Trump tariffs and roundabout trade

Tadashi Ito (Gakushuin University, Tokyo)
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Trump tweets:

‘Trade wars are good, and easy to win.’

— Donald J. Trump (@realDonaldTrump) March 2, 2018

‘....I am a Tariff Man. When people or countries come in to raid the great wealth of our Nation, I want them to pay for the privilege of doing so. It will always be the best way to max out our economic power. We are right now taking in $billions in Tariffs. MAKE AMERICA RICH AGAIN’

— Donald J. Trump (@realDonaldTrump) December 4, 2018

Outline of Trump trade policies

January 2017　Inauguration of Trump administration

January 2017 (on day one) pull out from TPP negotiation

May 2017　NAFTA renegotiation started

January 2018

Measure：Safeguard（an import surge is a substantial cause of serious injury to an industry）

Relevant US law：Section 201 of the Trade Act of 1974

Target goods：washing machines （Import tariff 50%）and solar panels（Import tariff30%）

Outline of Trump trade policies

March 2018

Measure：protection when imports threaten to impair **national security**

Relevant US law：Section 232 of the Trade Expansion Act of 1962

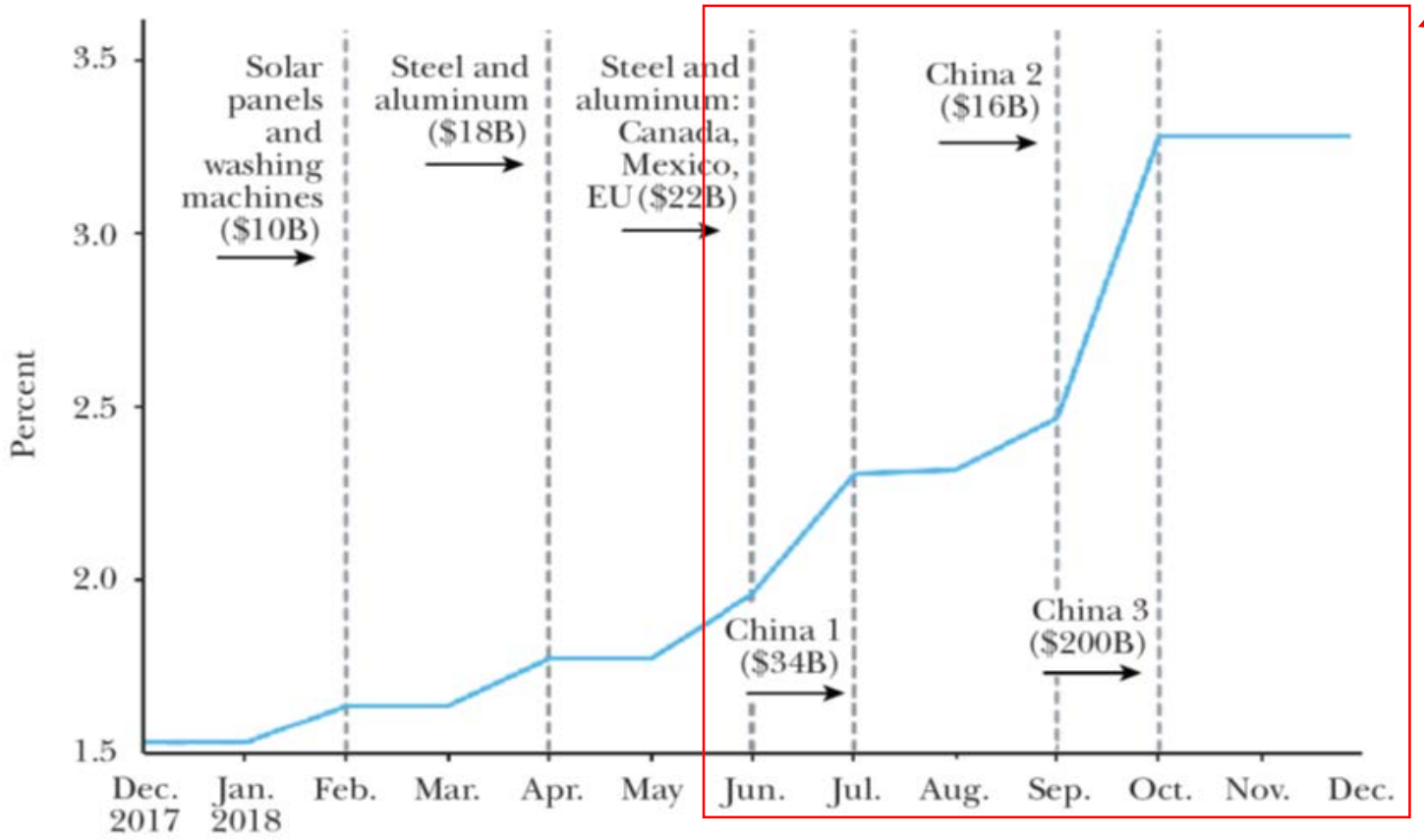
Target goods：steel （Import duty 25%）, aluminum （Import duty 10%）

From July 2018 onward: a series of **import duties against China**

Outline of Trump trade policies

Figure 3

Average Tariff Rates



Trump tariffs against China

Source: Amiti, Redding and Weinstein (2019 JEP)

Outline of Trump tariffs against China

	List 1	List 2	List 3
Date of the excecutive orders being effective	6th Jun.,2018	23rd Jul., 2018	1st: 24th Sep.,2018 2nd: 10th May., 2019
The purpose of the trade act	China's laws, politics, practices or actions may be unreasonable or discriminatory and may be harming American intellectual property(IP) rights, innovation, or technology development.		
Relevant U.S. domestic law	Section 301 of the Trade Act of 1974		
The number of targeted items*	818	279	5745
Ad valorem duties	25%	25%	1st:10% 2nd:25%
The characteristics of targeted items*	High value-added products(Industrial equipments)	Industrial products e.g. (Plastics, semiconductors, railway parts)	Consumer products e.g. (home appliances, chemical products, textile products)

Note *: Targeted goods are defined at HS 8-digit. The total number of HS 8-digit goods is 11300.
Source: Author's elaboration from Office of the United States Trade Representative (USTR)'s official announcement. See the reference for the URL.

This paper's research question

Existing studies (including mine) shows seemingly increasing exports of Trump-tariff goods from China to other countries than the US

What is behind it?

Is tariff dodging taking place?

In particular, is roundabout trade, as some news articles reported, prevalent?

Data

Monthly trade data at Harmonised System (HS) 6-digit level

Extremely large sample

-> First, take the yearly trade data of the top 20 US import partners and China’s export partners

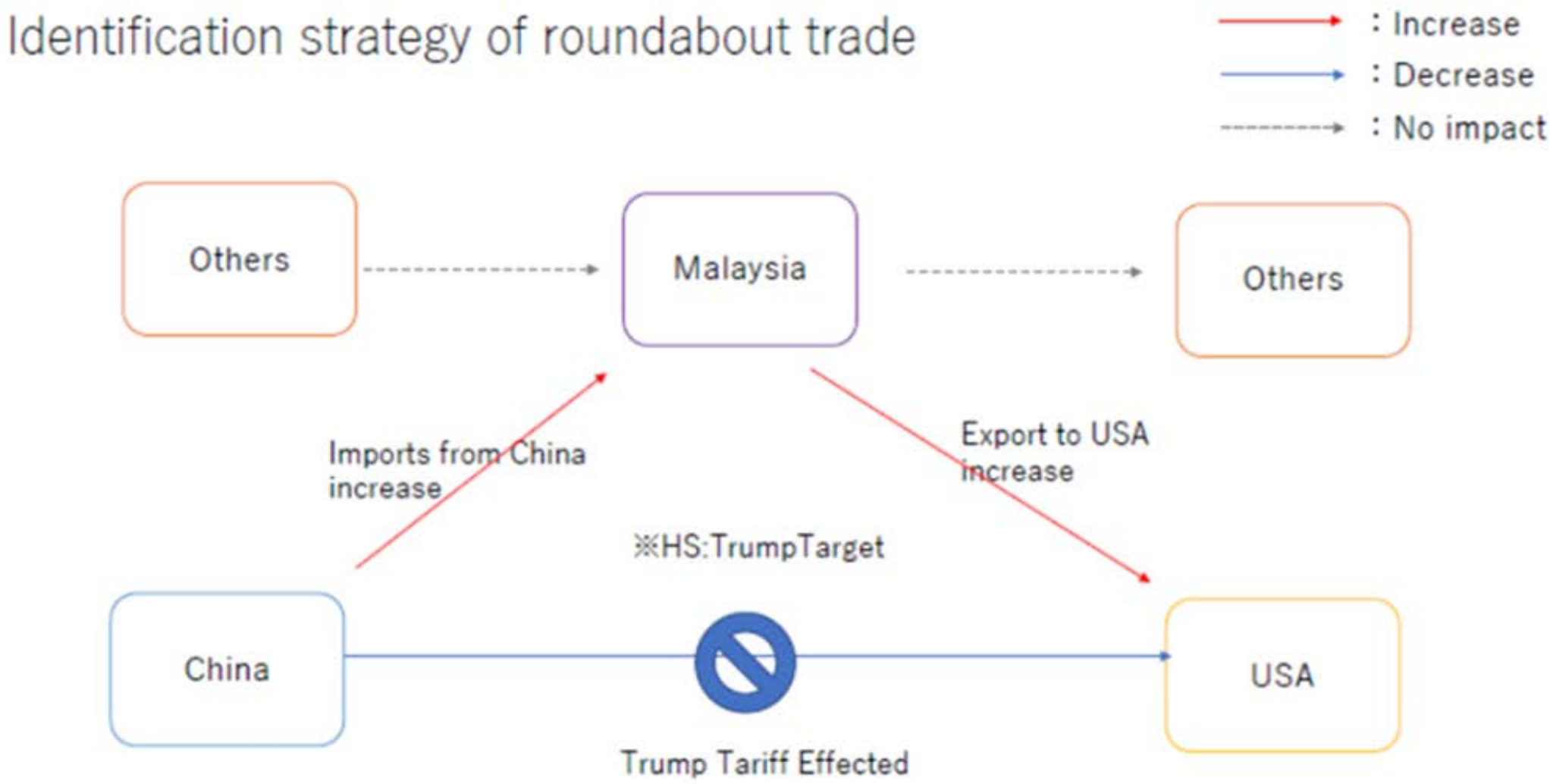
-> By making graphs, check which countries may have engaged in roundabout trade.

-> Picked up 10 countries, that are major trade partners of the US and China:

Canada, Indonesia, Malaysia, Mexico, Singapore, South Korea, Thailand, Vietnam, India and the Philippines.

-> Obtain the monthly trade data of these 10 countries at HS 6-digit with all the trade partners.

Identification strategy of roundabout trade



Identification strategy of roundabout trade: Estimation equation

$$lnExp_{ymjp} = \beta_0 + \beta_1 lnImp_{ymip} + \beta_2 lnImp_{ymip} * RoundaboutDummy + \alpha_{ymij} + \alpha_{yijp} + \alpha_{mijp} + \varepsilon_{ymijp}$$

y: year

m: month

i: importer partner country

j: exporter partner country

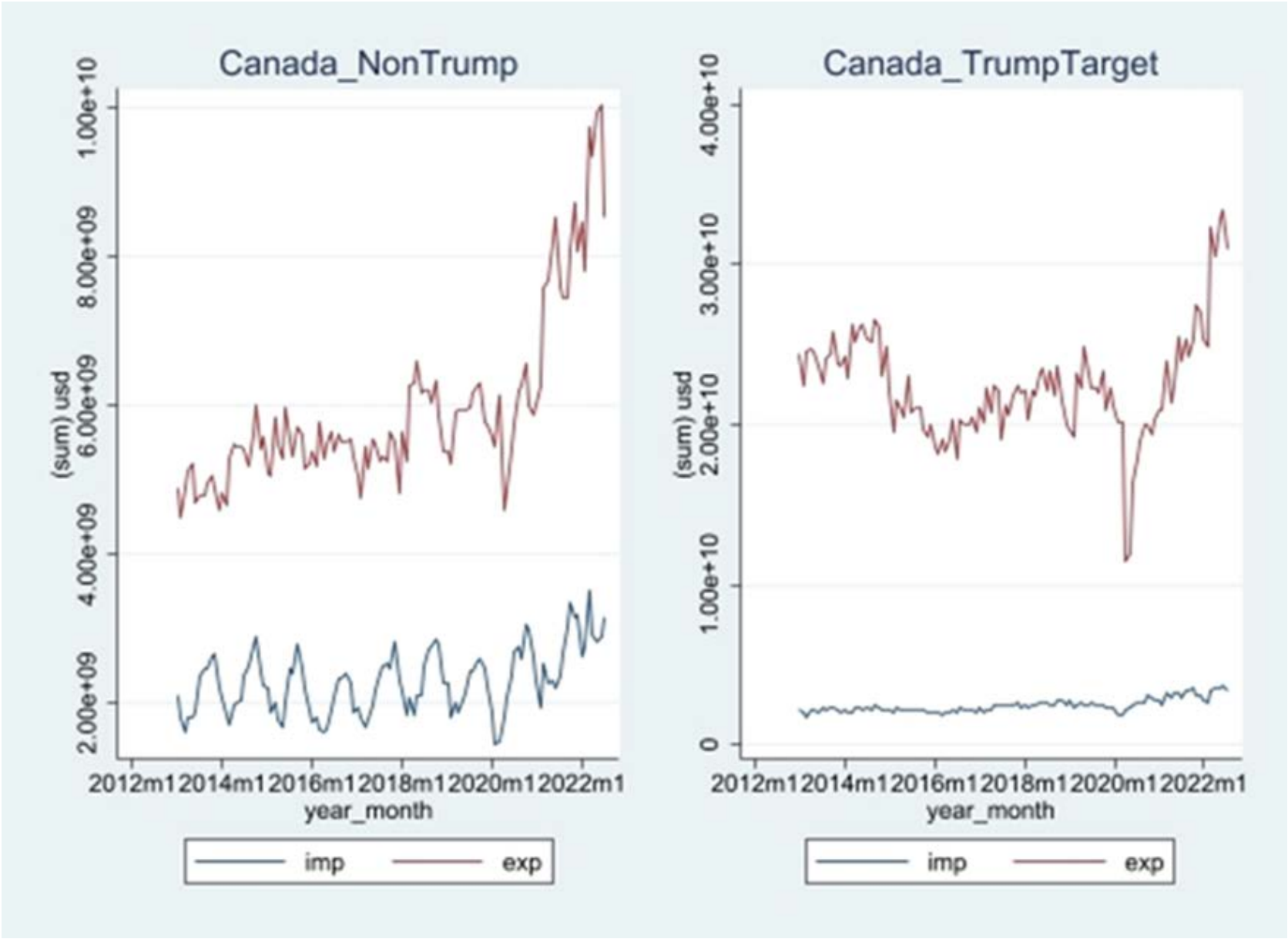
p: product

* Estimation by each reporter country, e.g., Malaysia's imports from i and exports to j

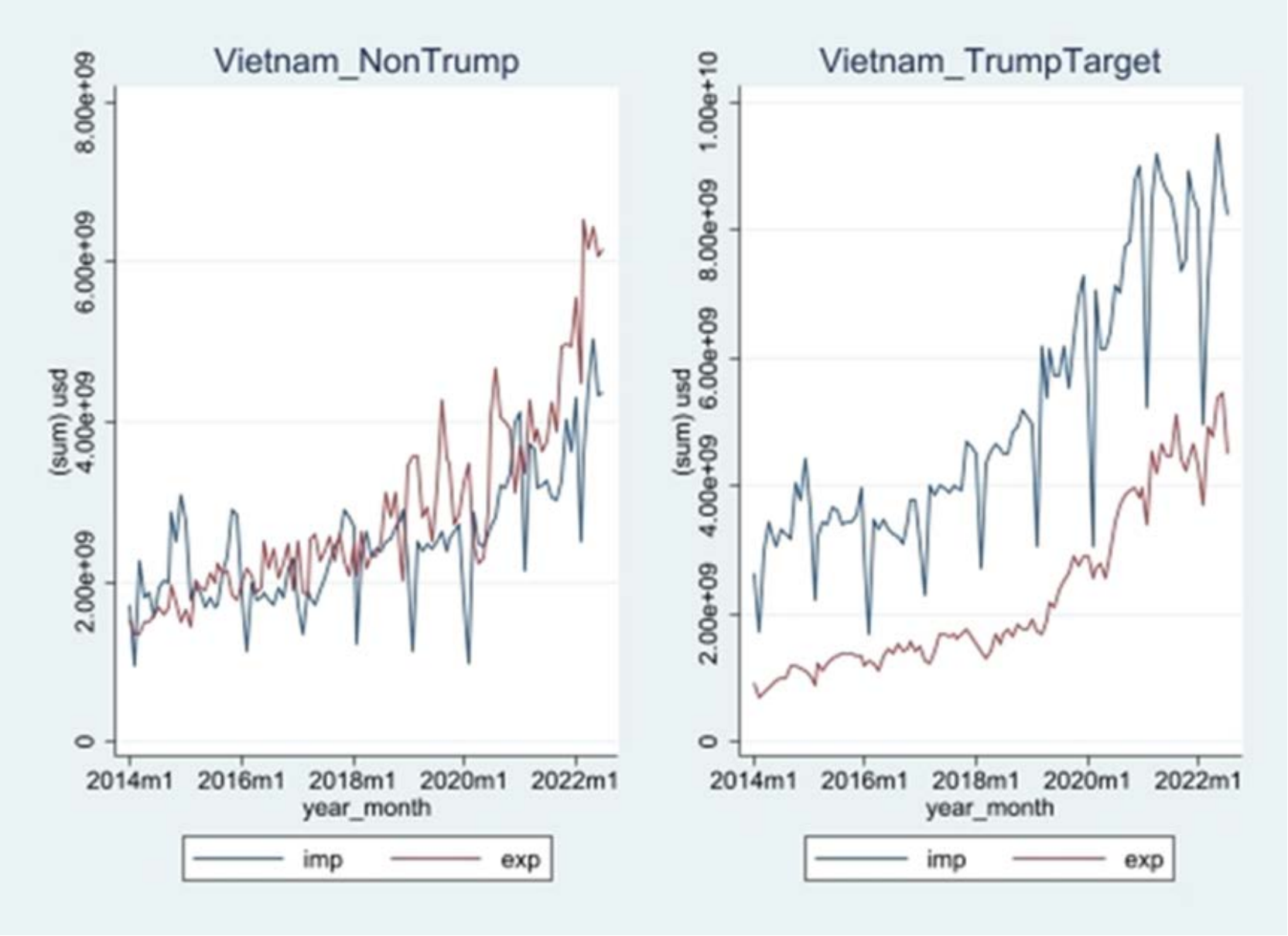
Identification strategy of roundabout trade: Data structures

year	month	reporter	HS	TrumpTariff	TrumpEffective	import_partner	imp_val	export_partner	expval	ExpUSA_ImpCHN_dummy	Roundabout dummy
2016	1	MYS	111111	0	0	CHN	10	USA	10	1	0
2016	1	MYS	111111	0	0	JPN	20	USA	10	0	0
2016	1	MYS	111111	0	0	CHN	10	CHN	30	0	0
2016	1	MYS	111111	0	0	CHN	10	CAN	20	0	0
2016	1	MYS	111111	0	0	JPN	20	CAN	20	0	0
2016	1	MYS	111111	0	0	JPN	20	JPN	10	1	0
2016	1	MYS	111112	1	0	CHN	10	USA	10	1	0
2016	1	MYS	111112	1	0	JPN	20	USA	10	0	0
2016	1	MYS	111112	1	0	CHN	10	CHN	40	0	0
2016	1	MYS	111112	1	0	CHN	10	CAN	20	0	0
2016	1	MYS	111112	1	0	JPN	20	CAN	20	0	0
2016	1	MYS	111112	1	0	JPN	20	JPN	30	0	0
2019	1	MYS	111112	1	1	CHN	10	USA	10	1	1
2019	1	MYS	111112	1	1	JPN	20	USA	10	0	0
2019	1	MYS	111112	1	1	CHN	10	CHN	20	0	0
2019	1	MYS	111112	1	1	CHN	10	CAN	20	0	0
2019	1	MYS	111112	1	1	JPN	20	CAN	20	0	0
2019	1	MYS	111112	1	1	JPN	20	JPN	10	0	0

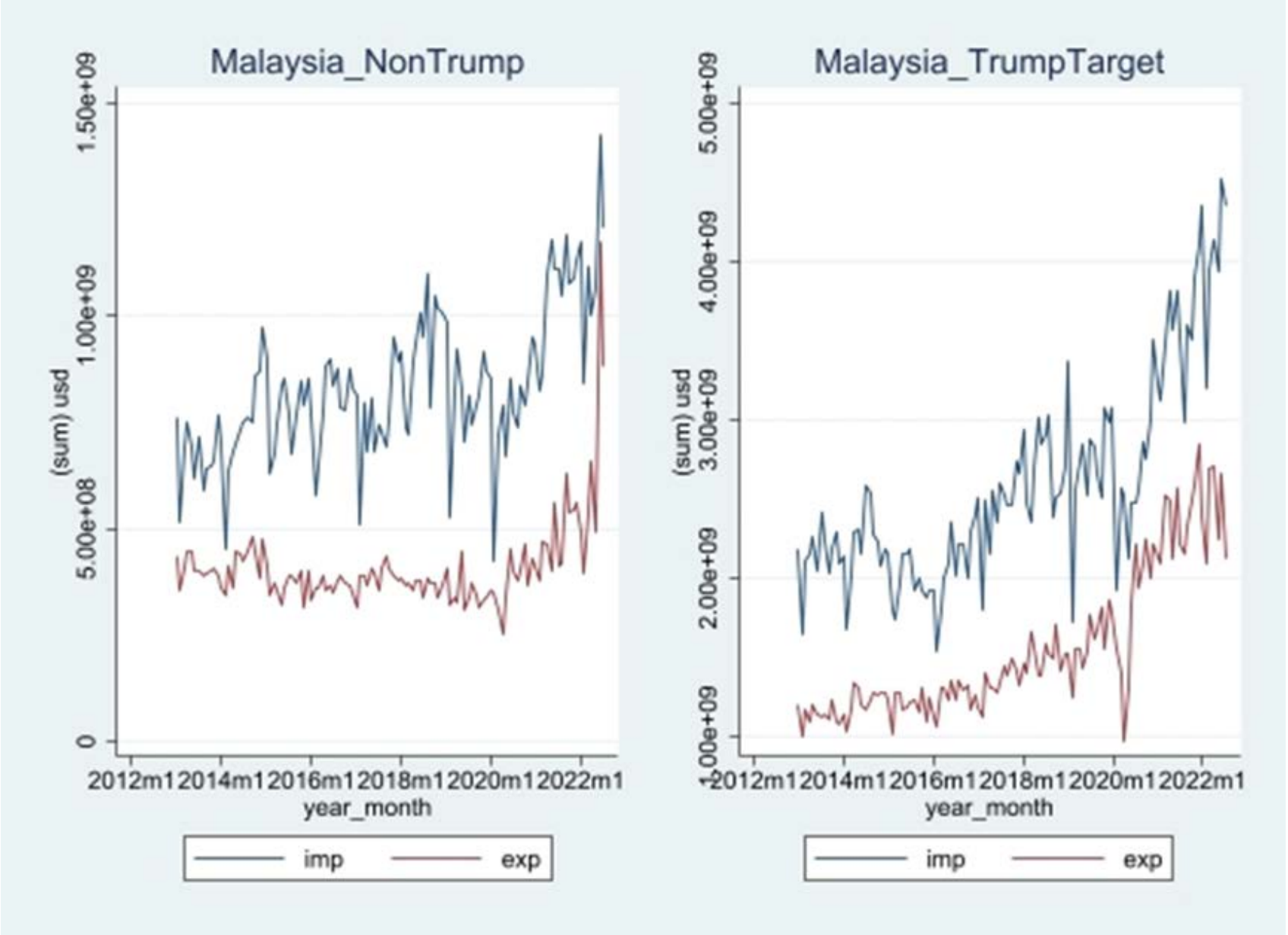
Descriptive analyses



Descriptive analyses



Descriptive analyses



Descriptive Analysis : Roundabout Dataset

Criteria:

1. Increase in both of export value to the US and import value from China by more than or equal to 1 million dollars
2. The gap of increases in export value to the US and import value from China is within 20%*
3. Both imports and exports increased by more than twice**

Imports from China				Exports to US				Gap	Constraints		
Imports before	Imports after	Increase or decrease	Growth(X)	Exports before	Exports after	Increase or decrease	Growth(Y)	US increase/ China increase	Condition 1	Condition 2	Condition 3
10	110	100	10	30	130	100	3.33333333	1=100/100	○	○	○
1000	1100	100	0.1	3000	3100	100	0.03333333	1=100/100	○	○	-

Criterion 1

Criterion 3

Criterion 3

Criterion 2

* : $0.8 < Y/X < 1.2$

** : Growth > 1 (Both China and US)

hs2	reporter							
	Canada	India	Malaysia	Mexico	Philippines	South Korea	Vietnam	Total
	No.	No.	No.	No.	No.	No.	No.	No.
3	1	0	0	0	0	1	0	2
20	0	0	0	0	0	1	0	1
25	1	0	0	0	0	0	0	1
28	1	2	0	0	0	0	0	3
29	1	2	0	0	0	1	0	4
33	0	0	0	0	0	0	1	1
34	0	0	1	0	0	0	0	1
37	0	0	0	0	0	0	0	0
38	0	0	1	0	0	0	0	1
39	1	1	1	0	0	3	1	7
40	1	3	1	0	0	0	0	5
42	0	0	0	0	0	0	0	0
44	0	1	2	0	1	0	0	4
48	1	1	1	1	0	0	0	4
56	0	0	0	1	0	1	0	2
60	1	0	0	0	0	0	0	1
68	0	0	0	1	0	1	0	2
69	1	0	0	0	0	0	0	1
70	0	2	0	0	0	0	0	2
73	0	0	0	0	0	0	0	0
74	0	2	0	0	0	1	0	3
75	0	0	0	0	0	0	0	0
82	0	0	0	0	0	1	0	1
83	0	0	0	0	0	0	0	0
84	4	5	1	1	1	3	1	16
85	1	3	3	0	0	2	2	11
86	0	1	0	0	0	0	0	1
87	0	0	0	0	1	0	0	1
90	0	0	0	1	2	0	1	4
94	0	1	0	0	0	0	0	1
Total	14	24	11	5	5	15	6	80

Code	Description	Total number of HS 6-digit codes	Number of HS 6-digit codes meeting the 3 criteria	Percentage
03	Fish and crustaceans, molluscs and other aquatic invertebrates	224	2	0.9%
20	Preparations of vegetables, fruit, nuts or other parts of plants	52	1	1.9%
25	Salt; sulphur; earths, stone; plastering materials, lime and cement	68	1	1.5%
28	Inorganic chemicals; organic and inorganic compounds of precious metals; of rare earth metals, of radio-active elements and of isotopes	174	3	1.7%
29	Organic chemicals	385	4	1.0%
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations	29	1	3.4%
34	Soap, organic surface-active agents; washing, lubricating, polishing or scouring preparations; artificial or prepared waxes, candles and similar articles, modelling pastes, dental waxes and dental preparations with a basis of plaster	23	1	8.7%
37	Photographic or cinematographic goods	30	0	3.3%
38	Chemical products n.e.c.	92	1	2.2%
39	Plastics and articles thereof	129	7	7.8%
40	Rubber and articles thereof	80	5	6.3%
42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)	20	0	10.0%
44	Wood and articles of wood; wood charcoal	103	4	4.9%
48	Paper and paperboard; articles of paper pulp, of paper or paperboard	101	4	4.0%
56	Wadding, felt and nonwovens, special yarns; twine, cordage, ropes and cables and articles thereof	30	2	6.7%
60	Fabrics; knitted or crocheted	44	1	2.3%
68	Stone, plaster, cement, asbestos, mica or similar materials; articles thereof	49	2	4.1%
69	Ceramic products	30	1	3.3%
70	Glass and glassware	64	2	3.1%
73	Iron or steel articles	124	0	1.6%
74	Copper and articles thereof	50	3	6.0%
75	Nickel and articles thereof	17	0	5.9%
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof, of base metal	64	1	1.6%
83	Metal; miscellaneous products of base metal	36	0	2.8%
84	Machinery and mechanical appliances, boilers, nuclear reactors; parts thereof	516	16	3.9%
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers; television image and sound recorders and reproducers, parts and accessories of such articles	265	11	4.5%
86	Railway, tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electro-mechanical) traffic signalling equipment of all kinds	23	1	8.7%
87	Vehicles; other than railway or tramway rolling stock, and parts and accessories thereof	87	1	4.6%
90	Optical, photographic, cinematographic, measuring, checking, medical or surgical instruments and apparatus; parts and accessories	144	4	3.5%
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, n.e.c.; illuminated signs, illuminated name-plates and the like; prefabricated buildings	42	1	2.4%

Estimation results

VARIABLES	(1) Canada	(2) Indonesia	(3) Malaysia	(4) Mexico	(5) Singapore	(6) South Korea	(7) Thailand	(8) Vietnam	(9) India	(10) Philippines
ln_imp_val	0.000809*	0.000237	0.00342***	0.00166***	0.00475***	0.000630*	0.000859**	-0.000113	0.000736*	-0.000917
	(0.000403)	(0.000530)	(0.000455)	(0.000407)	(0.000302)	(0.000294)	(0.000321)	(0.000364)	(0.000362)	(0.000999)
roundabout (detour)	0.000870	0.00332	-0.00165	0.00216	0.00306	-0.00105	-0.000285	0.00555	0.00256	-0.0162*
	(0.00136)	(0.00525)	(0.00331)	(0.00213)	(0.00405)	(0.00258)	(0.00363)	(0.00459)	(0.00286)	(0.00750)
Month*Importer dummy*Exporter dummy*Product dummy fixed effect	√	√	√	√	√	√	√	√	√	√
Year*Importer dummy*Exporter dummy*Product dummy fixed effect	√	√	√	√	√	√	√	√	√	√
year*month*Importer dummy*Exporter dummy fixed effect	√	√	√	√	√	√	√	√	√	√
Observations	14,439,626	7,585,136	9,261,981	13,933,028	18,528,624	17,320,517	20,968,602	12,959,211	16,224,897	2,389,201
R-squared	0.887	0.879	0.903	0.897	0.892	0.899	0.890	0.900	0.855	0.871

Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

$$lnExp_{ymjp} = \beta_0 + \beta_1 lnImp_{ymip} + \beta_2 lnImp_{ymip} * RoundaboutDummy + \alpha_{ymij} + \alpha_{yijp} + \alpha_{mijp} + \varepsilon_{ymijp}$$

Estimation results with lagged

VARIABLES	(1) Canada	(2) Indonesia	(3) Malaysia	(4) Mexico	(5) Singapore	(6) South Korea	(7) Thailand	(8) Vietnam	(9) India	(10) Philippines
ln_imp_val_l1	0.000402	-0.00115	0.00212***	0.00189***	0.00324***	0.000750*	0.00110**	0.000106	0.00188***	-0.00109
	(0.000473)	(0.000617)	(0.000531)	(0.000467)	(0.000345)	(0.000338)	(0.000364)	(0.000422)	(0.000430)	(0.00120)
roundabout (detour)	0.000693	0.00365	-0.00123	0.00244	0.000333	-0.00131	0.000186	0.00324	0.000378	-0.0152*
	(0.00132)	(0.00509)	(0.00324)	(0.00198)	(0.00399)	(0.00242)	(0.00347)	(0.00485)	(0.00272)	(0.00746)
Month*Importer dummy*Exporter dummy*Product dummy fixed effect	√	√	√	√	√	√	√	√	√	√
Year*Importer dummy*Exporter dummy*Product dummy fixed effect	√	√	√	√	√	√	√	√	√	√
year*month*Importer dummy*Exporter dummy fixed effect	√	√	√	√	√	√	√	√	√	√
Observations	10,242,462	5,187,435	6,468,080	10,286,497	13,792,895	13,009,570	15,555,337	9,340,382	11,385,893	1,526,537
R-squared	0.897	0.889	0.911	0.910	0.902	0.906	0.900	0.908	0.865	0.882

Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

$$lnExp_{ymjp} = \beta_0 + \beta_1 lnImp_{ymip} + \beta_2 lnImp_{ymip} * RoundaboutDummy + \alpha_{ymij} + \alpha_{yijp} + \alpha_{mijp} + \varepsilon_{ymijp}$$

Period extension

The benchmark original estimation used monthly trade data from January 2016 to December 2019 because it sufficiently covers before and after the Trump tariffs and avoids contamination of the trade data by COVID-19.

However, it may take more time for roundabout trade to appear. Moreover, Trump tariffs were not lifted under the Biden administration and still stay there.

So, I extended the data period up to the most recently available data at the time of the analyses, i.e., August/September 2023.

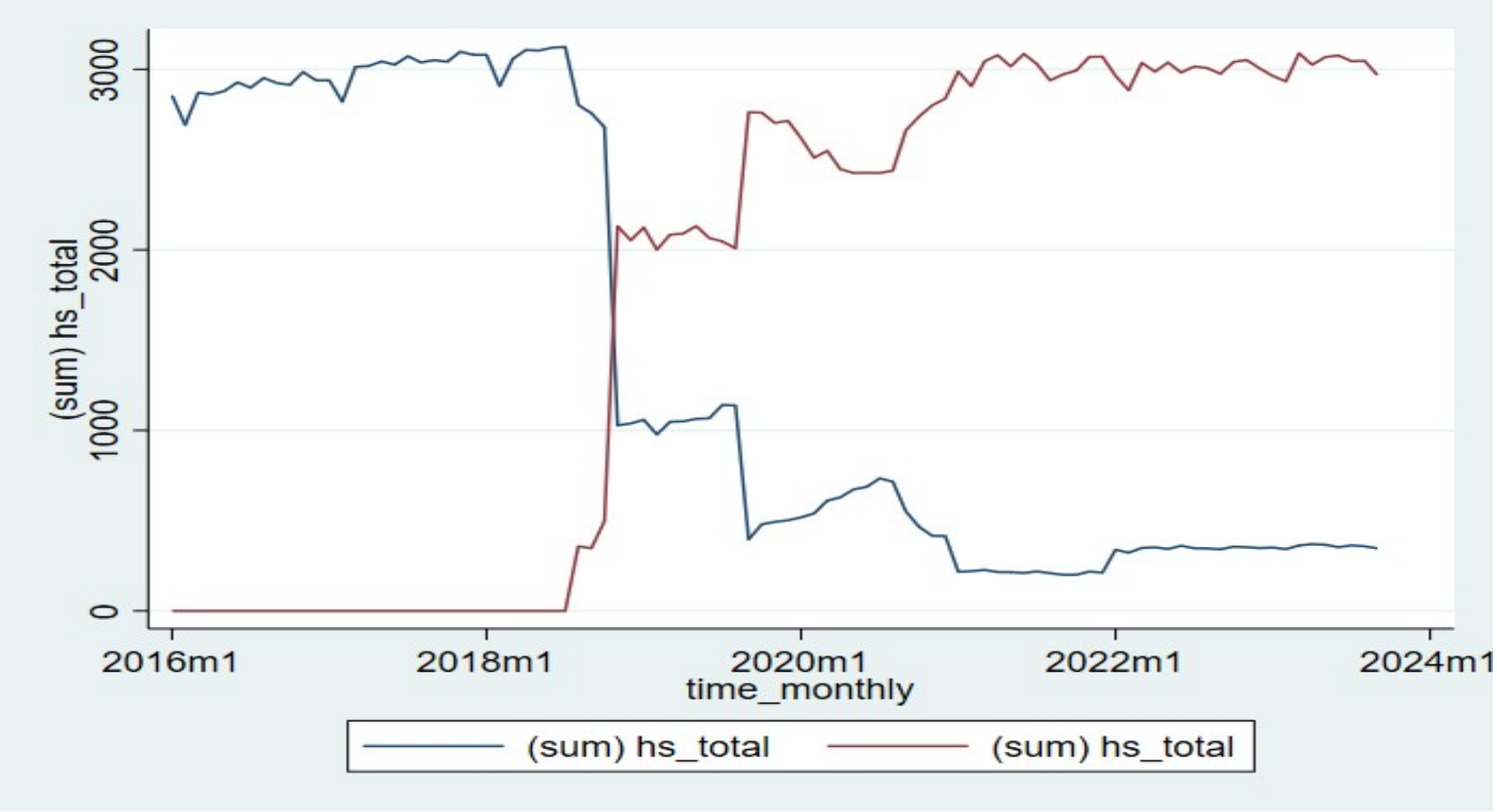
Trump tariff up to August/September 2023

	List 1	List 2	List 3	List 4A
Date of the excecutive orders being effective	6th Jun., 2018	23rd Jul., 2018	1st: 24th Sep., 2018 2nd: 10th May., 2019	1st Sep., 2019
The purpose of the trade act	China's laws, politics, practices, or actions may be unreasonable or discriminatory and may be harming American intellectual property (IP) rights, innovation, or technology development.			
Relevant US domestic law	Section 301 of the Trade Act of 1974			
The number of targeted items*	818	279	5745	3805
Ad valorem duties	25%	25%	1st: 10% 2nd: 25%	25%
The total number of exempted items**	266	76	476	109
The ratio of exempted items to target items	33%	27%	8%	3%
The date of the first exemption	12/28/2018	7/31/2019	10/28/2019	3/10/2020
The number of exemption phases	12	7	18	10
The characteristics of targeted items*	High value-added products (Industrial equipments)	Industrial products e.g., plastics, semiconductors, and railway parts	Consumer products e.g., home appliances, chemical products, and textile products	Consumer products e.g., mobile phone, laptop, toy,and video game

Note *: Targeted goods are defined at HS 8-digit. The total number of HS 8-digit goods is 11300.
**: Author's counting of the exempted items at HS 8-digit. (USTR defines exempted items by HS 10-digit.)

Source: Author's elaboration from Office of the United States Trade Representative (USTR)'s official announcement. See the reference for the URL.

How many Trump and Non-Trump tariff goods
Case of Vietnam



Estimation results with **extended period up to August/September 2023**

VARIABLES	(1) Canada	(2) Indonesia	(3) Malaysia	(4) Mexico	(5) Singapore	(6) South Korea	(7) Thailand	(8) Vietnam	(9) India	(10) Philippines
ln_imp_val	0.00203***	0.000816*	0.00459***	0.00207***	0.00593***	0.00110***	0.00223***	0.00150***	0.00237***	-0.000346
	(0.000258)	(0.000327)	(0.000295)	(0.000264)	(0.000196)	(0.000192)	(0.000207)	(0.000225)	(0.000228)	(0.000596)
roundabout (detour)	-6.41e-05	-0.00184	-0.000688	0.00315**	0.000220	-0.000502	0.00218	0.00593**	0.000618	-0.00652
	(0.000669)	(0.00253)	(0.00171)	(0.00107)	(0.00204)	(0.00127)	(0.00180)	(0.00222)	(0.00144)	(0.00339)
Month*Importer dummy*Exporter dummy*Product dummy fixed effect	√	√	√	√	√	√	√	√	√	√
Year*Importer dummy*Exporter dummy*Product dummy fixed effect	√	√	√	√	√	√	√	√	√	√
year*month*Importer dummy*Exporter dummy fixed effect	√	√	√	√	√	√	√	√	√	√
Observations	29,733,641	17,111,492	20,113,226	28,466,069	38,308,678	36,835,355	42,851,383	29,603,811	34,885,217	5,436,975
R-squared	0.866	0.859	0.884	0.877	0.872	0.881	0.870	0.883	0.831	0.857

Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

$$lnExp_{ymjp} = \beta_0 + \beta_1 lnImp_{ymip} + \beta_2 lnImp_{ymip} * RoundaboutDummy + \alpha_{ymij} + \alpha_{yijp} + \alpha_{mijp} + \varepsilon_{ymijp}$$

Estimation results with **extended period up to** August/September 2023 with lagged covariates

VARIABLES	(1) Canada	(2) Indonesia	(3) Malaysia	(4) Mexico	(5) Singapore	(6) South Korea	(7) Thailand	(8) Vietnam	(9) India	(10) Philippines
ln_imp_val_l1	0.00121***	0.000160	0.00269***	0.00175***	0.00425***	0.000988***	0.00213***	0.000801**	0.00234***	0.000963
	(0.000305)	(0.000377)	(0.000343)	(0.000305)	(0.000223)	(0.000220)	(0.000234)	(0.000260)	(0.000269)	(0.000707)
roundabout (detour)	-0.000513	-0.00210	-0.00225	0.00302**	0.00136	0.00135	0.00304	0.00417	-0.000606	-0.00636
	(0.000643)	(0.00246)	(0.00169)	(0.000987)	(0.00199)	(0.00120)	(0.00172)	(0.00236)	(0.00135)	(0.00337)
Month*Importer dummy*Exporter dummy*Product dummy fixed effect	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year*Importer dummy*Exporter dummy*Product dummy fixed effect	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
year*month*Importer dummy*Exporter dummy fixed effect	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	20,921,748	11,750,770	13,918,666	20,954,094	28,573,562	27,763,360	31,700,846	21,521,132	24,581,119	3,483,215
R-squared	0.877	0.869	0.892	0.891	0.883	0.888	0.881	0.892	0.842	0.869

Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

$$lnExp_{ymjp} = \beta_0 + \beta_1 lnImp_{ymip} + \beta_2 lnImp_{ymip} * RoundaboutDummy + \alpha_{ymij} + \alpha_{yijp} + \alpha_{mijp} + \varepsilon_{ymijp}$$

Alternative estimation model

As an alternative estimation, I excluded the imports from the covariates.

$$lnExp_{ymjp} = \beta_0 + \beta_1 * RoundaboutDummy + \alpha_{ymij} + \alpha_{yijp} + \alpha_{mijp} + \varepsilon_{ymijp}$$

Alternative estimation equation

VARIABLES	(1) Canada	(2) Indonesia	(3) Malaysia	(4) Mexico	(5) Singapore	(6) South Korea	(7) Thailand	(8) Vietnam	(9) India	(10) Philippines
roundabout (detour)	-0.000964	-0.0326	-0.0273	0.0201	0.00639	-0.00707	0.0233	0.0740*	-0.0141	-0.0950*
	(0.00962)	(0.0347)	(0.0242)	(0.0154)	(0.0282)	(0.0187)	(0.0252)	(0.0300)	(0.0197)	(0.0449)
Month*Importer dummy*Exporter dummy*Product dummy fixed effect	√	√	√	√	√	√	√	√	√	√
Year*Importer dummy*Exporter dummy*Product dummy fixed effect	√	√	√	√	√	√	√	√	√	√
year*month*Importer dummy*Exporter dummy fixed effect	√	√	√	√	√	√	√	√	√	√
Observations	29,733,641	17,111,492	20,113,226	28,466,069	38,308,678	36,835,355	42,851,383	29,603,811	34,885,217	5,436,975
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Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

$$lnExp_{ymjp} = \beta_0 + \beta_1 * RoundaboutDummy + \alpha_{ymij} + \alpha_{yijp} + \alpha_{mijp} + \varepsilon_{ymijp}$$

Concluding remarks

- Many news articles about tariff dodging by re-routing the made-in-China goods through third countries and relabeling them as made-in-Mexico or made-in-Vietnam
- The analyses using the data before COVID-19 to avoid contamination show no statistical evidence of such misconduct in general, whereas those with the extended data up to August/September show a slight, if any, sign of roundabout trade.

⇒It indicates that traders may be learning how to dodge the Trump tariff by roundabout trade. We need to closely watch it.