

Table 1. Variable definitions and sources

Variable	Definition	Unit / frequency
Russian exports to China	China-reported imports from the Russian Federation	USD bn, monthly
Russian imports from China	China-reported exports to the Russian Federation	USD bn, monthly
Total bilateral trade	Exports + imports	USD bn, monthly
China manufacturing PMI	Official manufacturing purchasing managers' index	Index points, monthly
CNY/RUB	Rubles per renminbi; analytical arithmetic monthly mean of official Bank of Russia daily CNY fixings	RUB per CNY, monthly mean
Brent crude oil	Europe Brent spot price	USD per barrel, monthly
China industrial production	Value added of industrial enterprises above designated size	YoY %, monthly when published
Russia industrial production	Industrial production growth	YoY %, monthly
Bank of Russia key rate	Policy interest rate	% p.a., end of month
Post2022	Indicator equal to 1 from January 2022 onward	Binary, monthly

Source URLs: GACC <https://english.customs.gov.cn/statics/report/monthly.html> | NBS PMI <https://www.s>
https://www.cbr.ru/statistics/macro_itm/external_sector/er/ | Rosstat <https://rosstat.gov.ru/> | EIA Brent <https://www.eia.com/daily/price/crudeoil/brent/>

Transformation used	Primary source	Role in analysis
Natural log; monthly log difference; YoY growth	GACC monthly country tables	Core export outcome
Natural log; monthly log difference; YoY growth	GACC monthly country tables	Core import outcome
Natural log; monthly log difference; YoY growth	GACC monthly country tables	Descriptive / supplementary outcome
Level; lags 1-3 months (lag 3 retained for specification consistency)	National Bureau of Statistics of China / CFLP	Chinese activity proxy
Natural log; monthly log difference	Bank of Russia daily official exchange-rate fixings	Exchange-rate regressor
Natural log; monthly log difference; YoY growth	U.S. EIA / FRED series MCOILBRENTU	Commodity-price control for exports
Level / descriptive control	National Bureau of Statistics of China	Context / supplementary activity indicator
Monthly change in YoY rate (Δ IP YoY) in aligned import model	Rosstat	Domestic activity control for imports
Level, descriptive only	Bank of Russia	Macro context
Dummy and slope interactions	Constructed	Structural-change tests

stats.gov.cn/english/understanding/201311/t20131118_463794.html | CBR daily FX https://www.cbr.ru/currency_
<https://www.eia.gov/dnav/pet/hist/rbrtem.htm> | CBR key rate https://www.cbr.ru/eng/hd_base/KeyRate/

Source / limitation note

Exact official monthly series, 2019-01 to 2025-09

Exact official monthly series, 2019-01 to 2025-09

Stationarity evidence for monthly log difference is mixed; not the preferred core regression outcome

Lag-3 coefficient is highly influence- and COVID-sensitive

Uniform arithmetic monthly mean used for the full sample; not the CBR published monthly-mean derivative.

Published CBR CNY monthly derivatives from 2023 onward are retained only for validation.

Series values exactly match EIA/FRED monthly Brent observations

14 monthly observations are unavailable because Jan-Feb releases are often combined

Full 2019-01 to 2025-09 window; no interpolation

Not a regressor in the preferred final equations

January 2022 is the pre-specified primary break;

March/June are robustness dates

.base/daily/ | CBR derivative tables

Table 2. Descriptive statistics, January 2019 - September 2025

Variable	N	Mean	Median	Std. dev.	Min
Russian exports to China	81	8.07	9.00	2.62	3.56
Russian imports from China	81	6.72	6.60	2.44	1.58
Total bilateral trade	81	14.79	14.96	4.86	6.75
China manufacturing PMI	81	49.81	49.80	1.87	35.70
CNY/RUB	81	11.11	11.34	1.56	8.45
Brent crude	81	73.15	74.17	19.01	18.38
China industrial production	67	5.24	5.30	2.31	-2.90
Russia industrial production	81	2.61	3.00	4.03	-7.70
Bank of Russia key rate	81	10.70	7.75	5.79	4.25

Note: Statistics are calculated from the frozen January 2019-September 2025 analytical dataset. Trade values are nom

Max	Unit
12.20	USD bn
11.30	USD bn
21.97	USD bn
52.60	index
16.32	RUB/CNY
122.71	USD/bbl
14.10	YoY %
11.70	YoY %
21.00	% p.a.

inal USD.

Table 3. Pre- and post-2022 comparison of monthly averages

Variable	Pre-2022 mean	Post-2022 mean	Absolute change
Russian exports to China	5.44	10.17	4.73
Russian imports from China	4.66	8.38	3.72
Total bilateral trade	10.10	18.55	8.45
China manufacturing PMI	50.06	49.60	-0.46
CNY/RUB	10.42	11.67	1.25
Brent crude	58.93	84.53	25.59
China industrial production	5.86	4.74	-1.12
Russia industrial production	2.21	2.93	0.72
Bank of Russia key rate	6.06	14.41	8.36

Note: Pre-2022 = 2019-01 to 2021-12 (36 months); post-2022 = 2022-01 to 2025-09 (45 months). These are averages and should not be interpreted causally.

Relative change	Unit
87.0%	USD bn
79.9%	USD bn
83.7%	USD bn
-0.9%	index
12.0%	RUB/CNY
43.4%	USD/bbl
-19.1%	YoY %
32.5%	YoY %
138.0%	% p.a.

e descriptive nominal-level comparisons

Table 4. Selected econometric results (HAC(3) inference)

Panel / model	Variable or test	N	Coefficient	HAC(3) SE
A. Export Model 4, baseline	PMI(t-3)	78	0.014	0.005
A. Export Model 4, baseline	Brent $\Delta \ln$	78	0.136	0.073
A. Export Model 4, baseline	CNY/RUB $\Delta \ln$	78	-0.122	0.148
B. Export Model 4 + month FE	PMI(t-3)	78	0.017	0.005
B. Export Model 4 + month FE	Brent $\Delta \ln$	78	0.217	0.064
B. Export Model 4 + month FE	CNY/RUB $\Delta \ln$	78	-0.367	0.116
C. Import aligned model	CNY/RUB $\Delta \ln$	80	-0.088	0.404
C. Import aligned model	Δ Russia IP YoY	80	-0.002	0.013
D. Import FX interaction	FX $\times$ Post2022	80	-2.710	
E. Jan-2022 structural break	Export Model 4 joint Wald	78		
E. Jan-2022 structural break	Import aligned joint Wald	80		

Notes: HAC(3) is the primary inference convention. For log-difference regressors, 10% scenarios use the ex joint Wald tests; January 2022 is the ex-ante primary date. All coefficients are associations, not causal effects

HAC(3) p	Adj. R ²	Robustness status	Economic reading
0.010	0.038	Fragile	+1 PMI point is associated with about 1.4% higher monthly export value growth three months later in the baseline equation
0.067	0.038	Borderline	A 10% Brent increase is associated with about 1.3% higher monthly export value growth
0.411	0.038	Weak	No reliable baseline exchange-rate association
0.001	0.247	Fragile	Full-sample seasonal equation implies ~1.7% higher export growth per PMI point
0.001	0.247	Full-sample seasonal result; COVID-sensitive	Exact log-change reading: a 10% Brent increase is associated with about 2.1% higher monthly export-value growth
0.002	0.247	Sample- and specification-sensitive	Exact log-change reading: a 10% CNY/RUB increase is associated with about 3.4% lower export growth in the month-FE full sample
0.828	-0.025	Null full sample	No statistically detectable full-sample import response to monthly FX changes
0.901	-0.025	Null full sample	No statistically detectable full-sample import response to monthly changes in Russia IP YoY
0.020		Suggestive	Import sensitivity to FX appears more negative after 2022
0.260		No robust break without seasonal FE	No 5% break in primary export equation
0.058		Import-side evidence	Borderline break without month FE; strong with month FE

Exact mapping $\exp(\beta \times \ln(1.10)) - 1$ rather than the linear $0.10 \times \beta$ approximation. Month fixed effects use January as the omitted month.

Primary caveat

Effect vanishes after excluding 2020-05 or in the strict COVID-excluded sample

Not significant at 5% in baseline HAC3

Seasonal treatment materially changes inference

Cook's D / COVID sensitivity invalidates a stable-effect interpretation

Positive under month FE and Fourier seasonality, but not statistically significant in the strict COVID-excluded sample

Not reproduced with Fourier seasonality; inference also changes with sample choice

Pre/post slopes differ descriptively

Low explanatory power is a valid negative result

Strict COVID-excluded $p \approx 0.108$ and max centered VIF ≈ 93.4

Month-FE $p \approx 0.024$, but strict COVID-excluded $p \approx 0.568/0.564$

Strict COVID-excluded $p \approx 0.062$; month-FE strict $p \approx 0.017$

d category. Structural-break *p*-values are HAC(3)-robust