Read me file for manuscript 'The Trade Comovement Puzzle', by Drozd, Kolbin, Nosal.

1. For analytical results, use files and consult specific files listed in Online Appendix and readme file in 'Mathematica-notebooks'.

List of contents:

1. File Baseline-model-results.nb contains calculations for the baseline model and financial autarky baseline model.
    The file generates figure 1 and figures 4-5.
    NOTE: Formulas for Figure 4 GHH baseline panel are derived in notebook 2 below and have been copy-pasted to this notebook.
       Formulas for Figure 5 (all panels) are derived in notebooks listed in 3a, 3b, 3c, 3d below.

2. File GHH-baseline.nb contains calculations for the GHH baseline model (in figures labelled GHH baseline).

3a. File Extended-baseline.nb contains derivation of the equilibrium system for the extended baseline model (in figures labelled Extended baseline).

3b. File Extended-baseline-FA.nb contains derivation of the equilibrium system for the financial autarky extended baseline model (in figures labelled FA extended baseline).

3c. File Extended-baseline-GHH.nb contains derivation of the equilibrium system for the GHH extended baseline model (in figures labelled GHH extended baseline).

3d. File Extended-baseline-DTE.nb contains derivation of the equilibrium system for the dynamic trade elasticity extended baseline model (in figures labelled DTE extended baseline).

4. Files for online Appendix Section II are in the "Appendix" subfolder.

5. Packages Lintools.m and Mantools.m have been embedded in the codes in this version to ease the execution and do not need to be installed.

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REPLICATION PROCEDURE for Figures 1, 2-3, 4-5, and 6-8 (Section 2):

To generate Figure 1 and Figures 4-5 execute notebook Baseline-model-results.nb.
The notebook preloads copy-pasted formulas calculated in notebooks listed in 3a, 3b, 3c, 3d below.
To rederive and reload all the formulas, these notebooks must evaluated first and loaded into memory.
If notebook contents is in memory, the formulas are updated automatically and no changes to the code are required.

To generate Figures 2-3, 6-8 execute notebook Extended-baseline-results.nb.
The notebook uses copy-pasted formulas calculated in notebooks listed in 3a, 3d below.
To rederive and reload all the formulas, these notebooks must evaluated first and loaded into memory.
If notebook contents is in memory, the formulas are updated automatically and no changes to the code are required.

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Required software: Mathematica version 12 or higher for PC or Mac. The may work on earlier version of Mathematica but there is no guarantee.

2. For quantitative results, use matlab files in folder 'Dynare-replication-files', and consult the readme file therein.

There are three main drivers we use to obtain results from all the models:
p50p90RUN_main_exercises.m
BKK_friction_cases_elast.m
BKK_nof_cases_elast.m

For the main exercises in the paper, run p50p90RUN_main_exercises.m. It gives the location and description of the dynare codes corresponding do different models reported in the paper. To obtain business cycle statistics, run the p50 version of each model. The names and locations of the files are listed in p50p90RUN_main_exercises.m.

For codes underlying Figure 9 in the paper, please use BKK_friction_cases_elast.m for the DTE model and BKK_nof_cases_elast.m for the baseline model.

3. For data replications, use files in 'Stata replications'.

How to Reproduce Table 2 (Regression Results):
1. Run compute_gdp_correlations.do
   - Input: gdp_data_long.dta
   - Output: pairwise_gdp_correlations.dta
2. Run prepare_data_and_run_regressions.do
   - Inputs:
     i. pairwise_gdp_correlations.dta
     ii. explanatory_and_instrumental_variables.dta
   - Output: prints table with regression output (i.e., Table 2) on the screen

How to Reproduce Table 6, Column Data (Business Cycle Statistics):
1. Run HP_filter_business_cycle_data.do
   - Inputs:
     i. gdp_data_long.dta
     ii. consumption_long.dta
     iii. labor_long.dta
     iv. capital_long.dta
     v. volatility_ratio_data_inputs.dta
   - Output: HP_filtered_business_cycle_data.dta
2. Run compute_business_cycle_stats.do
   - Input: HP_filtered_business_cycle_data.dta
   - Output: prints three tables with business cycle statistics on screen (column "Data" of Table 6).

How to Reproduce Table 1 in Appendix (Volatility Ratio by Country):
1. Run compute_volatility_ratios.do
   - Input: volatility_ratio_data_inputs.dta
   - Output: prints table with country level volatility ratios (i.e. Table 1 from Appendix) on the screen.

Data Sources (dta. Files):
Common variables across multiple files:
   - country – country name.
   - id -- ids of the 20 countries in the pair (integer between 1 and 20), labeled in the dataset with country names.
   - id_h, id_f – ids of home/foreign country in bilateral pair
   - year, quarter – year and quarter.
1. gdp_data_long.dta
   - gdp_h, gdp_f – GDP in constant prices
     - Source: OECD, Quarterly National Accounts.
     - Gross domestic product - expenditure approach.
     - Measure: VOBARSA: Millions of national currency, volume estimates, OECD reference year, annual levels, seasonally adjusted.
     - Frequency: quarterly.
2. explanatory_and_instrumental_variables.dta
   - gdp_h, gdp_f – nominal GDP
     - Source: World Development Indicators.
     - Measure: GDP (current US$)
     - Frequency: annual, 1980 value.
   - import_hf, import_fh -- import between the two countries in constant prices
     - Source: International Monetary Fund, Direction of Trade Statistics.

- - Indicator: Goods, Value of Imports, Cost, Insurance, Freight (CIF), US Dollars.
    - Frequency: annual, 1980 value.
  - distance – distance between the two countries in kilometers.
  - common_border – 1 if both countries have the same border.
  - common_language – 1 if both countries have a common language.
  - both_in_eu – 1 if both countries are located in Europe.
3. consumption_long.dta
   - con – consumption in constant prices
     - Source: OECD, Quarterly National Accounts,
     - P31S14_S15: Private final consumption expenditure
     - Measure: VIXOBSA: Volume index, OECD reference year, seasonally adjusted.
     - Frequency: quarterly.
4. labor_long.dta
   - lab – employment coming from sources as follows:
   - Finland, Sweden
     - International Labor Organization, Labour force survey.
     - Total employment, Total men and women, Persons aged 16 to 64 years.
     - Monthly data averaged by quarter and de-seasoned by authors using X-12-ARIMA Seasonal Adjustment Program from census.gov.
   - Australia, Belgium, Canada, Denmark, Ireland, Japan, Korea, Netherlands, United States
     - OECD, Dataset: Short-Term Labour Market Statistics.
     - Employed population, Aged 15 and over, All persons.
     - Frequency: Quarterly.
     - Seasonally adjusted.
   - Austria, France, Germany, Italy, Norway, Portugal, Spain, Switzerland, United Kingdom
     - OECD, Dataset: MEI Original release data and revisions, Edition: May 2012
     - Civilian employment
     - Data for Austria was de-seasoned by authors using X-12-ARIMA Seasonal Adjustment Program from census.gov.
5. capital_long.dta
   - cap – physical capital
     - Constructed from GFCF using the perpetual inventory method with a constant depreciation of 2.5%.
     - See Excel file "Investment_and_Capital" for details of construction based on GFCF.
     - Source for GFCF: OECD, Quarterly National Accounts, GDP -- expenditure approach.
     - Subject: P51: Gross fixed capital formation.
     - Measure: VOBARSA: Millions of national currency, volume estimates, OECD reference year, annual levels, seasonally adjusted.
     - Frequency: quarterly.
6. volatility_ratio_data_inputs.dta
   - gdp_cup imp_cup, exp_cup – GDP, import, export in current prices.
     - Source: OECD, Quarterly National Accounts.
     - Measure: CQRSA: National currency, current prices, quarterly levels, seasonally adjusted, local currency.
     - GDP: B1_GE: Gross domestic product - expenditure approach
     - Exports: P6: Exports of goods and services
     - Imports: P7: Imports of goods and services
   - gdp_cup imp_cup, exp_cup – GDP, import, export in chained prices
     - Same as above, except:
     - Measure: LNBQRSA: National currency, chained volume estimates, national reference year, quarterly levels, seasonally adjusted, local currency for a base year.