

Assessing the impact of the US-PRC trade dispute using a multiregional CGE model

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Welcome

Main contribution

- We use a multiregional computable general equilibrium (CGE) model to assess the impact of the US-PRC trade dispute on output, employment, and other main macroeconomic indicators for the US, the PRC, and other Asian economies.
 - we show that a simple framework (with limited data and computing power needs) can yield reliable results that are consistent with those from more sophisticated models. This is particularly helpful when working with developing economies, for which available data is notoriously scant.
 - we use the 2017 ADB-MRIOT dataset, which is derived directly from each country's supply and use tables and updated frequently.

Key findings

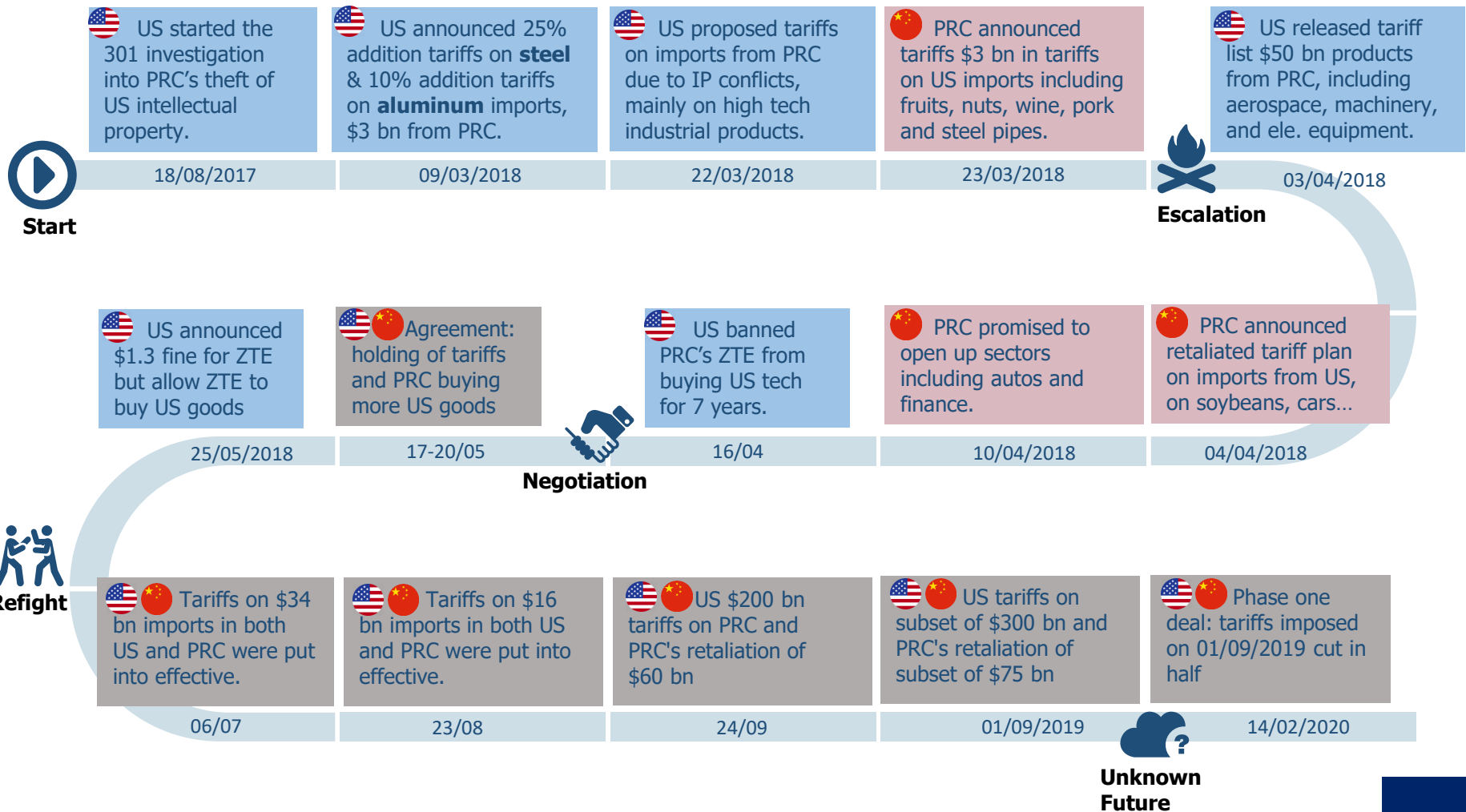
Our simulation predicted that:

- the tariff conflict would hurt the economy of US and PRC and cause a GDP loss of 0.22% and 0.47% respectively in the full-scale tariff war scenario (US and PRC impose 25% additional tariff on all imports from each other).
- most Asian countries, especially Viet Nam, Malaysia, the Republic of Korea, and Japan would benefit from the tariff conflicts between US and PRC, while Mongolia might suffer a GDP loss.
- the tariff conflict could significantly reduce the trade imbalance between US and PRC but would not help relieve US total trade deficit much (-2.2%).

Advantages and limitations

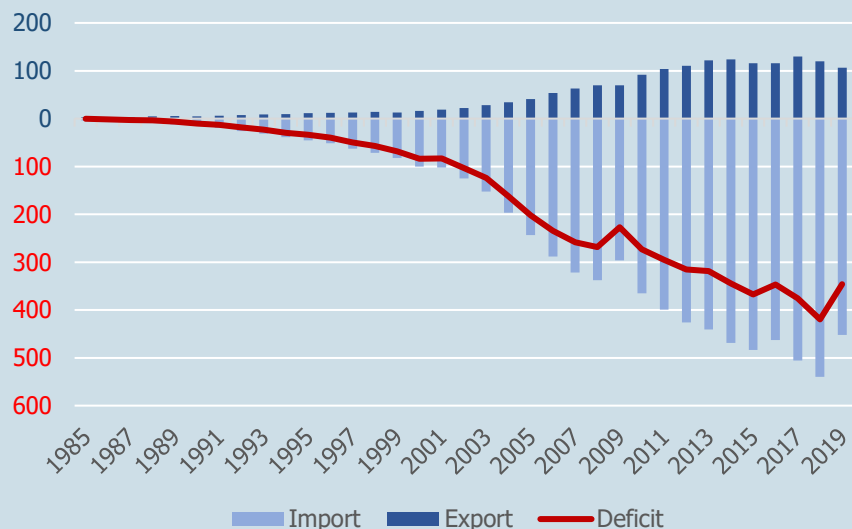
- + Simple and standard CGE framework
- + Updated database from ADB MRIOT
- Trade in services is not well analyzed
- Major gaps in tariff (only national and sectoral level) and NTB datasets
- Lack of elasticity data (incomplete and outdated)
- Exchange rates not considered in the current model

Timeline: An ongoing and escalating trade war



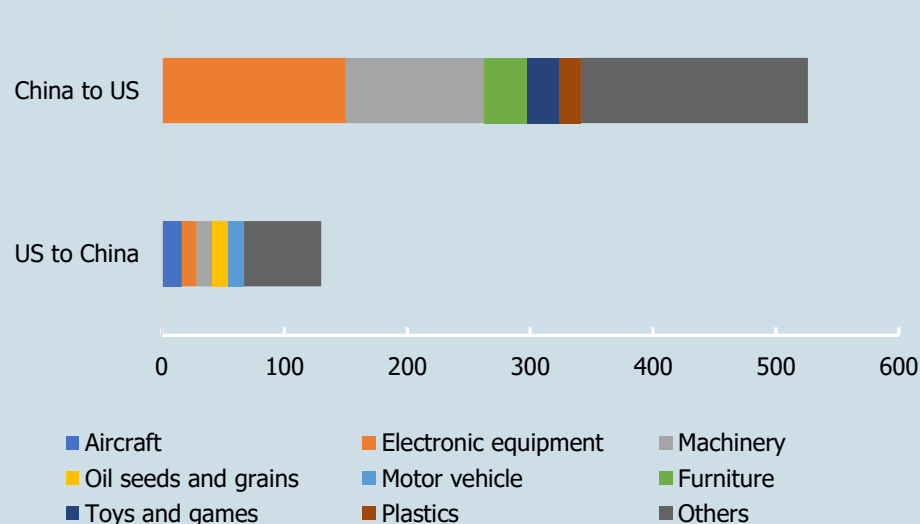
In 2017, US and PRC were each other's largest trading partners (*)

US-PRC Trade in Goods (\$bn)



Source: Authors based on data from the US Census Bureau

Structure of US-PRC trade in goods (2017, \$bn)



Source: Authors based on data from the UN Comtrade

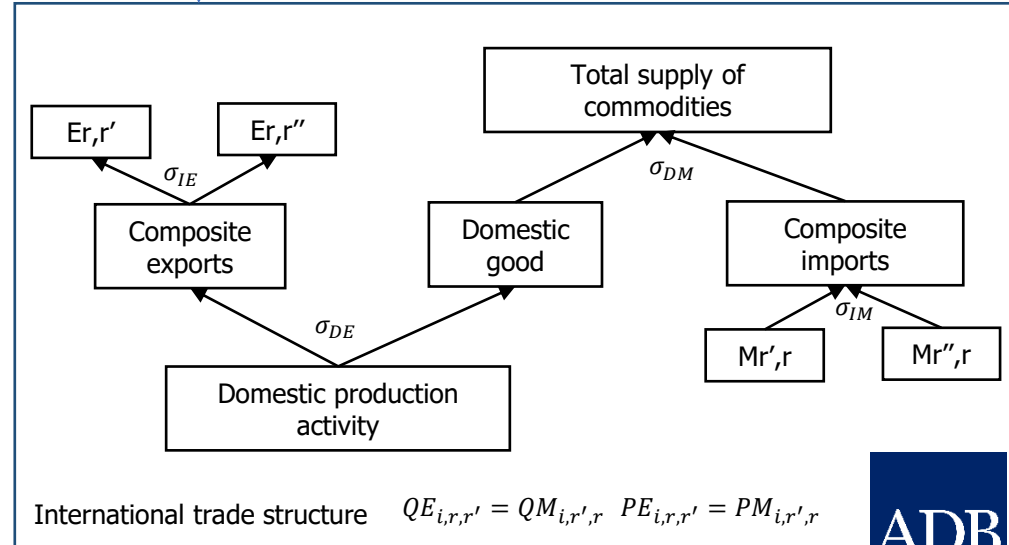
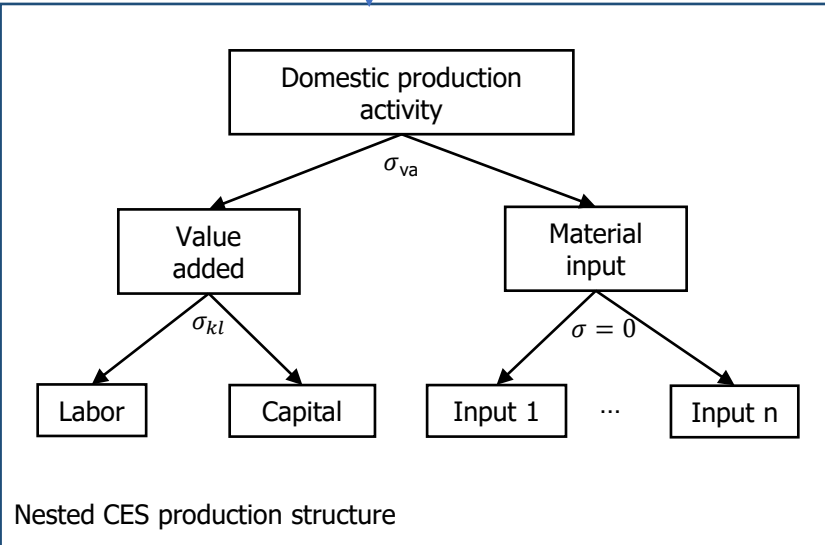
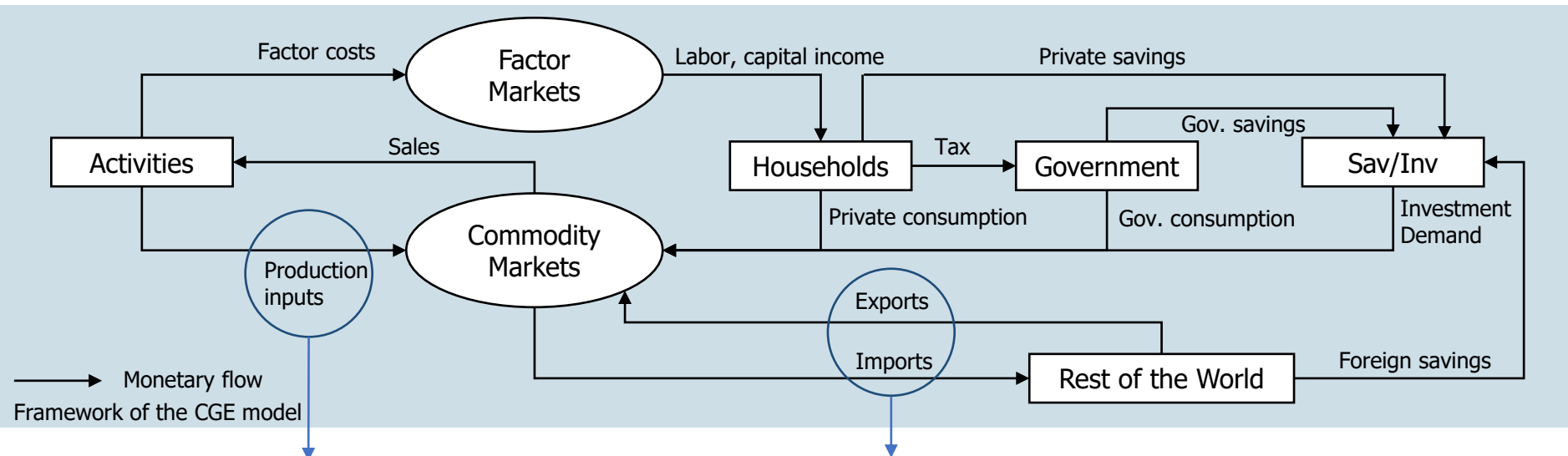
- Major imports from PRC to US: cellphones (\$70 billion), computers (\$46 billion), telecommunications equipment (\$33 billion), toys and games (\$27 billion), clothes (\$24 billion), and furniture (\$21 billion).
- Major exports from US to PRC: aircrafts (\$16 billion), soybeans (\$12 billion), passenger cars (\$11 billion), and semiconductors (\$6 billion).
- US services trade surplus with PRC was \$54.1 billion, and US deficit will be reduced from \$375 billion to \$321 billion after taking services into consideration.

(*) When the EU as a whole is not considered a trading partner.

Modelling analysis

1. CGE modelling framework
2. Data
3. Assumptions
4. Scenarios
5. Results
6. Discussions
7. Key findings
8. Appendix

A standard static CGE model



A Simplified Social Accounting Matrix (SAM)

	Sector	Commodity	Labor	Capital	Household	Gov.	Inv/Sav	Row	Total
Sector		Outputs							Total output
Commodity	Intermediated demand								Aggregated demand
Labor	Labor input								Labor
Capital	Capital input								Capital
Household			Labor income	Capital income		Transfer			Household income
Gov.	Production tax				Income tax				Government income
Inv/Sav					Household saving	Gov. saving		Row saving	Total savings
Row		Import				Transfer			Row income
Total	Total input	Aggregated supply	Labor	Capital	Household expenditure	Gov. expenditure	Total investment	Row expenditure	

Build aggregated Multi-Regional SAM from ADB Multi-Regional Input-Output Table.

		CHINA		US		CHINA						US						Row	Total
		i1	i2	i1	i2	Lab	Cap	HH.	Gov	Savin	ImTax	Lab	Cap	HH.	Gov	Savin	ImTax	Row	Total
CHINA	i1 i2	Inter. Input	Inter. Import						Final Demand						Final Demand import				Output
US	i1 i2	Inter. import	Inter. Input						Final Demand import						Final Demand				Output
CHINA	Lab	Labor input																	Factor income
	Cap	Capital Input																	FD Income
	HH.					lab income	cap income												Saving
	Gov	Production Tax							Final demand tax		Imp. tax								Imp. tax
	Savin								Saving										Row
US	ImTax	Import Tax							Import Tax										Row
	Lab		Labor input																Factor income
	Cap		Capital Input																FD Income
	HH.											lab income	cap income						Saving
	Gov		Production Tax												Final demand tax		Imp. tax		Imp. tax
US	Savin								fr. saving						Saving				Row
	ImTax		Import Tax												Import Tax				Row
	Row	Row																	Row
Total	Total	Input	Input			Factor exp.		FD exp.	Inv.	Imp. tax		Factor exp.		FD exp.	Inv.	Imp. Tax		Row	

- In the original ADB MRIO, there are 63 regions and 35 different sectors and the 2017 version data is available. However, in the current preliminary research stage, we aggregate the MRIO into 19 regions and 19 sectors to simplify the model and focus on the research question.
- We develop a tool in GAMS to assist the aggregation of MRIO based on the open source WIOD Aggregation Tool (Koesler and Pothén, 2013).
- SAM represents a snapshot of the economy in a given year. In CGE modelling, we need to assume the whole economy is in general equilibrium situation to calibrate the parameters in the production and consumption functions.
- Due to the lack of data in the transfers among final demand accounts in different regions, we simplify the data in the fourth quadrant and use the saving account as the balancing the row and the column. This could be improved with more available data.

Sector and region definition

s1	Agriculture Hunting Forestry Fishing
s2	Mining Quarrying
s3	Food Beverages Tobacco
s4	Textile Products
s5	Leather Footwear
s6	Wood Products
s7	Pulp Paper Printing Publishing
s8	Coke Refined Petroleum Nuclear Fuel
s9	Chemicals Chemical Products
s10	Rubber Plastics
s11	Other Non-Metallic Mineral
s12	Basic Metals Fabricated Metal
s13	Machinery
s14	Electrical Optical Equipment
s15	Transport Equipment
s16	Manufacturing Recycling
s17	Electricity Gas Water Supply
s18	Construction
s19	Aggregated service sector

Sector definition

US	the United States of America
PRC	People's Republic of China
IDN	Indonesia
IND	India
JPN	Japan
KOR	Korea, Republic of
TUR	Turkey
TAP	Taipei, China
BAN	Bangladesh
MAL	Malaysia
PHI	Philippines
THA	Thailand
VIE	Viet Nam
KAZ	Kazakhstan
MON	Mongolia
SRI	Sri Lanka
PAK	Pakistan
EU	Europe
Row	Rest of the World

Region definition

CGE calculates the general equilibrium situation where all the markets clear under many assumptions.

Basic assumption	• General equilibrium in all the markets in each period. • Perfectly competitive market
Production & utility functions	• One sector corresponds to one commodity • Constant elasticity of substitution prod. Function • Not considered: natural sources constraints (land, water, energy..) • Cobb-Douglas utility function
Savings	• Savings (hh., gov.) are given as exogenous variables; some models assume the marginal propensity to save for households, but it is not considered yet due to lack of data • The net export of countries other than the US is regarded as foreign savings from that country to US.
Macro closure conditions	• Commodity markets and capital market clear • Sticky labor price: the labor price should change as the price of buying one unit of utility, or in other words the real consumer price index changes
Tariffs & Non-Tariff Barriers	• Effectively applied (AHS) weighted average tariffs of sectors in 2016 are used; tariff data from World Bank World Integrated Trade Solution database. Overall tariff levels: PRC 3.92%, US 1.71%, and Row 6.56%. • Due to lack of data, we assume a same NTB level in all the sectors in one country and data from Fugazza and Maur (2007). Overall NTB levels: PRC 9.4%, US 6.5%, and Row 9.4%. • For the sake of simplicity, we treat NTB as another form of tariff and the revenue goes to the local gov. • Since we only have sector-level data not the product-level, we calculate the weighted added tariff in the whole sector. The additional tariff revenue goes to the household sector.

Build policy scenarios according to the several stages of trade conflicts and different elasticity assumptions.

Bau

Replicated economic situation in 2017, according to ADB-MRIOT 2017

Scenario 1

As of May 2019
US 25% tariff on USD250 billion worth of goods imported from the PRC;
China 25% tariff on about USD110 billion worth of goods imported from the US.

Scenario 2

Assumptive full-scale tariff war
US/China 25% tariff on all the imported goods from each other

Simulated macroeconomic impacts on US and PRC

	GDP	Employment	Trade	Exports	Imports	Consumption
Scenario 1	-0.17%	-0.24%	-2.34%	-2.49%	-2.23%	-0.14%
Scenario 2	-0.22%	-0.31%	-2.74%	-2.82%	-2.68%	-0.18%

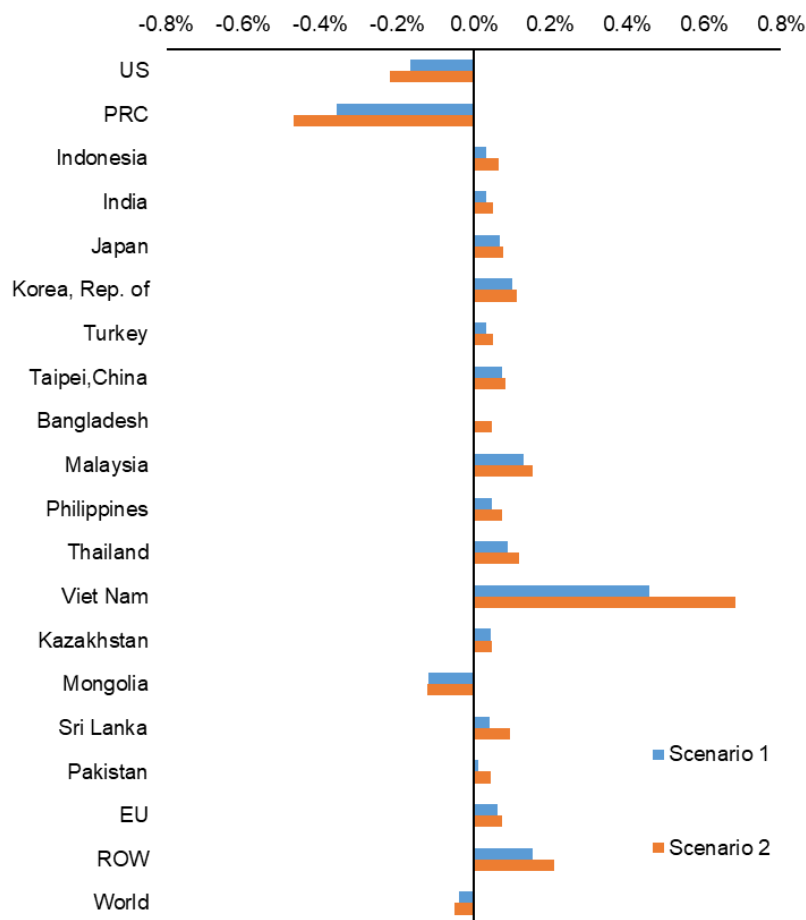
US real GDP growth: 2.4% (2017), 2.9% (2018), 2.3% (2019)

	GDP	Employment	Trade	Exports	Imports	Consumption
Scenario 1	-0.36%	-0.40%	-3.38%	-3.07%	-3.79%	-0.20%
Scenario 2	-0.47%	-0.55%	-4.05%	-3.75%	-4.46%	-0.21%

PRC real GDP growth: 6.9% (2017), 6.7% (2018), 6.1% (2019)

Simulated macroeconomic impacts on Asian economies

Impacts on total GDP of other economies

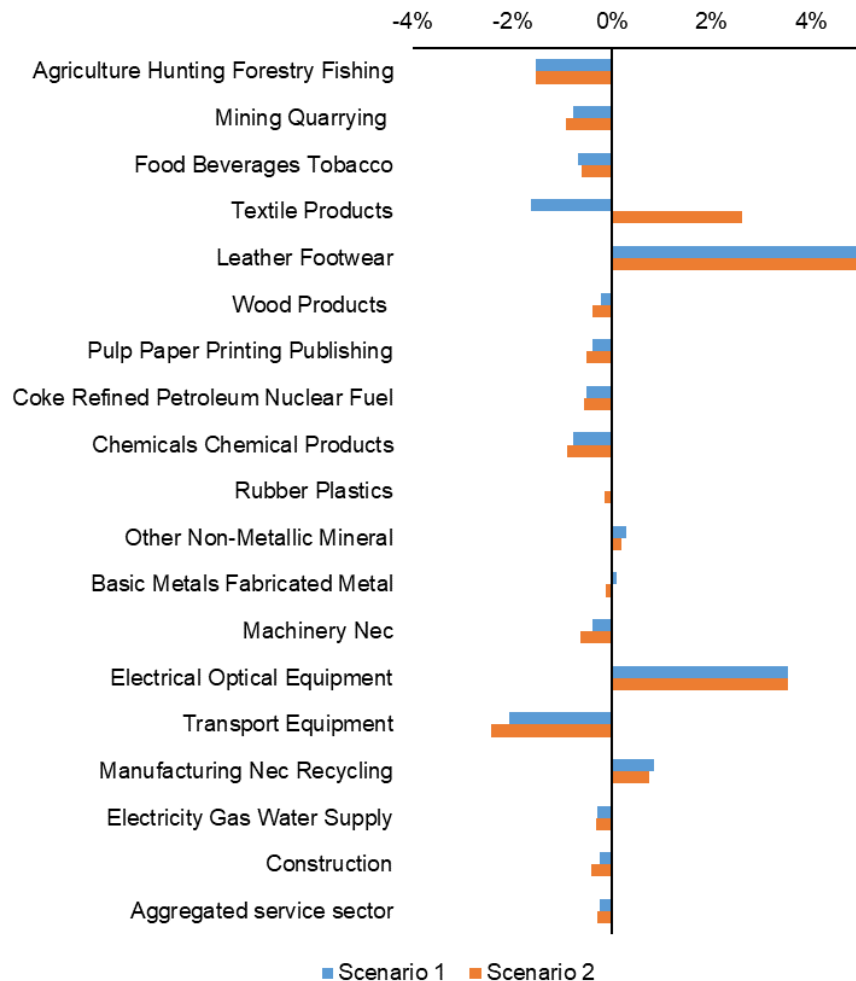


However, other economies seem not to enjoy the benefits in GDP growth in 2018-2019, with the following possible explanations:

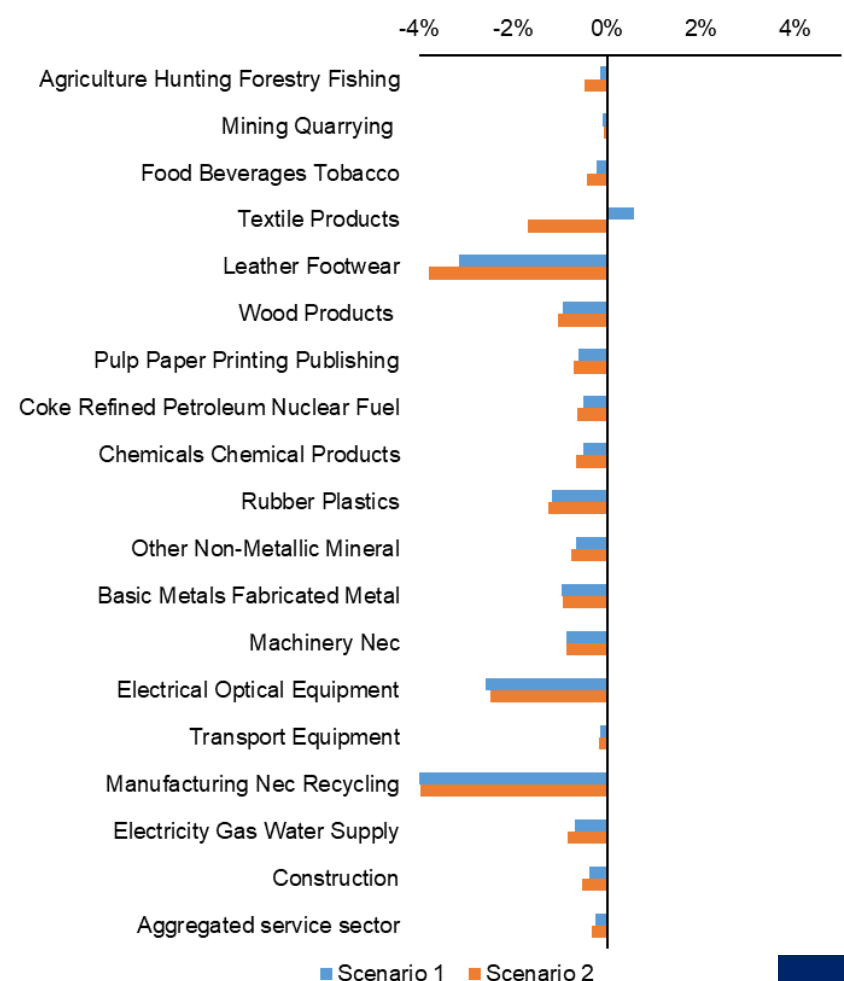
- CGE models only **simulate the impact of tariff changes** while holding everything else unchanged
- **Longer time needed** to observe the benefits calculated in an equilibrium
- **Some changes already took place:** many companies like Foxconn started to setup/enlarge production scale in the US or other economies
- ...

Impacts on sectoral output of US and PRC (%)

United States



People's Republic of China



Trade flow change in current trade conflict (%, Scenario 1)

	To																		US exports
	US	PRC	IDN	IND	JPN	KOR	TUR	TAP	BAN	MAL	PHI	THA	VIE	KAZ	MON	SRI	PAK	EU	Row
US	-0.2	-43.8	0.1	-0.2	-0.1	0.0	-0.3	0.0	-0.6	0.6	0.4	-0.1	0.5	-0.1	-1.5	-0.3	-0.5	-0.1	0.0
PRC	-37.6	-0.5	3.3	3.3	2.8	3.0	3.4	3.1	2.9	3.3	2.9	3.1	3.0	2.8	1.2	2.7	2.4	3.0	2.7
IDN	6.9	-1.2	0.0	-0.3	-0.4	-0.2	-0.3	-0.2	-0.6	-0.1	-0.2	-0.3	0.0	-0.2	-1.3	-0.7	-0.6	-0.2	-0.1
IND	3.0	-1.1	-0.2	0.0	-0.2	-0.2	-0.1	-0.1	-0.3	-0.1	-0.1	-0.2	0.1	-0.4	-1.2	-0.5	-0.4	-0.1	0.0
JPN	4.9	-1.2	-0.4	-0.5	0.1	-0.5	-0.3	-0.5	-0.3	-0.1	-0.2	-0.2	-0.2	0.0	-1.4	-0.7	-0.8	-0.2	-0.1
KOR	5.8	-1.2	0.1	-0.3	-0.2	0.1	-0.3	-0.3	-0.2	0.0	0.0	-0.2	0.2	-0.1	-1.3	-0.4	-0.6	0.0	0.0
TUR	3.4	-1.5	0.3	0.1	-0.3	-0.2	0.0	0.1	-0.1	0.1	0.0	0.2	0.3	-0.2	-1.4	-0.2	-0.4	0.0	0.0
TAP	6.7	-1.2	-0.1	-0.2	-0.3	-0.3	-0.1	0.1	-0.2	0.1	0.1	0.0	0.2	0.1	-1.3	-0.4	-0.5	0.0	-0.1
BAN	1.1	-1.4	0.3	-0.1	-1.0	-0.4	-0.1	-0.3	0.0	0.1	0.0	0.3	1.6	0.4	-1.0	-0.1	-0.2	-0.2	-0.3
MAL	10.2	-1.0	-0.1	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	0.1	0.1	-0.1	0.1	-0.2	-1.5	-0.5	-0.5	-0.1	0.0
PHI	4.5	-0.9	0.0	-0.2	-0.2	-0.1	-0.2	-0.2	-0.3	0.1	0.1	0.0	0.2	0.0	-1.2	-0.4	-0.5	0.0	0.0
THA	2.7	-1.3	-0.1	-0.3	-0.1	-0.2	-0.1	-0.2	-0.5	-0.2	-0.3	0.1	0.0	-0.1	-1.6	-0.6	-0.6	0.0	0.0
VIE	9.0	-1.7	-0.2	-0.3	-0.5	-0.4	-0.2	-0.4	-0.9	-0.3	-0.4	-0.4	0.4	0.5	-1.6	-0.8	-0.9	0.2	-0.3
KAZ	2.4	-2.1	0.1	-0.1	0.1	-0.1	0.1	0.1	-0.2	0.2	0.1	0.3	0.3	0.0	-1.0	-0.2	-0.2	0.3	0.3
MON	1.0	-0.8	0.8	0.8	0.9	1.5	0.7	0.8	0.5	0.9	0.8	1.0	1.3	0.9	-0.1	0.6	0.5	1.2	1.0
SRI	0.4	-0.6	0.2	-0.1	-0.1	0.0	-0.1	0.1	-0.1	0.2	0.1	0.2	0.4	0.1	-0.8	0.0	-0.3	0.1	0.1
PAK	1.3	-1.5	0.3	0.1	-0.1	0.0	0.1	0.0	0.0	0.2	0.1	0.2	1.6	-0.5	-0.8	0.0	0.0	0.1	0.0
EU	2.8	-0.5	-0.4	-0.5	-0.4	-0.4	-0.3	-0.4	-0.4	-0.2	-0.3	-0.2	-0.1	-0.3	-1.5	-0.8	-0.7	0.1	-0.1
Row	3.3	-1.5	0.0	-0.1	0.0	-0.1	-0.1	-0.1	-0.3	0.1	0.0	0.0	0.1	-0.1	-1.3	-0.4	-0.4	0.0	0.2

From

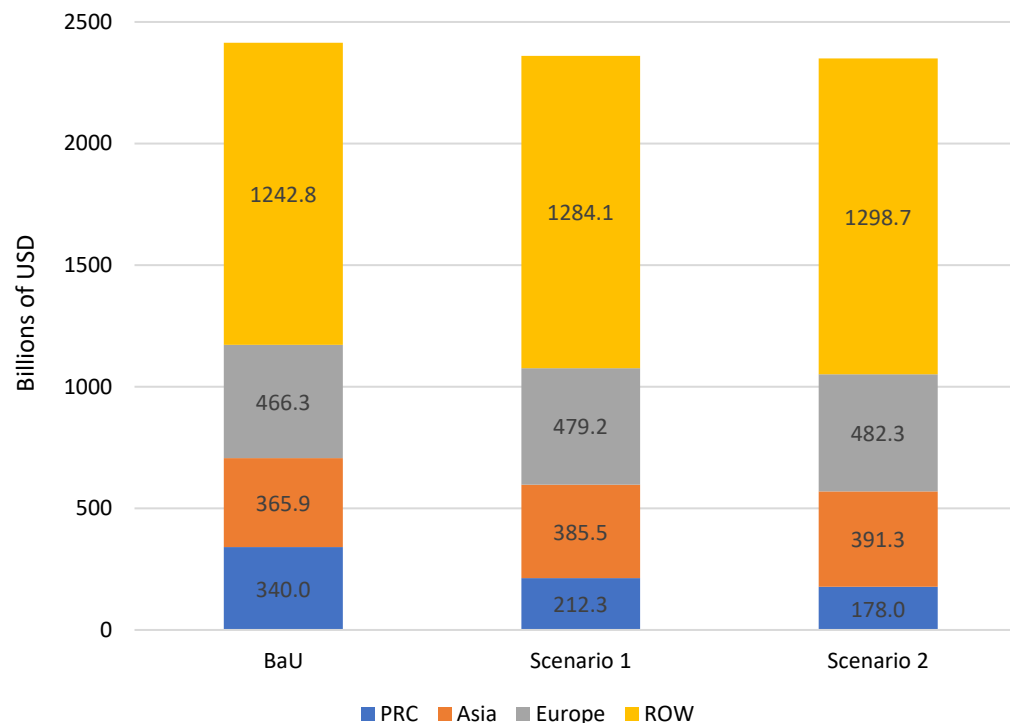
US imports

Trade flow change in current trade conflict (%, Scenario 2)

	To																		US exports
	US	PRC	IDN	IND	JPN	KOR	TUR	TAP	BAN	MAL	PHI	THA	VIE	KAZ	MON	SRI	PAK	EU	Row
US	-0.2	-44.4	-0.2	-0.5	-0.5	-0.5	-0.7	-0.5	-0.7	0.2	0.1	-0.5	0.3	-0.5	-2.3	-0.5	-0.9	-0.4	-0.3
PRC	-47.7	-0.6	4.4	4.3	3.6	3.9	4.3	3.9	4.1	4.4	4.0	4.1	4.2	3.7	1.9	4.1	3.4	4.0	3.6
IDN	10.0	-1.9	0.0	-0.3	-0.6	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4	0.2	-0.2	-1.8	-0.4	-0.7	-0.3	-0.1
IND	5.2	-1.8	-0.2	0.0	-0.4	-0.4	-0.2	-0.2	-0.1	-0.3	-0.3	-0.3	0.1	-0.5	-1.7	-0.5	-0.5	-0.3	0.0
JPN	5.7	-1.8	-0.4	-0.4	0.1	-0.6	-0.3	-0.6	0.0	-0.1	-0.2	-0.2	0.0	0.1	-1.7	-0.6	-0.8	-0.2	0.0
KOR	6.9	-1.7	0.3	-0.2	-0.3	0.1	-0.3	-0.4	0.2	0.1	0.0	-0.1	0.6	-0.1	-1.6	-0.1	-0.6	0.1	0.0
TUR	5.6	-2.2	0.3	0.1	-0.5	-0.3	0.0	0.1	0.1	0.0	-0.1	0.2	0.4	-0.3	-1.9	-0.1	-0.4	0.0	-0.1
TAP	8.1	-1.8	0.0	-0.1	-0.4	-0.4	0.0	0.1	0.3	0.2	0.2	0.1	0.6	0.2	-1.6	0.0	-0.4	0.1	0.0
BAN	9.7	-2.4	-0.1	-0.4	-1.9	-1.0	-0.6	-0.7	0.0	-0.4	-0.6	0.0	2.8	0.1	-1.7	-0.1	-0.4	-0.7	-0.9
MAL	11.6	-1.6	0.0	-0.2	-0.3	-0.2	-0.2	-0.4	0.0	0.2	0.0	-0.1	0.3	-0.2	-1.9	-0.3	-0.4	-0.1	0.0
PHI	5.9	-1.5	0.0	-0.2	-0.3	-0.2	-0.3	-0.5	-0.1	0.0	0.1	0.0	0.5	0.0	-1.6	-0.3	-0.5	0.0	0.0
THA	4.1	-2.0	-0.1	-0.3	-0.2	-0.3	-0.1	-0.3	-0.2	-0.3	-0.3	0.1	0.2	-0.1	-2.1	-0.4	-0.6	0.0	0.1
VIE	13.4	-2.7	-0.4	-0.4	-0.8	-0.8	-0.3	-0.7	-0.1	-0.6	-0.5	-0.6	0.6	0.6	-2.3	-0.3	-0.5	0.2	-0.3
KAZ	3.0	-2.8	0.2	-0.1	0.0	-0.2	0.2	0.0	0.1	0.2	0.1	0.3	0.5	0.0	-1.4	0.0	-0.2	0.4	0.4
MON	1.7	-1.0	1.1	1.1	1.2	1.9	1.0	1.1	1.0	1.2	1.0	1.2	1.9	1.2	-0.1	1.2	0.8	1.6	1.3
SRI	5.5	-1.6	-0.1	-0.5	-0.5	-0.3	-0.1	-0.4	-0.2	-0.2	-0.4	-0.2	-0.4	-0.2	-1.2	0.1	-0.6	-0.1	-0.1
PAK	7.7	-2.4	0.2	0.1	-0.4	-0.2	-0.1	-0.3	0.2	-0.1	-0.2	0.0	2.6	-0.8	-1.2	0.1	0.0	-0.1	-0.2
EU	3.4	-1.2	-0.5	-0.5	-0.5	-0.5	-0.4	-0.6	-0.2	-0.4	-0.5	-0.2	0.0	-0.4	-2.0	-0.7	-0.7	0.1	-0.1
Row	4.5	-2.2	0.0	-0.1	-0.1	-0.1	-0.2	-0.3	0.0	0.0	-0.1	0.0	0.2	-0.1	-1.8	-0.2	-0.4	0.0	0.3

US imports

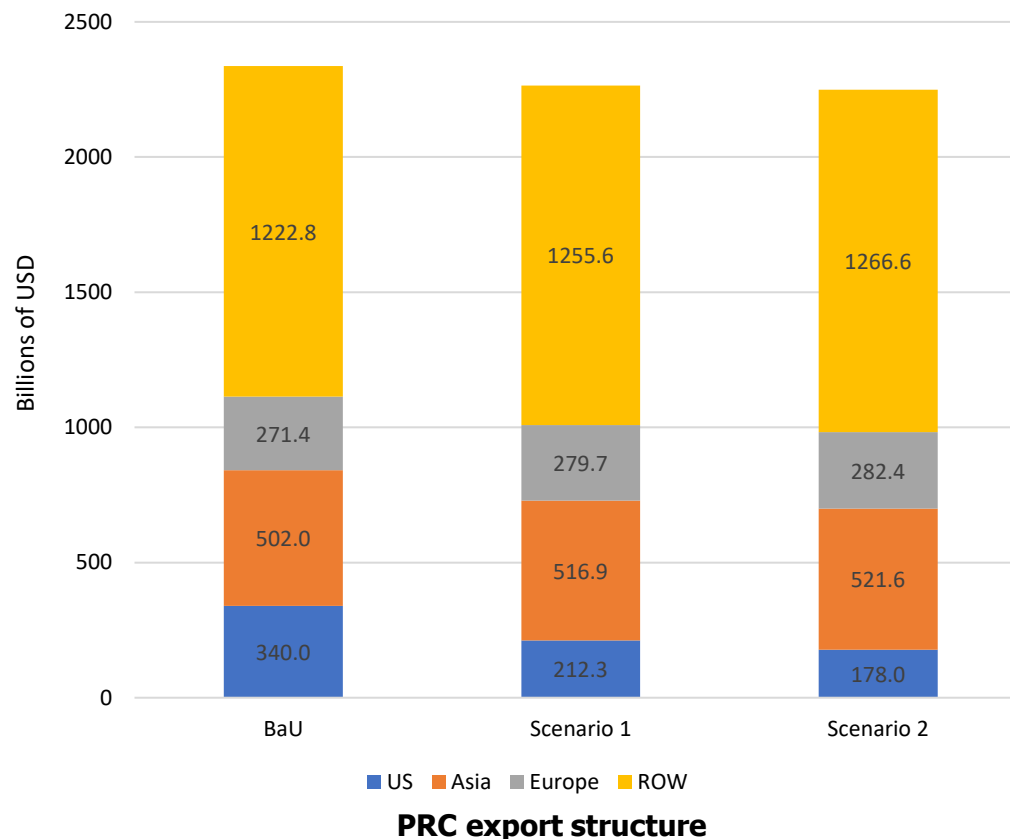
Discussion: US trade balance with PRC would be improved, but the total deficit would not change much



US import structure under the Model Scenarios

- US's trade balance with PRC would be reduced by 34.8% in scenario 1, and by 49.1% in scenario 2.
- However, total net exports for the US would increase by only 1.3% and 2.2% in scenario 1 and scenario 2, since US's imports from PRC would be mostly shifted to other countries.

Discussion: PRC export to US would be largely shifted to other countries: limited impact on net export.



- PRC's exports to US would be mostly shifted to other Asian countries and rest of the world.
- However, it was arguable whether other economies have enough purchasing ability to make up for the declining share of import demand for Chinese products from the US.

Discussion: comparison with other studies

Recent GE/CGE studies on Increased Protectionism and the US-PRC Trade Dispute

	Model	Base year	Regions	Sectors	Policy Scenario	Main conclusions
Bollen and Rojas-Romagosa (2018)	WorldScan (GTAP-9 based + monopolistic competition setting, endogenous labor supply)	2011	30	29	Tariff action by July 2018	1.2% GDP loss for the PRC and 0.3% GDP loss for the US; other economies like the EU will benefit.
Caceres et al. (2019)	CFRT (Eora based + heterogenous firms + GVC + imperfect competition)	2015	165	17	25% tariff increase between the US and the PRC	US GDP -0.2~0.3%; PRC GDP -0.6%; positive for other main trading partners.
Kawasaki (2018)	GTAP-10	2014	17	15	An import tariff hike of 1% worldwide	Global trade would decrease by 1.7% and global GDP would decrease by 0.2%
Li et al. (2018)	Global general equilibrium framework	2013	29	2	Tariffs between the US and the PRC are increased by 15%	0.01% GDP loss for the PRC, and 0.67% GDP loss for the US.
Tsutsumi (2018)	GTAP-6	2011	16	12	Tariff action by September 2018	0.2% GDP loss for PRC and 0.1% GDP loss for the US.
Yane and Nishioka (2019)	GTAP-9	2011	13	18	25% tariff increase between the US and the PRC + US motor tariffs	0.7% GDP loss for PRC, and 0.8% GDP loss for the US; Global GDP shrinks by 0.2%

Key findings

Our simulation predicted that:

- the tariff conflict would hurt the economy of US and PRC and cause a GDP loss of 0.22% and 0.47% respectively in the full-scale tariff war scenario (US and PRC impose 25% additional tariff on all imports from each other).
- most Asian countries, especially Viet Nam, Malaysia, the Republic of Korea, and Japan, would benefit from the tariff conflicts between US and PRC, while Mongolia might suffer GDP loss in some situations.
- the tariff conflicts could largely reduce the trade imbalance between US and PRC but won't help relieve US's total trade deficit much (-2.2%).

How can modelers respond to the fast-changing and more uncertain future?



Source: The Economist

Thank you for your time.

Q&A

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Appendix

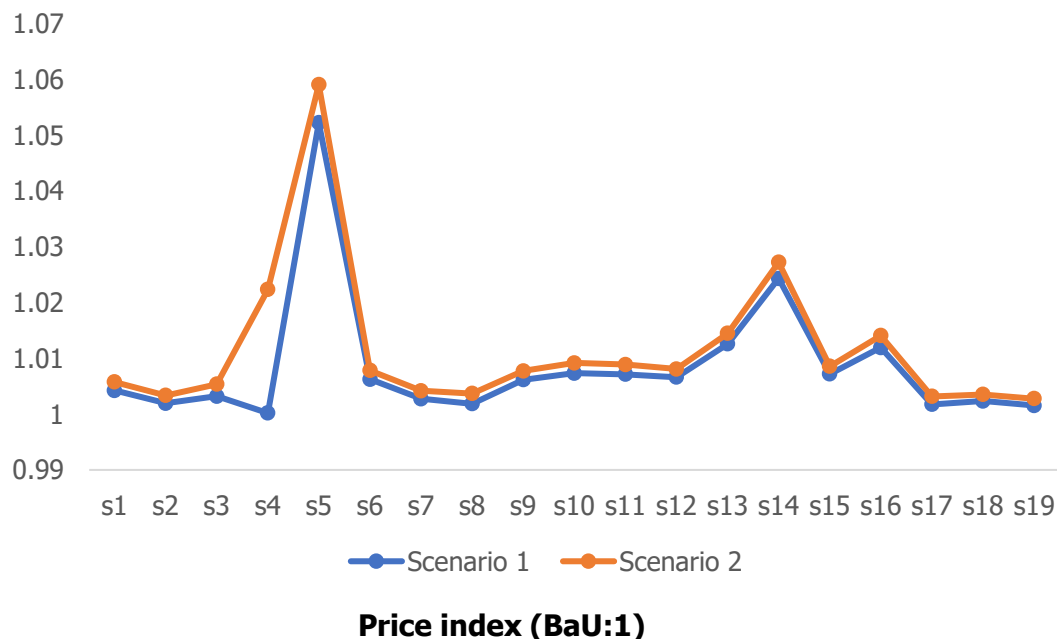
Discussion: impacts on other countries: opportunities and challenges

	Japan	Viet Nam	Mongolia
Agriculture Hunting Forestry Fishing	0.03%	0.04%	0.24%
Mining Quarrying	0.09%	-1.28%	-0.90%
Food Beverages Tobacco	0.04%	0.01%	0.14%
Textile Products	-0.83%	2.32%	0.25%
Leather Footwear	-1.33%	13.29%	0.30%
Wood Products	-0.10%	0.12%	0.04%
Pulp Paper Printing Publishing	0.09%	1.32%	-0.07%
Coke Refined Petroleum Nuclear Fuel	0.08%	0.13%	0.24%
Chemicals Chemical Products	0.03%	0.30%	-0.27%
Rubber Plastics	0.12%	1.33%	-0.03%
Other Non-Metallic Mineral	0.01%	0.34%	-0.10%
Basic Metals Fabricated Metal	0.05%	-0.35%	-0.47%
Machinery	0.35%	-0.03%	0.04%
Electrical Optical Equipment	0.11%	-1.34%	0.00%
Transport Equipment	0.96%	0.58%	0.83%
Manufacturing Recycling	-0.04%	0.08%	0.41%
Electricity Gas Water Supply	0.11%	0.75%	-0.15%
Construction	0.15%	0.84%	-0.20%
Aggregated service sector	0.06%	0.47%	0.11%
Total output	0.11%	0.73%	-0.17%

Sectoral output changes in full-scale tariff war (scenario 2)

- Vietnam and Malaysia would benefit most in the sectors where US used to rely on imports from PRC, like the leather, footwear sector and the textile sector.
- Mongolia would suffer output loss due to the decrease in mining sector which relies on the exports to PRC.

Discussion: the more the US produces, the higher the price is.



s1	Agriculture Hunting Forestry Fishing
s2	Mining Quarrying
s3	Food Beverages Tobacco
s4	Textile Products
s5	Leather Footwear
s6	Wood Products
s7	Pulp Paper Printing Publishing
s8	Coke Refined Petroleum Nuclear Fuel
s9	Chemicals Chemical Products
s10	Rubber Plastics
s11	Other Non-Metallic Mineral
s12	Basic Metals Fabricated Metal
s13	Machinery Nec
s14	Electrical Optical Equipment
s15	Transport Equipment
s16	Manufacturing Nec Recycling
s17	Electricity Gas Water Supply
s18	Construction
s19	Aggregated service sector

- The trade dispute was expected to increase price levels ranging from 1% to 7% in different sectors
- For those sectors where the US levied heavy tariffs on the PRC, and the US was heavily reliant on imports from the PRC, the price level increase would more pronounced.

Discussion: sectoral impact on PRC

- PRC's textile (-1.69%), leather & footwear (-3.79%), and manufacturing sectors (-3.98%) would suffer most in a full-scale trade war (scenario 2).
- The share of textile outputs in PRC's export decreased from 13.1% in 2007 to 9.7% in 2017. The transfer of global textile supply chain is already happening, from China to southeastern Asian countries, driven by the low cost and the trade policy.



A textile factory in Shenzhen, 2011

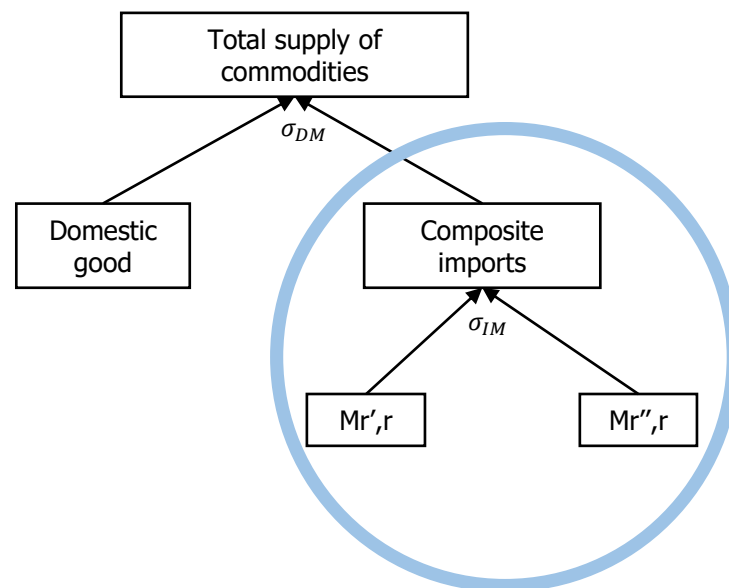


- Personal experience:
 - labor intensive; low tech;
 - + young labor, short of labor in China

Discussion: sensitivity analysis: σ_{IM} (elasticity of substitution among imports from different countries)

	$0.5*\sigma_{IM}$	σ_{IM}	$1.5*\sigma_{IM}$
US	-0.19%	-0.22%	-0.23%
PRC	-0.40%	-0.47%	-0.50%
Indonesia	-0.01%	0.06%	0.10%
India	0.02%	0.05%	0.06%
Japan	0.03%	0.08%	0.10%
Korea, Rep. of	0.02%	0.11%	0.15%
Turkey	0.04%	0.05%	0.05%
Taipei, China	0.01%	0.08%	0.12%
Bangladesh	0.03%	0.05%	0.06%
Malaysia	0.08%	0.15%	0.18%
Philippines	0.03%	0.07%	0.09%
Thailand	0.05%	0.12%	0.15%
Viet Nam	0.47%	0.68%	0.78%
Kazakhstan	0.02%	0.05%	0.06%
Mongolia	-0.18%	-0.12%	-0.08%
Sri Lanka	0.07%	0.10%	0.11%
Pakistan	0.03%	0.04%	0.05%
Europe	0.04%	0.07%	0.08%
Row	0.10%	0.21%	0.26%

GDP change in scenario 2



- The simulation results depend on various elasticity assumptions.
- If σ_{IM} is higher, imports would be more easily shifted among different countries, which will benefit other countries more, except US and PRC.