

Russia-China Economic Observatory - Project Notes

README

Russia-China Economic Observatory

Research question: How are Chinese manufacturing activity, the CNY/RUB exchange rate, commodity prices, and Russian domestic activity associated with Russia-China trade, and did those relationships change after 2022?

Data vintage: January 2019-September 2025 (81 monthly observations before model-specific lag/transformation losses).

Project contents

- ``01_PAPER/`` — research paper.
- ``02_PORTFOLIO/`` — one-page project summary.
- ``03_DATA/`` — frozen analytical master dataset, the monthly GACC trade series, and the analytical CNY/RUB monthly series constructed from official Bank of Russia daily fixings.
- ``04_ANALYSIS/`` — econometric workbook with data checks, model outputs, diagnostics, robustness tests, and key results.
- ``05_TABLES_AND_FIGURES/`` — publication tables and eight analytical figures.
- ``06_REPRODUCIBILITY/`` — Python script, requirements, and regenerated numerical/figure outputs.
- ``07_SOURCE_PROVENANCE/`` — source-validation files and retrieval helpers for GACC, Bank of Russia, and Rosstat inputs.

Empirical design

The analysis separates Russian exports to China from Russian imports from China. It uses descriptive statistics, a common-sample comparison of one- to three-month PMI lags, OLS regressions, Newey-West HAC inference, calendar-month fixed effects, Fourier seasonality checks, pre/post coefficient comparisons, interaction models, HAC-robust joint structural-break tests, stationarity diagnostics, residual diagnostics, VIFs, leverage, and Cook's distance.

The paper is observational. Coefficients are interpreted as associations, not causal effects. January 2022 is the primary break date; March and June 2022 are alternative timing checks. The strict COVID-excluded robustness sample removes all 2020 observations plus January-March 2021 to prevent lagged or differenced 2020 shocks from carrying into the retained sample.

Main findings

Average monthly bilateral trade value is 83.7% higher from January 2022 onward than in the pre-2022 sample. The three-month PMI lag ranks best by AIC/BIC among the candidate lags, but its export association is highly sensitive to influential COVID-period observations. Brent is the most consistent export-side correlate across the full-sample seasonal specifications, although it is not statistically significant in the strict COVID-excluded sample. CNY/RUB results are specification-dependent. Structural-instability evidence is more persistent in the import equations than in the export equations.

Reproducibility

From the project root:

```
```bash
cd 06_REPRODUCIBILITY
python reproduce_analysis.py
```
```

The script reads `03\_DATA/russia\_china\_monthly\_master.csv` and regenerates the numerical outputs for the main stages 10-20 analyses, including lag selection, export/import regressions, pre/post regressions, interactions, break tests, residual and influence diagnostics, HAC comparisons, seasonality checks, stationarity tests, a compact key-results table, annual sums of the frozen GACC monthly vintage, and all eight analytical figures.

See `06\_REPRODUCIBILITY/README.md` for output definitions and source conventions.

Data conventions

The CNY/RUB analytical series is an arithmetic monthly average constructed from official Bank of Russia daily CNY/RUB fixings. Published Bank of Russia monthly derivative indicators from 2023 onward are retained only for validation and are not spliced into the estimation series.

Annual GACC values produced from the analytical dataset are sums of the frozen monthly GACC vintage. They should not be treated as necessarily identical to later revised annual headline totals.

The paper sample is intentionally frozen at January 2019-September 2025. Later observations should be treated as a separate update or out-of-sample extension.

Disclaimer

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This research was audited by AI, covering coding and language. The author's native language is not English, so it was sufficient to audit language via AI agent. Also, the coding was revised and edited by AI.