Comparing Trade Balance Closures under the GTAP-Recursive Dynamic (RD) Model Framework — a Productivity Increase and a CPTPP Scenario

-- Jean Yuan and Mary Burfisher

The views expressed in these slides do not reflect the views of the U.S. International Trade Commission or any of its individual Commissioners. Hypothetical scenarios intended to illustrate possible insights.

Outline

- Motivation of the Study
- Simulation Results under a Total Output Productivity Shock
- Simulation Results under a CPTPP Scenario

Motivation of the Study

- The default closure in the GTAP-RD model: investment is allocated across regions such that percentage changes in regional expected rates of return are equalized across regions (“rate of return” approach)

- Empirical literature finds that running a continuous and growing current account deficit might not be sustainable (Edwards 2005, 2006).

- Some countries, from time to time, adopt different measures to restrict capital flows. Chinn and Ito (2002, 2006) and Fernandez et al. (2016) developed measures to quantify the intensity of capital controls by country.

Motivation of the Study

- This paper compares the results of two different scenarios with two different closures for the trade balance. The two scenarios are:

➢ a stylized simulation in which Vietnam's total output productivity increases by 20 percent;

➢ a tariff reduction among eleven member countries under the CPTPP

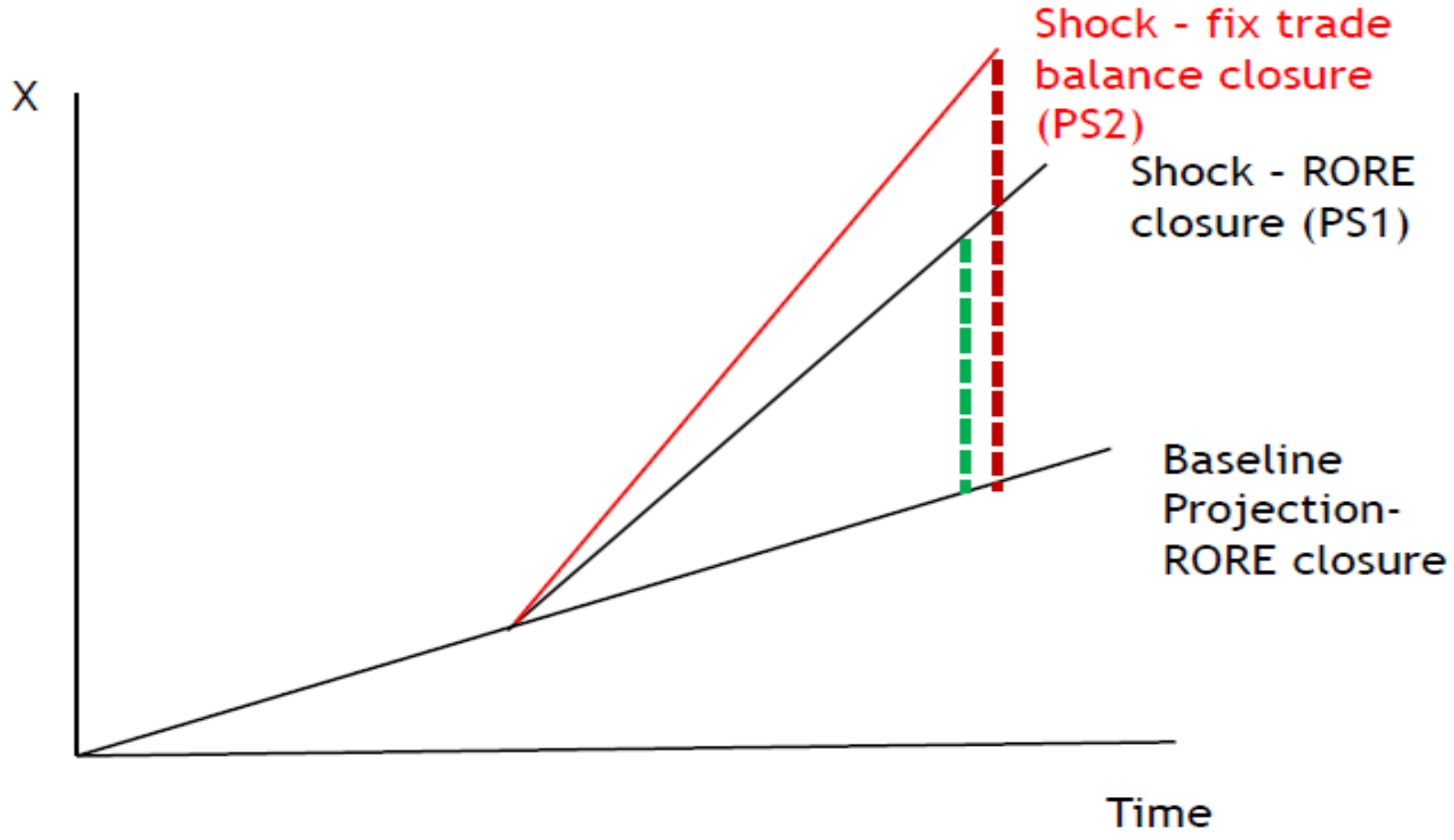
For each simulation, compare results under the following closures:

➢ GTAP-RD default closure

➢ Fixing the trade balance as a share of world income

Focus on analyzing the simulation results of Vietnam

Baseline Vs. Policy Shocks



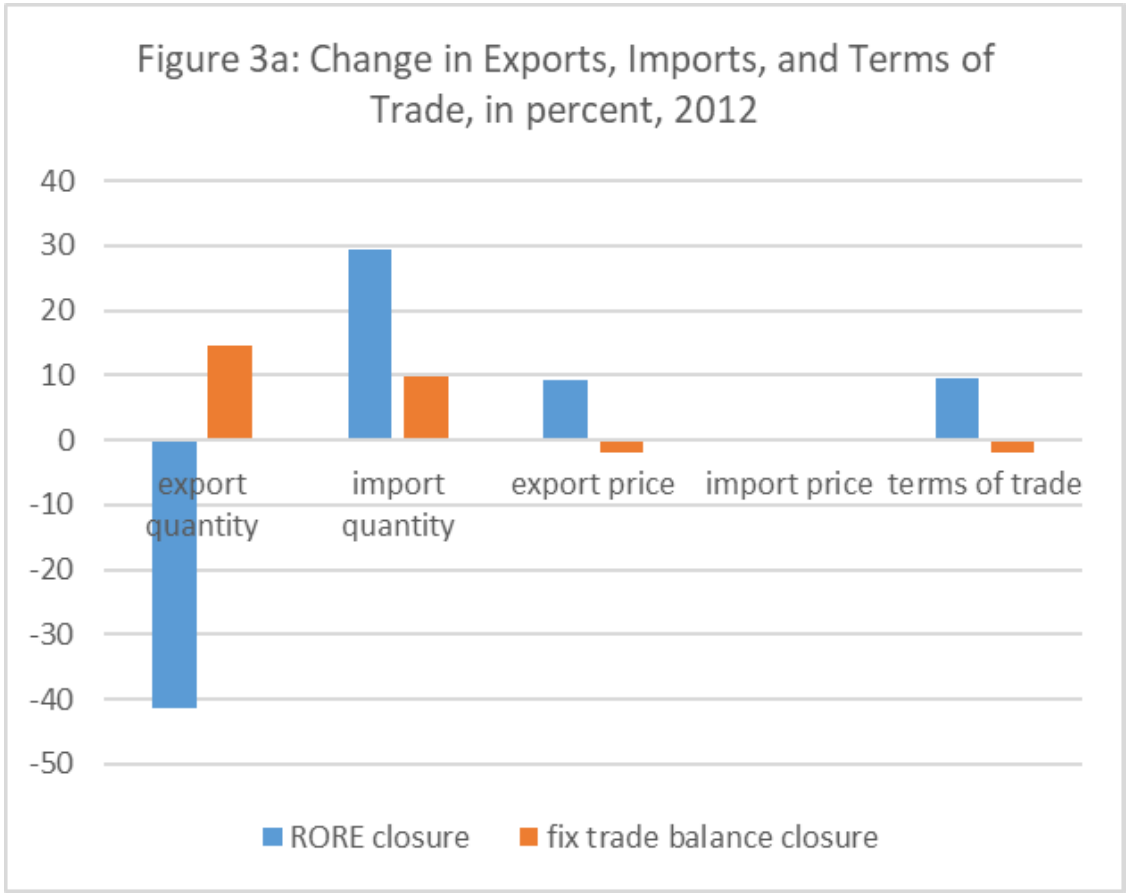
Stylized Productivity Shock

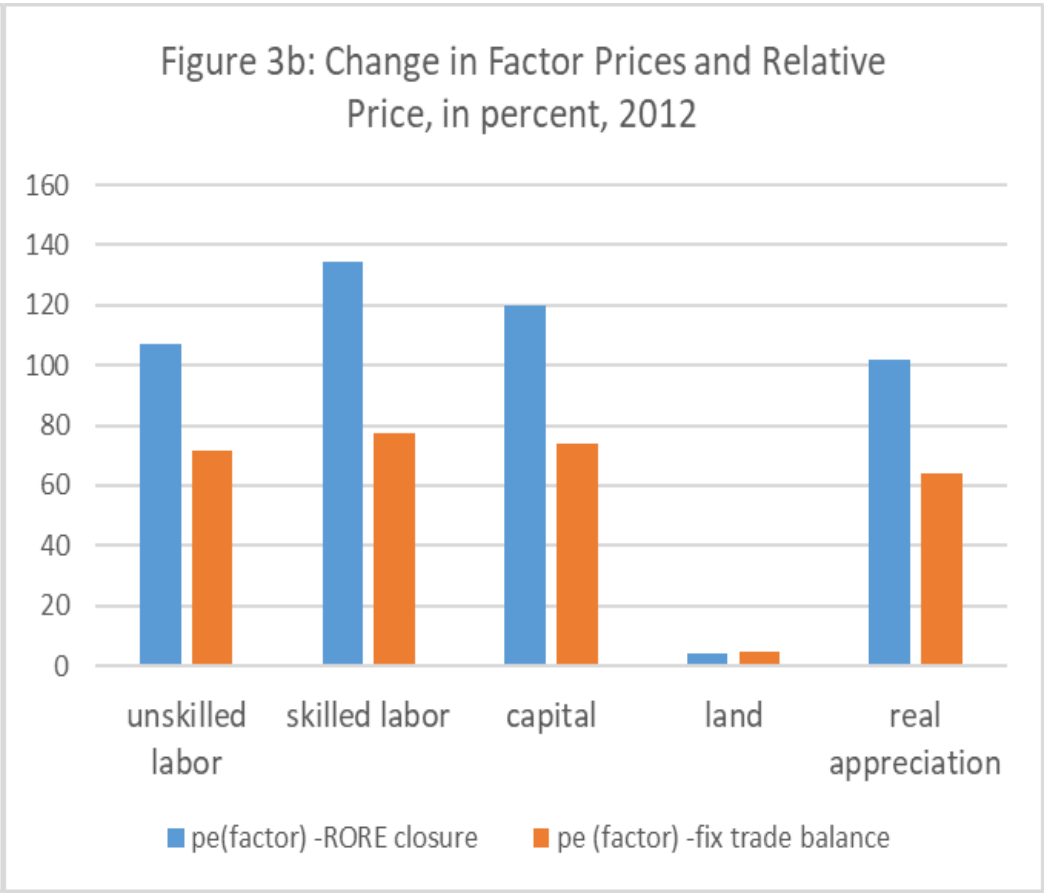
- GTAP Version 9 Database, 2011 baseline, 23 regions, 18 sectors and 5 activities.

- Stylized shock: total output productivity in Vietnam increases by 20 percent in 2012.

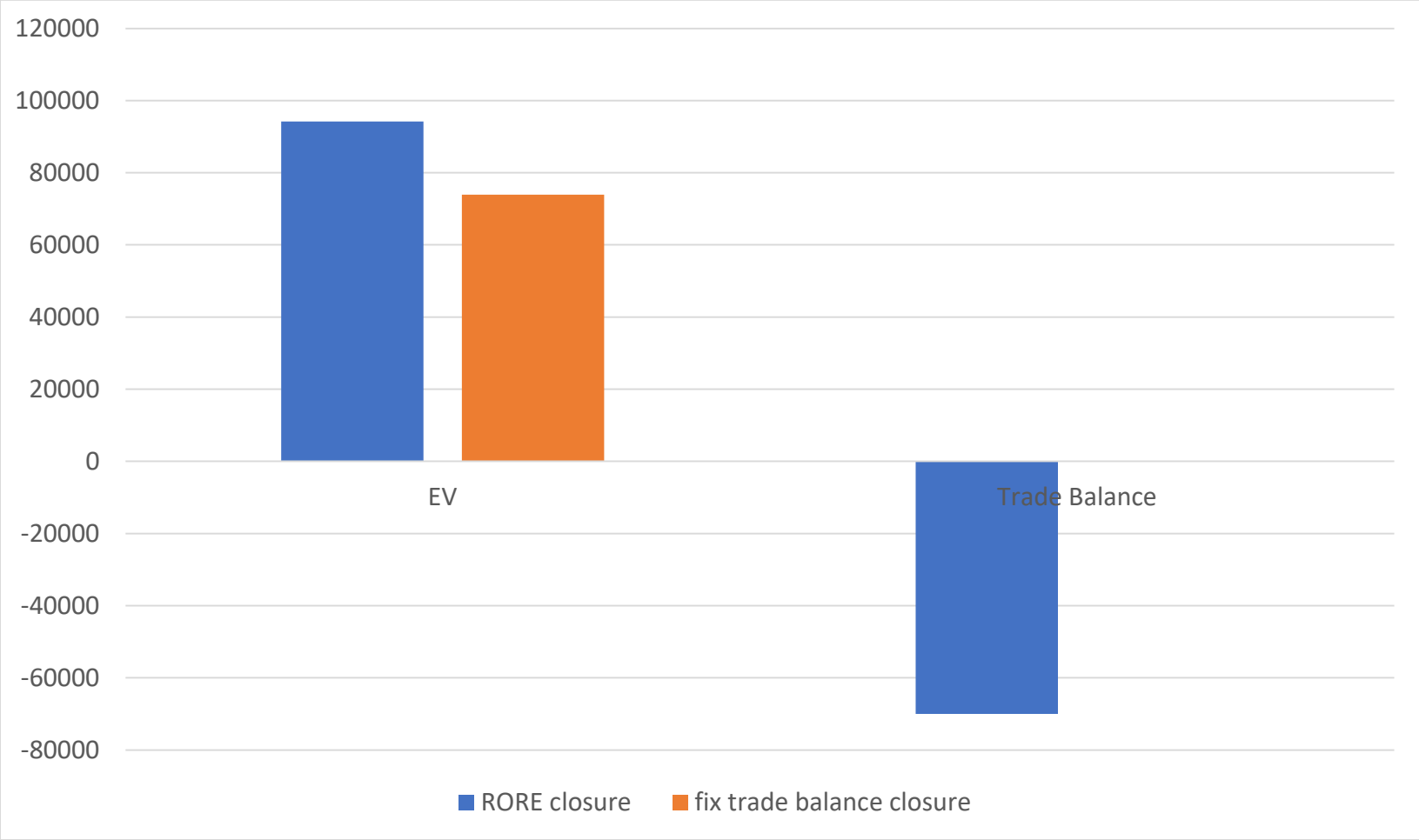
- Applies to all sectors in Vietnam, the shock does not introduce any sectoral distortions

Results in 2012: a Productivity Effect



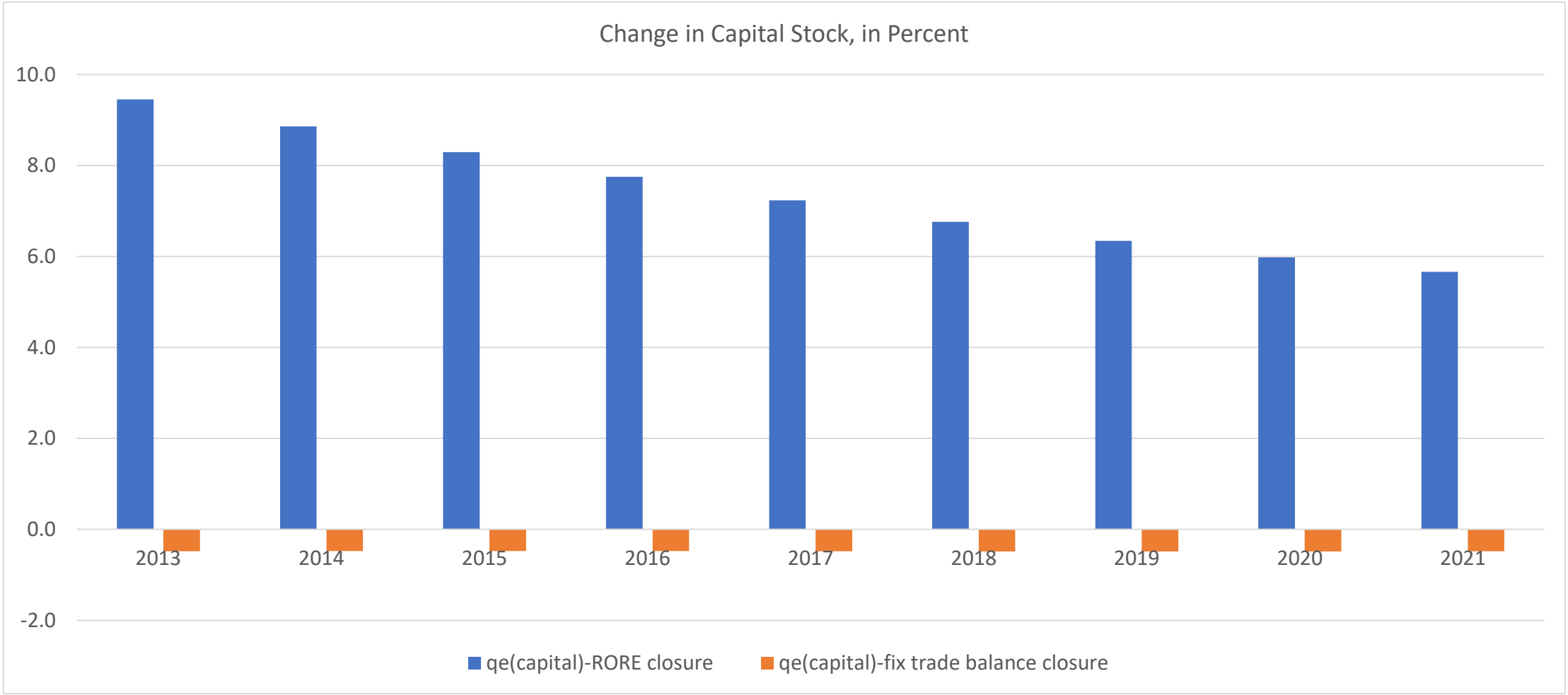


Change in Welfare and Trade Balance in 2012



Sector Results in 2012

2013–2021: a story of capital-deepening effect



Welfare and GDP Growth Change in Vietnam

Change in EV	2013	2014	2015	2016	2017	2018	2019	2020	2021
in million dollars									
RORE closure	17,812	18,974	20,457	22,246	23,759	24,847	25,485	25,656	25,440
Fixed trade balance closure	4,867	5,402	6,142	7,042	7,762	8,247	8,508	8,556	8,449

Change in qdgp (in percent)	2013	2014	2015	2016	2017	2018	2019	2020	2021
RORE closure	4.4	4.1	3.9	3.7	3.5	3.3	3.1	3	2.8
Fixed trade balance closure	-0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

Change in Factor Intensities by Sector

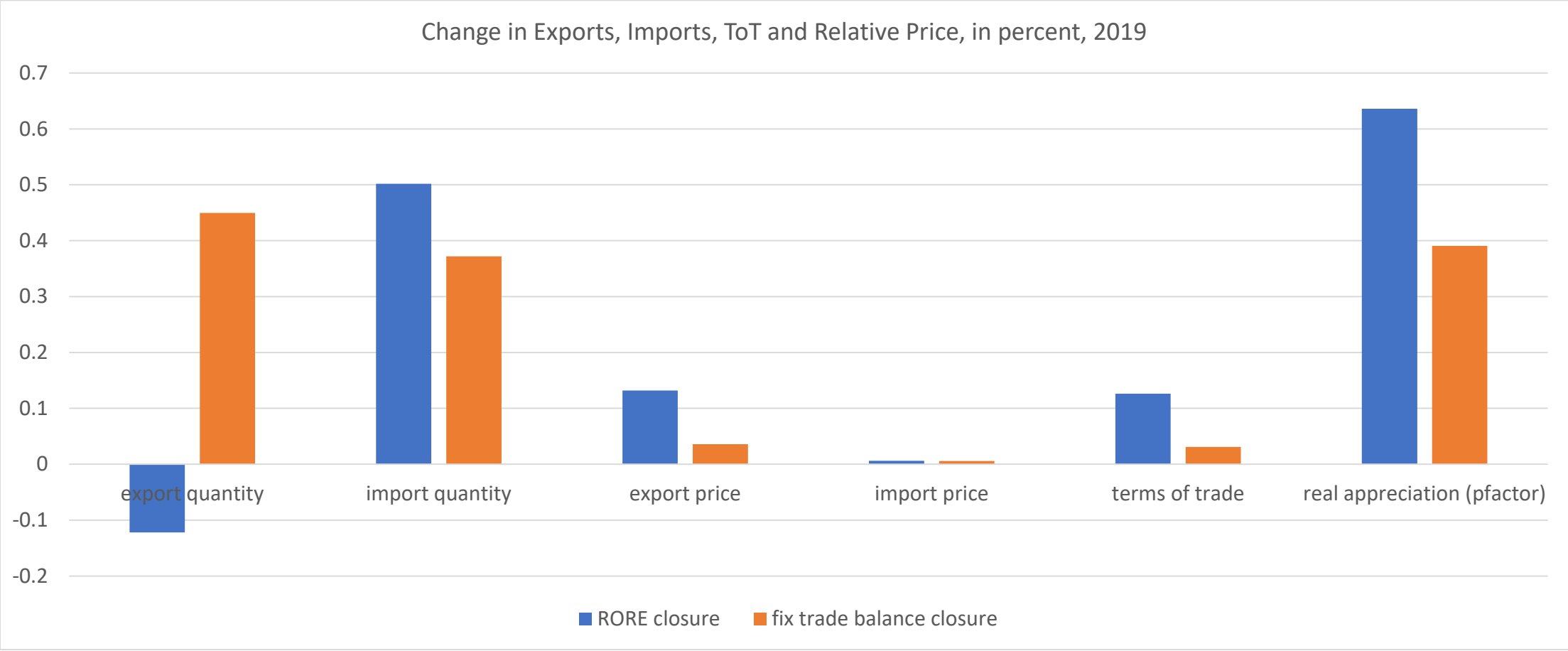
	Agriculture	Extraction	Processed Food	Manufacturing	Services	Total
RORE closure						
2021 baseline	0.47	3.33	0.75	0.83	0.95	0.90
2021 productivity shock	0.32	2.20	0.80	0.95	1.15	1.02
Fixed trade balance closure						
2021 baseline	0.47	3.33	0.75	0.83	0.95	0.90
2021 productivity shock	0.48	3.41	0.75	0.82	0.94	0.89

Second scenario: Tariff Reduction under CPTPP

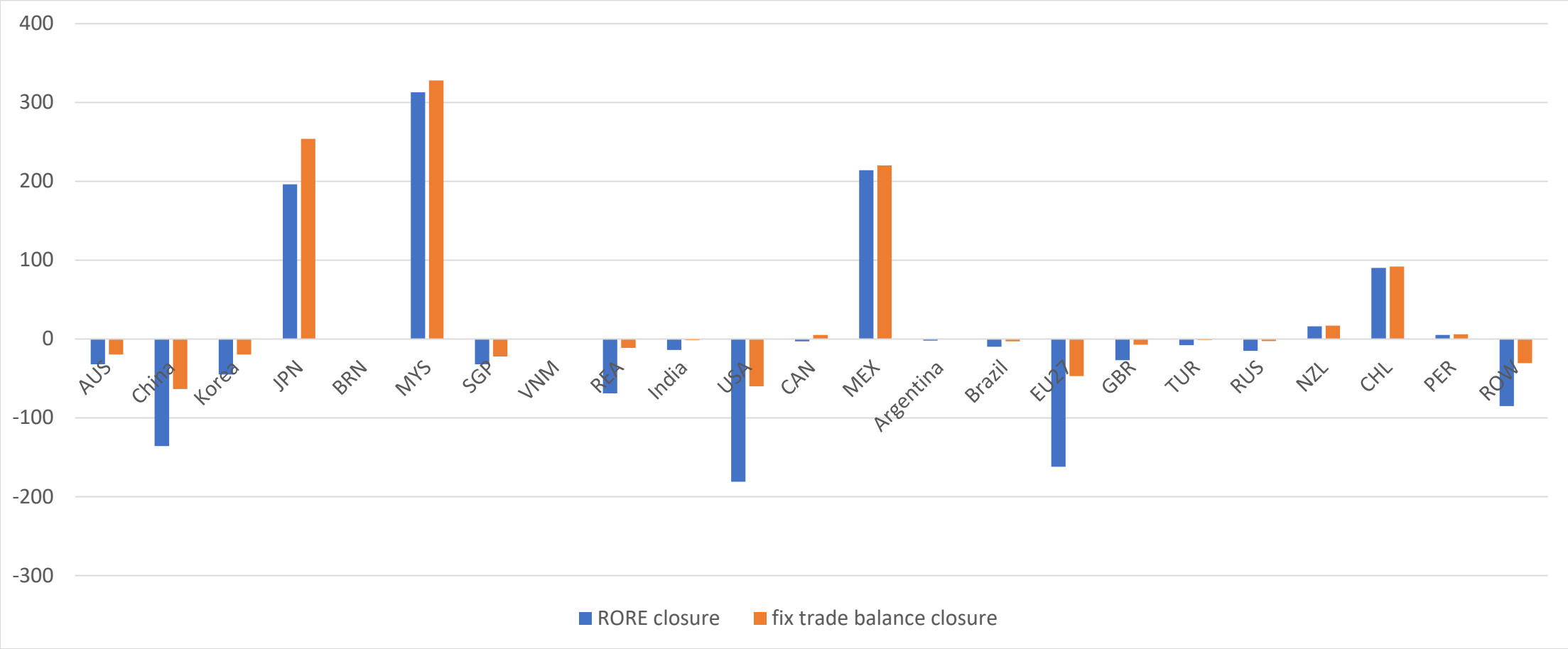
- The CPTPP, also known as TPP11, is a trade agreement between Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam.

- Policy Shock: Tariff reduction starts in 2019. Phase-in periods for tariff elimination differ by country and by commodity. Simulation period is from 2019 to 2036.

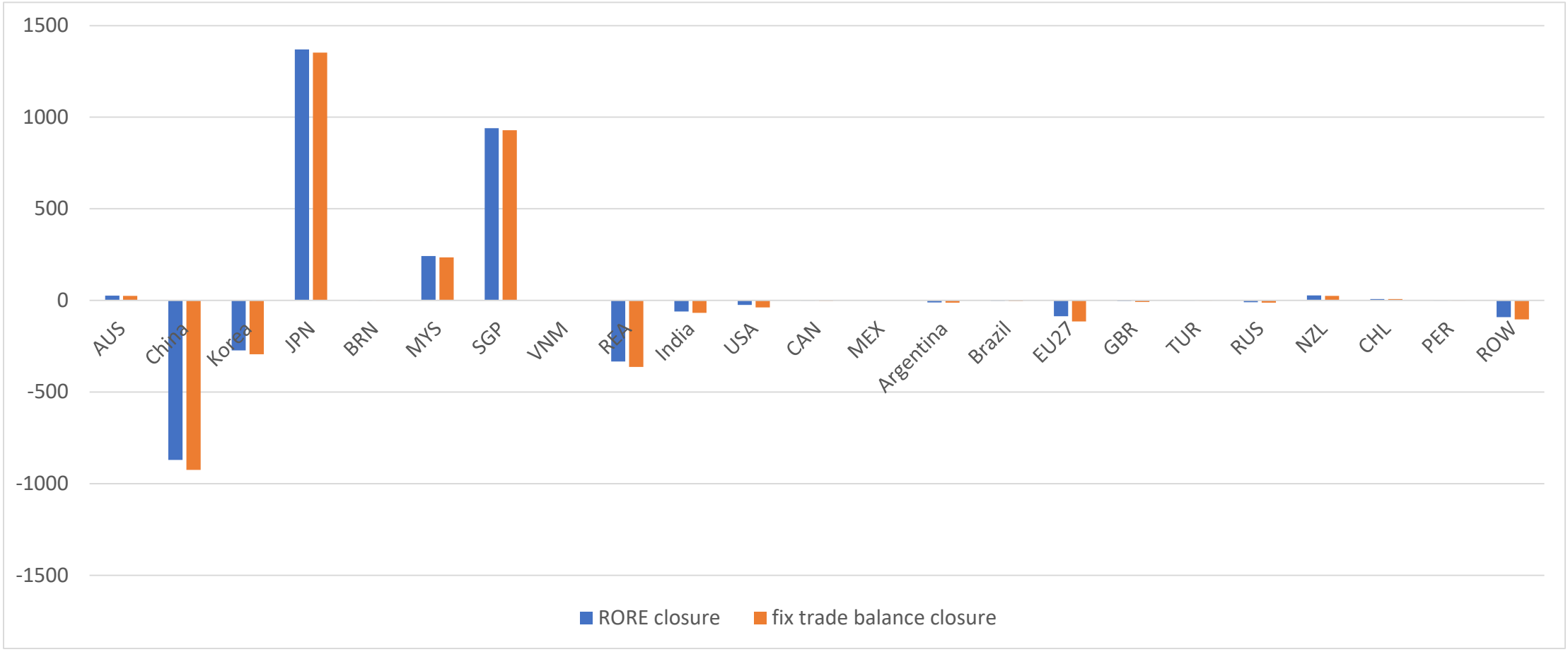
CPTPP Shock: Results in 2019



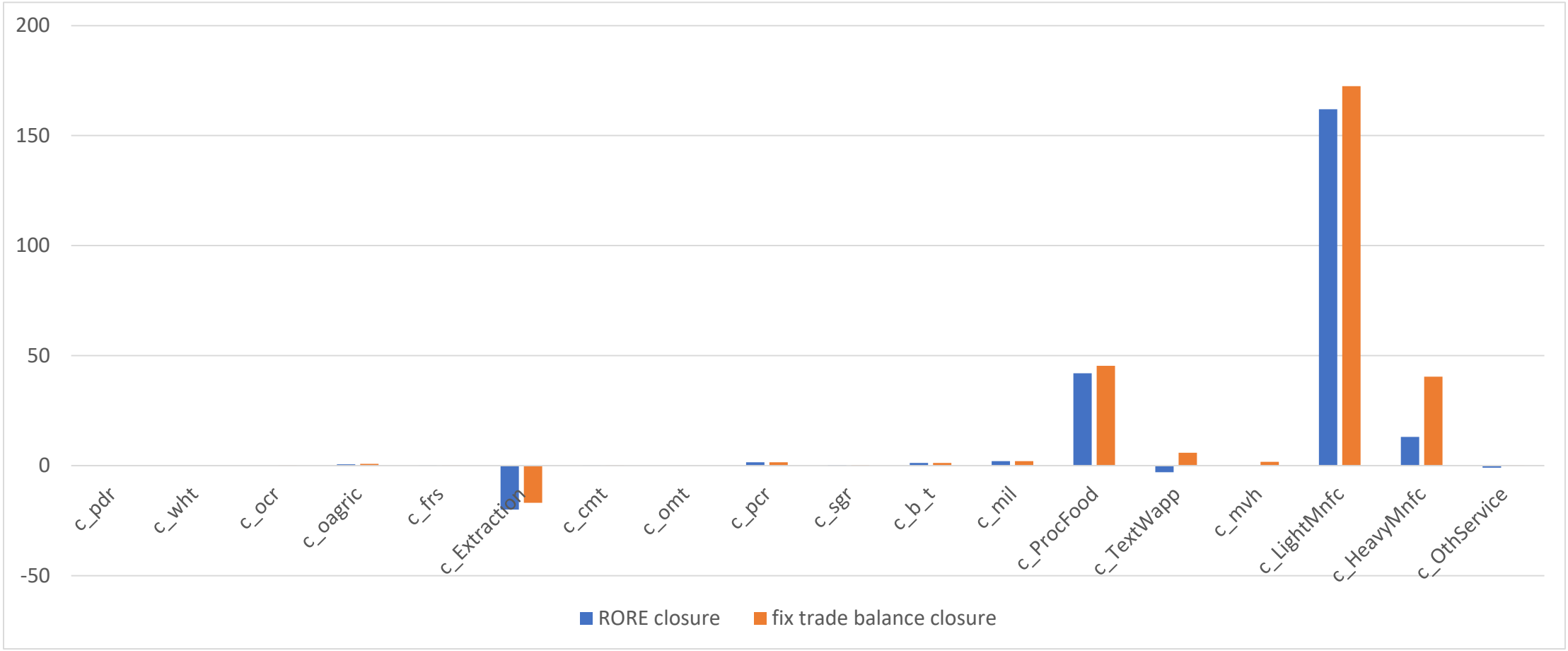
Results in 2019: Trade Creation and Trade Diversion Effect – Change in Vietnamese Exports



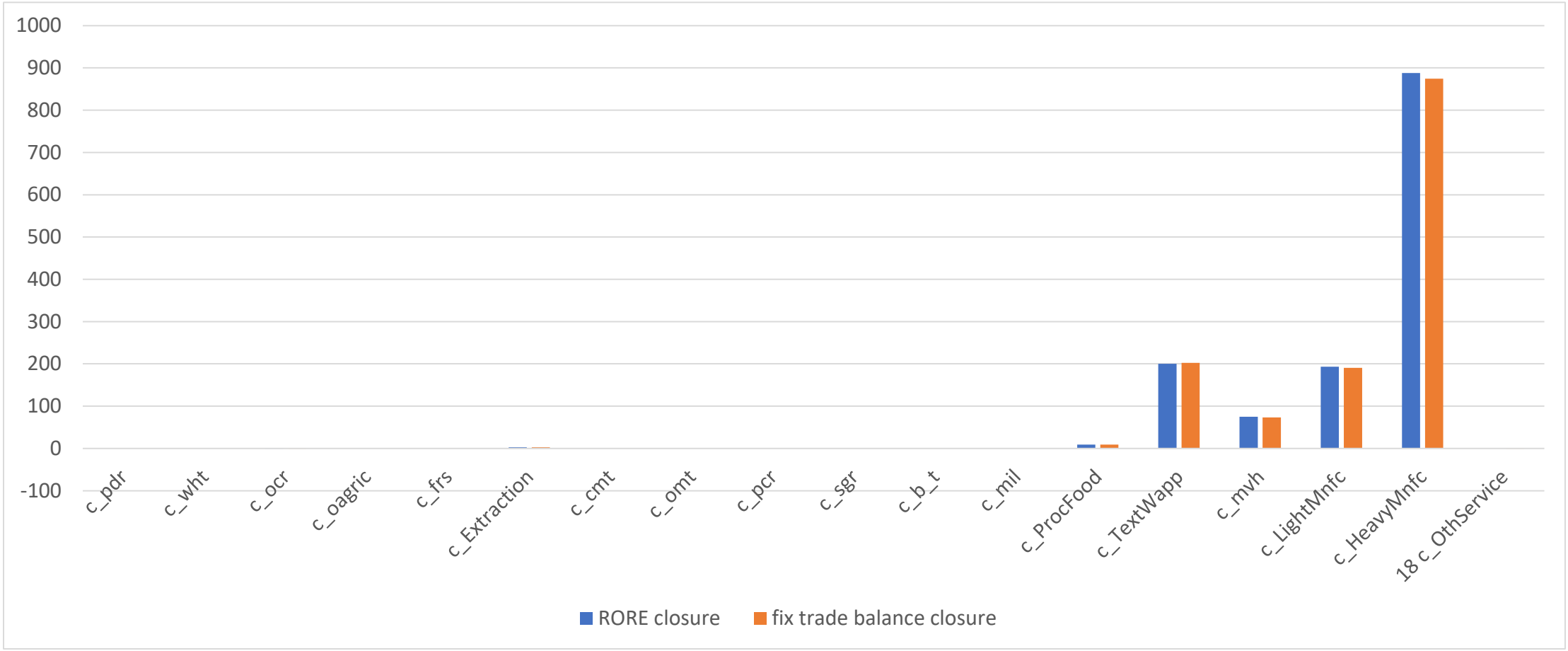
Results in 2019: Trade Creation and Trade Diversion Effects—Change in Vietnamese Imports



Results in 2019: Vietnamese-Japan trade in the CPTPP -- change in Vietnamese exports to Japan

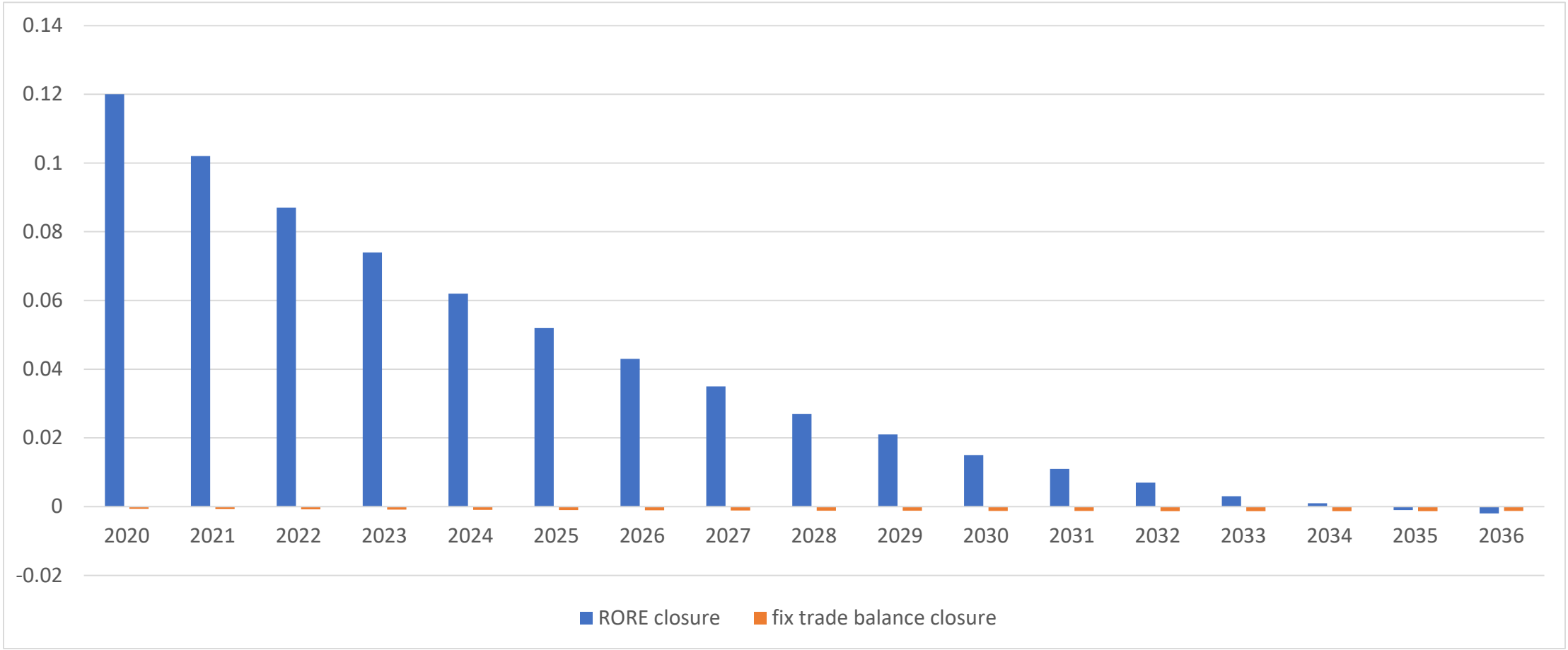


Results in 2019: Vietnamese-Japan Trade in the CPTPP—change in Vietnamese imports from Japan

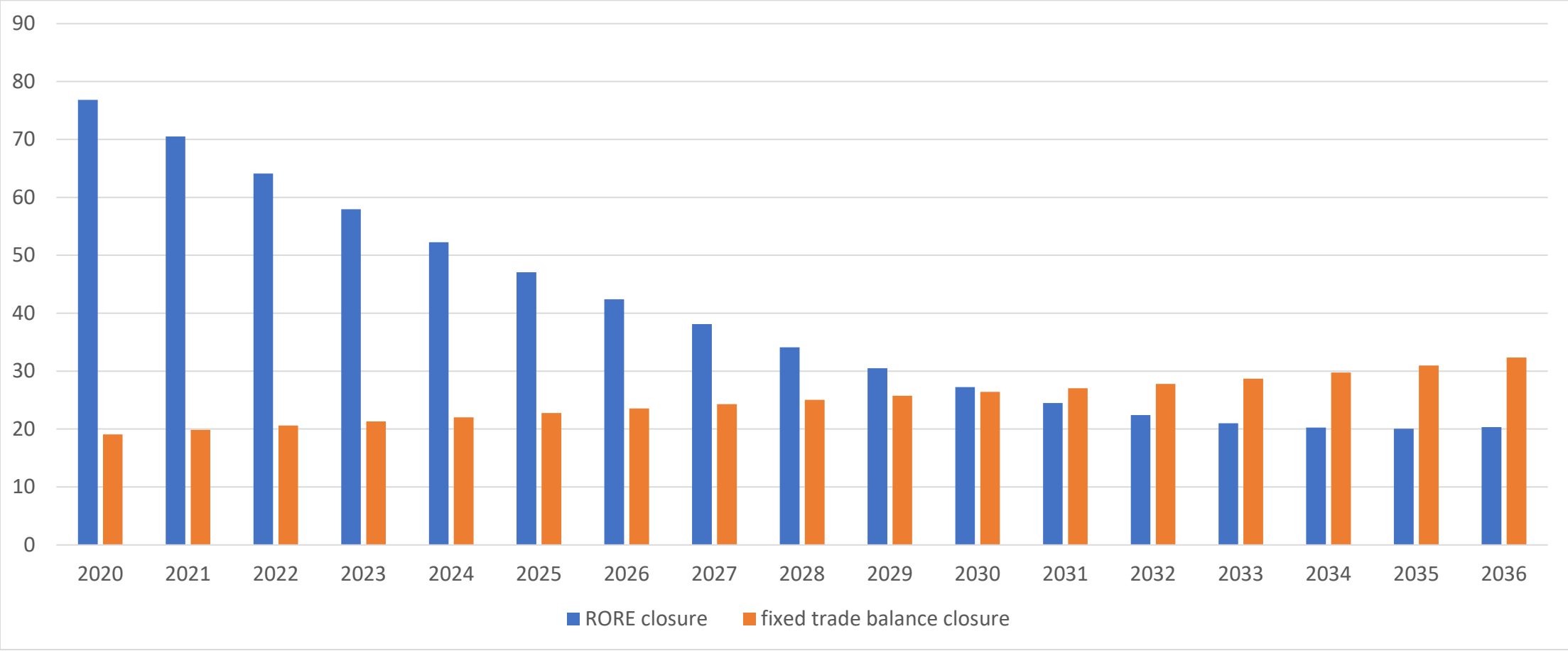


Results in 2019: Change in Output in Vietnam

Result in 2020-2036: Change in Capital Stock in Vietnam



Results in 2020-2036: Change in Welfare in Vietnam



Results from 2020-2036: Change in Factor Intensities (capital-labor ratio) in Vietnam

	Agriculture	Extraction	Processed Food	Manufacturing	Services	Total
RORE closure						
2036 baseline	0.575	4.127	0.726	0.773	0.859	0.876
2036 CPTPP policy shock	0.572	4.108	0.727	0.774	0.861	0.877
Fix Trade Balance Closure						
2036 baseline	0.575	4.127	0.726	0.773	0.859	0.876
2036 CPTPP policy shock	0.575	4.127	0.726	0.773	0.859	0.876

Conclusion

- **RORE closure**: leads to stronger economic growth, increased imports but lower exports, both terms of trade and welfare gains, and a change in sectoral structure that favors capital-intensive and income-sensitive industries.

- **Fixed trade balance closure**: has negligible capital-deepening and so the same shock has weaker growth and income effects, increases in both imports and exports, a terms of trade loss that reduces welfare gains, and a change in sectoral structure that favors exportable industries.

Thank You