.021	0	0.060
RFX^C	0.016	0.008	0.010	0.015	0.025	0	0.045
Lockdowns							
Stringency index	48.541	21.654	32.792	48.240	65.317	0	100
Community mobility indicator	-0.574	32.897	-20.665	-5.338	12.169	-81.592	210.447
Economic support index	35.359	32.388	0	35.887	62.500	0	100

Additional results

Results for different post-estimation windows

	(1)	(2)	(3)	(4)	(5)
	3 months	6 months	9 months	12 months	24 months
			$\Delta Imports$		
Post	-	-	-	-	-
Stringency	-	-	-	-	-
Stringency × *Post*	-0.0542***	-0.0178*	-0.0120	-0.0143*	-0.0091
	(-3.1980)	(-1.8629)	(-1.3787)	(-1.9263)	(-1.6019)
$Global^A$	-	-	-	-	-
Stringency × $Global^A$	-0.0137**	-0.0146**	-0.0144**	-0.0149***	-0.0149***
	(-2.3816)	(-2.5967)	(-2.5719)	(-2.6955)	(-2.6776)
Post × $Global^A$	-	-	-	-	-
Stringency × *Post* × $Global^A$	0.0788***	0.0390***	0.0339**	0.0335***	0.0237***
	(4.3225)	(2.6969)	(2.5689)	(2.8100)	(2.8253)
Observations	1,264,480	1,501,570	1,739,474	1,976,675	2,927,588
R-squared	0.0342	0.0339	0.0337	0.0337	0.0331

Notes: All specifications include country and municipality-month fixed effects. Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Additional results

Results after country exclusion

	(1)	(2)	(3)	(4)	(5)
	$\Delta Imports$				
	All	Ex. China	Ex. US	Ex-Europe	Ex-Asia-China
Post	-	-	-	-	-
Stringency	-	-	-	-	-
Stringency × *Post*	-0.0143*	-0.0174**	-0.0136*	-0.0081	-0.0174**
	(-1.9263)	(-2.2608)	(-1.8360)	(-1.0492)	(-2.0010)
$Global^A$	-	-	-	-	-
Stringency × $Global^A$	-0.0149***	-0.0149**	-0.0143**	-0.0163**	-0.0178***
	(-2.6955)	(-2.4916)	(-2.5381)	(-2.4479)	(-2.8915)
Post × $Global^A$	-	-	-	-	-
Stringency × *Post* × $Global^A$	0.0335***	0.0326**	0.0324***	0.0312**	0.0436***
	(2.8100)	(2.4563)	(2.6609)	(2.4765)	(3.5059)
Num. of countries	180	179	179	137	134
Observations	1,976,675	1,925,125	1,929,100	1,377,550	1,453,700
R-squared	0.0337	0.0318	0.0334	0.0428	0.0433

Notes: All specifications include country and municipality-month fixed effects. Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Additional results

Effects for high and low exporter municipalities

	(1)	(2)
	$\Delta Imports$	
	Low export (<p25)	High export (>p75)
Post	-	-
Stringency	-	-
Stringency × *Post*	-0.0498**	-0.0180
	(-2.0275)	(-1.6292)
$Global^A$	-	-
Stringency × $Global^A$	-0.0217	-0.0085
	(-1.0061)	(-0.9343)
Post × $Global^A$	-	-
Stringency × *Post* × $Global^A$	0.0968***	0.0293*
	(2.7203)	(1.6918)
Observations	152,700	751,000
R-squared	0.0718	0.0203

Notes: All specifications include country and municipality-month fixed effects. Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Additional results

Effects on imports t months ahead

	(1)	(2)	(3)	(4)	(5)
	1 month	3 months	6 months	9 months	12 months
			$\Delta Imports$		
Post	-	-	-	-	-
Stringency	-	-	-	-	-
Stringency × *Post*	-0.0143*	-0.0187	-0.0147	-0.0215	-0.0380
	(-1.9263)	(-0.7966)	(-0.2817)	(-0.3103)	(-0.5026)
$Global^A$	-	-	-	-	-
Stringency × $Global^A$	-0.0149***	-0.0226*	-0.0297	-0.0300	-0.0173
	(-2.6955)	(-1.8322)	(-1.3362)	(-1.0097)	(-0.4262)
Post × $Global^A$	-	-	-	-	-
Stringency × *Post* × $Global^A$	0.0335***	0.0556**	0.0679	0.0831	0.0767
	(2.8100)	(2.0679)	(1.5807)	(1.4493)	(1.0542)
Observations	1,976,675	1,976,675	1,976,675	1,976,675	1,976,675
R-squared	0.0337	0.0363	0.0396	0.0407	0.0411

Notes: All specifications include country and municipality-month fixed effects. Heteroskedasticity-robust t-statistics clustered at the country level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Additional results

Results when clustering the standard errors at different levels

	(1)	(2)	(3)	(4)	(5)
	$\Delta Imports$				
Post	-	-	-	-	-
Stringency	-	-	-	-	-
Stringency × *Post*	-0.0143*	-0.0143**	-0.0143*	-0.0143	-0.0143
	(-1.9263)	(-2.1466)	(-1.8576)	(-1.2357)	(-0.8804)
$Global^A$	-	-	-	-	-
Stringency × $Global^A$	-0.0149***	-0.0149**	-0.0149**	-0.0149***	-0.0149***
	(-2.6955)	(-2.0148)	(-2.5122)	(-11.7502)	(-3.3962)
Post × $Global^A$	-	-	-	-	-
Stringency × *Post* × $Global^A$	0.0335***	0.0335***	0.0335***	0.0335***	0.0335***
	(2.8100)	(2.7293)	(2.7336)	(9.8657)	(3.8777)
Robust SE clustered - Country	Yes	No	Yes	Yes	No
Robust SE clustered - Municipality	No	Yes	Yes	No	Yes
Robust SE clustered - Time	No	No	No	Yes	Yes
Observations	1,976,675	1,976,675	1,976,675	1,976,675	1,976,675
R-squared	0.0337	0.0337	0.0337	0.0337	0.0337

Notes: All specifications include country and municipality-month fixed effects. *** p<0.01, ** p<0.05, * p<0.1.

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