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RECIPROCITY IN MULTILATERAL TRADE NEGOTIATIONS

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ABSTRACT

Preliminary and incomplete. Please do not quote

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Some countries have expressed concerns about imbalances in the level of tariffs applied by other countries. This leads to renewed interest in the way reciprocity is implemented in tariff negotiations and the aim of this paper is to compare different ways to implement reciprocity in tariff negotiations. We employ the WTO Global Trade Model to examine the potential impact of reciprocal tariffs introduced by the United States and to compare different ways to model reciprocity in multilateral tariff negotiations evaluating the economic effects on different negotiation partners. In particular, we look into different formulas to implement reciprocity: (i) the classical Bagwell-Staiger notion of reciprocity under which tariff changes provoke equal changes in exports and imports; (ii) reduction of tariffs to the lowest most-favoured nation (MFN) tariff rate; (iii) equal per cent reduction of tariffs; (iv) reduction in proportion to the share in global demand (both imported and domestic), such that larger players in the global market incurring larger terms of trade gains from having tariffs in place have to reduce tariffs more; (v) reduction of tariffs in proportion to the negative welfare impact (relative to GDP) of actual tariffs imposed on other countries. This approach formalizes the notion that large players imposing stronger negative terms of trade effects on other countries have to provide more concessions. The different formulas are implemented in a static and dynamic (with adjusting capital stock) setting.

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[♦] *Disclaimer:* The opinions expressed in this article should be attributed only to its authors. They are not meant to represent the positions or opinions of the WTO and its Members and are without prejudice to Members' rights and obligations under the WTO. Any errors are attributable to the authors.

1 INTRODUCTION

The government of the United States has voiced its unease about unequal tariff rates. President Trump has repeatedly referred to tariffs on passenger vehicles on which the US imposes 2.5% tariffs and faces a duty rate of 10% in the EU and 25% in China. Hence, there have been calls for so-called reciprocal tariffs, in which the US would raise tariffs to the level imposed by its trading partners. This would lead to an increase in tariffs imposed by the US on most of its trading partners and as a first exercise we will examine the economic repercussions of such a policy.

Obviously, this policy would be at odds with the principle of most favoured nation (MFN), one of the main principles of the global trade system implemented through the World Trade Organization. More broadly, the calls for reciprocal tariffs in the US raise the question to what extent current tariffs are not reciprocal and how tariffs should be modified at a global level if reciprocity would be a guiding principle. In this paper we look at various ways to implement reciprocity in tariff negotiations: (i) the classical Bagwell-Staiger notion of reciprocity under which tariff changes provoke equal changes in exports and imports; (ii) reduction of tariffs to the lowest most-favoured nation (MFN) tariff rate; (iii) equal per cent reduction of tariffs; (iv) reduction in proportion to the share in global demand (both imported and domestic), such that larger players in the global market incurring larger terms of trade gains from having tariffs in place have to reduce tariffs more; (v) reduction of tariffs in proportion to the negative terms of trade effects of actual tariffs imposed on other countries, relative to the population size of the country. This approach formalizes the notion that large players in the global economy imposing stronger negative terms of trade effects on other countries might be asked to make more concessions. As a variation tariffs could be reduced in proportion to the negative welfare effects of actual tariffs imposed on other countries (again relative to the population size of the country).

We employ the WTO Global Trade Model, a dynamic computable general equilibrium model to explore the impact of US tariff increases to make tariffs reciprocal and to examine the different possibilities to implement "reciprocal" global tariff liberalization. We look both at comparative static and dynamic settings, allowing for the capital stock to adjust. The paper is organized as follows. The next section provides an overview of the employed model and the construction of baseline data. Section 3 examines the macroeconomic and trade effects of raising US tariffs to the reciprocal level and Section 4 goes into the different ways to implement reciprocal tariff liberalization. Section 5 concludes.

2 MODEL AND BASELINE

2.1 WTO Global Trade Model

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2.2 Construction of baseline

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3 RECIPROCAL US TARIFFS

In this section we present the projected economic effects of the US raising tariffs to the reciprocal tariffs without retaliation of trading partners. In this scenario the US would raise tariffs imposed on imports from trading partners at the HS6 tariff line level to the same rate it faces when exporting to the same trading partner.[1]

3.1 Tariff changes

Table 1 shows for the main trading partners of the US the share of imports and exports of commodities (excluding services) of the US for which tariffs of trading partners are higher. As shown in the table about half of all trade in commodities between the US and its main trading partners faces higher tariffs at the HS6 level than is imposed. This constitutes about 900 billion of imports into the US or about 500 billion exports from the US. The 900 billion is larger than the about 600 billion reported in Griswold (2019). However, Griswold (2019) focuses only on the largest 10

[1] For the aggregate regions we raise US tariffs imposed to the tariffs faced at the GTAP sector level.

importers, whereas our numbers are focused on the largest 17 regions in terms of GDP and population. For some countries the share is much higher (Bangladesh, India, and Indonesia for example) and for others much lower (Japan for example). For the European Union the share is with 49% at the average level.

Table 1 Value of US imports on exports on which the US faces higher tariffs

Region	US imports	US exports	US imports	US exports	Perc. imports into US facing lower tariffs	Perc. exports from US facing higher tariffs
	Total		Trade with US facing higher tariffs			
Argentina	4,341	7,587	3,898	4,980	90%	66%
Australia	9,327	21,096	2,019	10,334	22%	49%
Bangladesh	5,615	978	5,580	290	99%	30%
Brazil	25,574	24,847	18,026	19,206	70%	77%
Canada	281,144	215,655	84,926	66,587	30%	31%
China	497,819	153,201	276,679	120,373	56%	79%
EU28	404,606	239,949	197,996	96,034	49%	40%
India	47,551	22,071	45,239	20,886	95%	95%
Indonesia	20,055	8,121	18,408	4,091	92%	50%
Japan	132,233	70,611	4,396	12,850	3%	18%
Korea	69,427	42,377	49,085	29,648	71%	70%
Mexico	304,419	188,916	166,386	68,316	55%	36%
Nigeria	7,068	2,494	871	2,319	12%	93%
Russia	16,866	12,588	14,951	9,415	89%	75%
Saudi-Arabia	18,348	15,168	17,372	11,029	95%	73%
South-Africa	7,911	5,270	2,482	1,646	31%	31%
Turkey	8,961	11,699	6,316	4,964	70%	42%
Total	**1,861,265**	**1,042,629**	**914,629**	**482,968**	**49%**	**46%**

Note: tariff data from 2017 are used
Source: WTO tariff and trade data

Table 2 displays the trade weighted average tariff increase the US imposes on different trading partners and the trade weighted average tariff increase in the different sectors in the aggregation. On average the US would increase its tariff rate from 1.26% to 4.62%. The largest increases tend to occur for imports from poorer regions which often benefit from different types of preferential market access. Tariffs on imports from Bangladesh would increase for example from 10.7% to 25.2%. For Sub-Saharan Africa tariffs would increase from 0.06% to 4.61%. Tariffs on imports from China would also increase substantially, from to 2.91% to 7.66% and tariffs on imports from the EU would rise from 1.31% to 3.44%.

The sectoral distribution of tariff increases shows that tariffs would rise substantially, for example for rice, cereals, oil seeds, and livestock. This reflects that the US faces in general much higher tariffs in these sectors than it imposes. Sugar is an exception, since it is already relatively heavy protected in the US. Tariffs for processed food would also increase substantially in the reciprocity scenario. In the manufacturing sectors, tariffs would increase substantially for example in the motor vehicles sector.[2]

[2] The 2018 tariff increases by the United States in the framework of the 232 and 301 have not been taken into account in calculating the tariff increases in a reciprocal tariff scenario.

Table 2 Average and initial average tariffs on imports into the United States by trading partner and sector

Region	Initial	Reciprocal tariffs	Sector	Initial	Reciprocal tariffs
Argentina	1.28%	8.26%	Rice	1.05%	20.88%
ASEAN	3.28%	4.90%	Cereals	0.07%	29.97%
Australia	0.20%	0.95%	Oil seeds	0.01%	5.78%
Bangladesh	10.71%	25.21%	Sugar	9.65%	10.43%
Brazil	0.90%	5.95%	Other crops	0.22%	10.40%
Canada	0.06%	1.85%	Livestock	0.24%	6.10%
China	2.91%	7.66%	Forestry	0.09%	7.21%
EFTA	0.99%	1.55%	Fossil fuels	0.00%	1.20%
EU28	1.31%	3.44%	Minerals nec	0.02%	2.23%
Rest High-inc. Asia	1.74%	2.24%	Meat products	0.73%	10.96%
India	2.02%	12.32%	Dairy products	9.66%	24.81%
Indonesia	4.68%	12.34%	Vegetable oils	0.39%	14.10%
Japan	1.19%	1.31%	Other processed food	1.68%	12.82%
Mexico	0.00%	5.55%	Beverages and tobacco	0.87%	9.34%
Nigeria	0.00%	0.57%	Textiles	5.49%	9.78%
Pakistan	8.70%	14.30%	Wearing apparel	9.68%	15.28%
Russia	0.46%	3.93%	Leather products	11.52%	14.89%
Saudi Arabia	0.07%	4.84%	Wood products	1.14%	3.64%
South Africa	0.15%	5.82%	Paper products	0.06%	2.10%
South Korea	0.43%	4.14%	Petroleum & coal prods.	0.72%	2.41%
Turkey	2.26%	9.94%	Chemical, rubber, plastic	1.27%	3.31%
Rest of East Asia	3.03%	7.04%	Ferrous metals	0.21%	3.10%
Rest Europe & Central Asia	0.72%	2.51%	Metals nec	0.63%	2.57%
Rest of Latin America	0.24%	3.99%	Metal products	1.51%	6.13%
Rest of Mid. East & N. Africa	0.27%	1.44%	Motor vehicles and parts	0.59%	7.11%
Rest of South Asia	8.56%	12.89%	Transport equipment	0.31%	2.46%
Rest of Sub-Saharan Africa	0.06%	4.61%	Electronic equipment	0.27%	1.58%
			Machinery & equipment	0.77%	3.80%
			Manufactures nec	0.63%	4.27%
Average	**1.27%**	**4.62%**	**Average**	**1.27%**	**4.62%**

Note: tariff data from 2017 are used
Source: WTO tariff and trade data

3.2 Macroeconomic effects

Table 3 displays the projected macroeconomic effects in 2023 of the US raising tariffs to the reciprocal level in 2019 on the largest countries in the global economy. In particular, US tariffs are increased to the level imposed on its exports. The table shows that GDP in the United States would fall by 0.1% and the consumer price level would rise substantially, by 1.13%. Real income, defined as nominal income divided by the aggregate price level is projected to increase somewhat. The reason is that the US would incur terms-of-trade gains, driving down prices (net-of-tariffs) of its imports. GDP in some countries is projected to fall, whereas in others it is projected to rise. Two factors are key in explaining these differences. First, regions facing large increases in tariffs such as Bangladesh are projected to see a reduction in GDP. Second, regions trading a lot with the US such as Mexico are also projected to face a reduction in GDP.
The regions with the largest falls in GDP tend to see the largest projected reductions in the consumer price level. Less exports to the US will lead to more domestic supply and as a result the consumer price level tends to fall. Real income is projected to fall in most trading partners of the US. Besides an increase in distortions because of higher tariffs for imports into the US, the trading partners of the US would face terms-of-trade losses.

Table 3 Macroeconomic effects of US reciprocal tariffs, per cent changes in 2023 relative to the baseline

Region	Real GDP	Consumer price level	Real income
Argentina	-0.06%	-0.37%	-0.11%
ASEAN	0.07%	0.05%	0.07%
Australia	0.03%	0.14%	-0.01%
Bangladesh	-0.19%	-1.50%	-0.47%
Brazil	-0.04%	-0.45%	-0.10%
Canada	0.06%	0.49%	0.11%
China	-0.08%	-0.47%	-0.19%
EFTA	0.03%	0.11%	-0.02%
EU28	0.04%	0.05%	0.04%
India	-0.04%	-0.67%	-0.16%
Indonesia	-0.06%	-0.53%	-0.17%
Japan	0.09%	0.41%	0.19%
Mexico	-0.62%	-2.44%	-1.31%
Nigeria	0.01%	-0.16%	-0.06%
Pakistan	0.04%	-0.18%	0.06%
Russia	0.01%	-0.16%	-0.11%
Saudi Arabia	0.05%	-0.34%	-0.53%
South Africa	0.01%	-0.16%	-0.01%
South Korea	0.03%	-0.06%	-0.01%
Turkey	0.01%	-0.13%	-0.03%
United States	-0.10%	1.13%	0.13%

Notes: Real income is defined as income divided by the aggregate price level
Source: simulations with WTO Global Trade Model

3.3 Trade effects

More insights into the macroeconomic effects can be gained by looking at the trade effects in Table 4. The table displays the change in total exports and exports to the US, both in millions of dollars and in per cent changes. The table shows that exports to the US fall substantially for some regions, such as Bangladesh, China, India, and Indonesia, whereas it increases for other regions. The reason for the increase in exports of some regions such as Australia, EFTA, and the EU is that imports from different sources are more substitutable than imports and domestic goods. Hence, strong increases in tariffs from some regions lead to substitution to imports from regions with more moderate tariff increases.

Table 4 Trade effects of US reciprocal tariffs, per cent changes in 2023 relative to the baseline

Region	Change total exports		Change export to US	
	Value (Millions $)	Percentage	Value (Millions $)	Percentage
Argentina	-318	-0.35%	-651	-9.22%
ASEAN	2733	0.21%	9952	6.26%
Australia	-81	-0.02%	2355	11.89%
Bangladesh	-1117	-2.00%	-3950	-41.18%
Brazil	-2140	-0.62%	-4408	-8.42%
Canada	5187	0.90%	10590	2.75%
China	-29103	-1.07%	-73888	-14.69%
EFTA	184	0.03%	4294	7.43%
EU28	-3697	-0.09%	11860	1.81%
India	-6133	-1.17%	-15024	-17.57%
Indonesia	-2871	-0.96%	-5616	-19.28%
Japan	847	0.07%	22019	13.65%
Mexico	-9666	-1.94%	-21935	-5.99%
Nigeria	-347	-0.28%	867	8.70%
Pakistan	-189	-0.57%	-82	-1.61%
Russia	-1967	-0.29%	-2156	-7.00%
Saudi Arabia	-4216	-0.99%	-27794	-31.18%
South Africa	-633	-0.48%	-842	-8.63%
South Korea	-2542	-0.31%	-3881	-4.66%
Turkey	-608	-0.28%	-1070	-9.99%
United States	-92054	-4.50%		
Total				

Notes: total exports exclude intra-regional trade.
Source: simulations with WTO Global Trade Model

3.4 Sectoral effects in the US: trade, production, and employment churn

Table 5 displays the effects of reciprocal US tariffs on sectoral imports, exports, and output in the US, all in real terms. The table shows that imports of commodities fall, whereas imports of services tend to increase. The reduction in imports displays considerably variation with the largest projected reductions in imports observed in the agricultural and processed food sectors, such as rice, cereals, meat and dairy products. Sugar is an exception: its imports tend to increase, reflecting various general equilibrium effects. Since US tariffs are increased much more for other agricultural products, production factors are drawn into other sectors in the US, thus making the US less competitive in sugar production. This phenomenon is especially important for the production factor land, which is only used in the agricultural sectors and is a relatively important production factor. The result is a small increase in sugar production.[3]

Real output in the US would not increase in all sectors. The Reason is similar to the mechanism at play for sugar imports. Production factors are drawn into sectors with the largest incentives for increased domestic production and thus with the largest increase in tariffs. However, also the size of the different sectors plays a role. Motor vehicles is both a large manufacturing sector and a sector in which the US would raise tariffs substantially in the US reciprocity scenario (from 0.59% to 7.11%). As a result, output increases and draws a considerable amount of resources out of other sectors.

[3] On the exporter side a similar mechanism is at play. Exporters face larger tariff increases in other sectors and production factors are thus shedded by other sectors, making exporters more competitive in sugar.

Table 5 Sectoral effects in the US of reciprocal tariffs, per cent changes in 2023 relative to the baseline

	Percentage change in real		
Sector	Imports	Exports	Output
Rice	-15.28%	-6.41%	2.04%
Cereals	-29.23%	-4.65%	0.52%
Oil seeds	-5.40%	-3.83%	-1.73%
Sugar	3.27%	-5.38%	-0.67%
Other crops	-7.91%	-6.27%	1.94%
Livestock	-6.05%	-6.61%	0.36%
Forestry	-5.36%	-4.02%	-0.30%
Fossil fuels	-1.25%	-7.05%	-0.24%
Minerals nec	-1.20%	-0.28%	-0.40%
Meat products	-18.14%	-9.45%	0.34%
Dairy products	-19.28%	-9.67%	0.10%
Vegetable oils	-13.03%	-8.08%	2.97%
Other processed food	-13.25%	-5.29%	1.14%
Beverages and tobacco products	-3.98%	-2.85%	0.23%
Textiles	-6.12%	-10.18%	1.52%
Wearing apparel	-5.59%	-10.99%	4.31%
Leather products	-1.30%	-12.29%	-0.28%
Wood products	-3.67%	-6.29%	-0.20%
Paper products, publishing	-2.46%	-4.73%	-0.16%
Petroleum, coal products	-1.55%	-2.99%	-0.58%
Chemical, rubber, plastics	-2.02%	-5.92%	-1.12%
Mineral products nec	-5.99%	-5.44%	0.27%
Ferrous metals	-2.64%	-4.83%	0.27%
Metals nec	-1.30%	-7.72%	-2.83%
Metal products	-8.27%	-6.92%	0.60%
Motor vehicles and parts	-7.63%	-7.18%	1.38%
Transport equipment	-3.36%	-6.93%	-2.57%
Electronic equipment	-0.54%	-8.06%	-2.27%
Machinery & equipment	-4.18%	-7.09%	-0.43%
Manufactures nec	-3.44%	-7.70%	-0.61%
Utilities and construction	1.62%	-3.91%	-0.38%
Trade	1.79%	-3.46%	0.02%
Transport	1.62%	-2.74%	-0.45%
Business services	1.68%	-2.98%	-0.14%
Other services	1.63%	-3.16%	0.19%

Source: Simulations with the WTO Global Trade Model

Finally, table 6 displays the percentage and number of workers having to leave their initial sector of employment in the different countries. In the US about 0.16% of the workforce would change their initial sector employment, corresponding with about 300,000 workers. Globally, about 5 million workers (or 0.12%) would change the sector of employment, of which more than 20% would be reallocated in India.

Table 6 Per cent and number of workers leaving initial sector of employment in 2023 relative to the baseline with US reciprocal tariffs

	Per cent	Number of workers
Argentina	-0.07%	-18125
ASEAN	-0.14%	-346367
Australia	-0.07%	-10099
Bangladesh	-0.14%	-146891
Brazil	-0.07%	-91850
Canada	-0.21%	-47984
China	-0.06%	-519670
EU28	-0.06%	-168782
EFTA	-0.07%	-6107
Indonesia	-0.18%	-304997
India	-0.14%	-1205209
Japan	-0.16%	-108782
Korea	-0.09%	-30979
Mexico	-0.97%	-789816
Nigeria	-0.02%	-16190
Pakistan	-0.11%	-119580
Russia	-0.04%	-38202
Saudi Arabia	-0.20%	-43534
Turkey	-0.04%	-20660
United States	-0.16%	-308185
Global average	**-0.12%**	**-5452231**

Note: the number of workers leaving their initial sector of employment is based on data of the value of labor income and average wages per country, calculated based on employment data.
Source: Simulations with the WTO Global Trade Model

4 RECIPROCAL TARIFFS IN MULTILATERAL NEGOTIATIONS

4.1 Introduction

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4.2 Mercantilist reciprocal tariffs: equal changes in exports

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4.3 Equal per cent reduction in tariffs

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4.4 Reduction in proportion to the share in global demand

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4.5 Reciprocal tariff reductions in proportion to welfare losses imposed on other regions

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5 CONCLUDING REMARKS

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REFERENCES

Griswold, Daniel (2019). Mirror, Mirror, on the Wall: The Danger of Imposing "Reciprocal" Tariff Rates. Mercatus Center. George Mason University. https://www.mercatus.org/system/files/griswold_-_mercatus_research_-_the_danger_of_demanding_reciprocal_tariff_rates_-_v1.pdf