Universität St.Gallen

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October 2018 Discussion Paper no. 2018-10

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University of St.Gallen

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Publisher:	School of Economics and Political Science Department of Economics University of St.Gallen Müller-Friedberg-Strasse 6/8 CH-9000 St.Gallen Phone +41 71 224 23 07
Electronic Publication:	http://www.seps.unisg.ch

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Abstract

In the so-called Brexit Referendum of June 2016, the British people voted to leave the European Union. With no deal in sight yet, a plausible scenario is that the United Kingdom will start trading with all countries on the basis of WTO rules from April 2019 onward. This would imply that all UK imports and exports will be subject to most-favored-nation (MFN) duties. In the present paper, we examine the tariff impact of a hard Brexit and show that neither better trade agreements with non-European countries nor joining EFTA can compensate for worsened access to the EU market. Assuming that the UK will introduce tariffs according to the currently applied MFN schedule of the European Union, our findings reveal that both British exports and imports would face substantial tariffs. In total, we estimate a quadrupling of duties on UK imports to $21.1 billion and $13.9 billion on exports. Assuming imports from the EU and countries that currently have an FTA with the EU will not change, British Customs would collect an additional $300 million per week after a hard Brexit.

Keywords

Brexit, FTA, Tariffs, Trade Policy, United Kingdom

JEL Classification

F14

1 Introduction

A majority of the British people voted to leave the European Union in June 2016. Despite numerous meetings and discussions, no agreement has been reached on a future relationship with the European Union. As of this writing, it appears possible that the United Kingdom may leave the EU without a deal in March 2019. Following a hard Brexit, the UK would no longer be part of the EU Customs Union. Hence, all British imports and exports would be subject to tariffs according to the World Trade Organization's most-favored-nation (MFN) rule. Several studies document that such a trading arrangement would come at a severe cost to UK citizens (Breinlich et al., 2017; Sampson, 2017; Dhingra et al., 2018*a*,*b*).

In this article, we examine in detail what a hard Brexit would imply for future tariffs on British imports and exports. Contributing to Protts (2016), our analysis examines whether potential trade agreements with non-European countries can compensate for worsened access to the EU market after Brexit. Our study first uses the currently applied MFN tariff schedule on all of British imports. This procedure reveals that UK customs authorities would collect up to 21.1 billion USD in revenue — assuming imports would not respond to higher tariff rates. For the UK's main trading partners in the EU (i.e. Germany, Netherlands, France), we find that the average paid tariff will increase from zero to between 3.3 and 4.6 percent. As for British exports, we apply each destination country's schedule of MFN duties and find that British exporters would pay about 13.9 billion USD. This is noticeably less than what UK customs authorities would collect. The surplus for the UK results from the fact that the UK runs a large trade deficit of about 200 billion USD as of 2017. However, it is unlikely that the British state would actually collect the full 21.1 billion USD since imports would certainly decrease when taxed at a much higher rate than is currently the case. Overall, our findings highlight that a hard Brexit implies that both British imports and exports would be subject to much higher tariffs. This explains (i) why several studies like the ones mentioned above find a substantial negative effect of hard Brexit on the standard of living in the UK, (ii) why some industries like the German car manufacturers are increasingly concerned about Brexit, and (iii) why some governments like Japanese prime minister Shinzo Abe have already invited the UK to enter trade negotiations.[1]

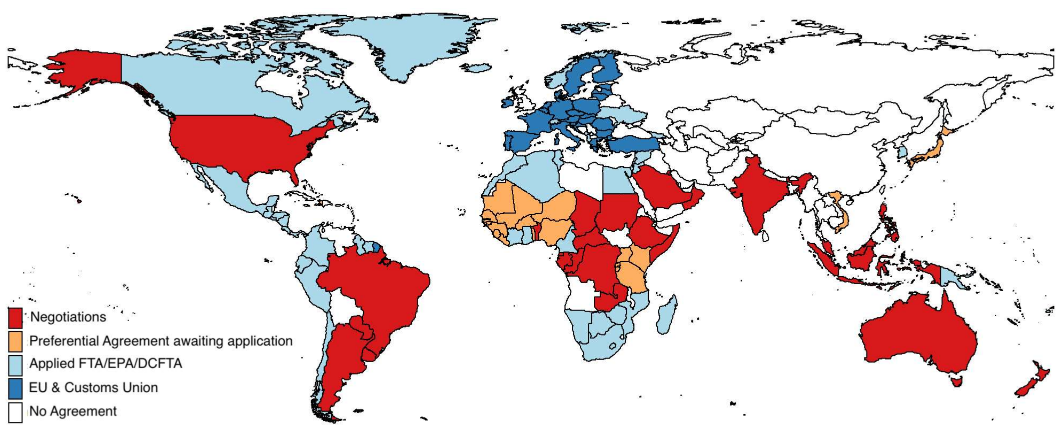
[1] Recent press coverage by the *Financial Times* reflects the concerns: "Carmakers call for Brexit clarity" (October 5, 2018), "UK would be welcomed to TPP with open arms, says Shinzo Abe" (October 7, 2018).

The remainder of the paper is structured as follows. Chapter 2 provides a concise overview of the UK's current main export destinations, origins of imports, and current trade agreements. In Chapter 3, we examine the tariff impact of a hard Brexit on imports from all British trading partners. Subsequently, Chapter 4 provides the mirror image and analyzes the UK's exports. Finally, we conclude and provide policy recommendations in Chapter 5.

2 The United Kingdom's Imports and Exports

As mentioned in the previous section, the United Kingdom is currently a member of the European Union Customs Union. As such, British imports and exports are duty-free within the EU. They also benefit from the EU's network of 29 trade agreements (FTAs) with more than 40 partner countries. We provide an overview of the European Union's trading relationships in Figure 1. The two main countries that currently have no preferential agreement with the EU and also no negotiations are China and Russia.[2]

Figure 1: The EU's Trading Relationships



Note: The figure shows for all countries in the world the trading relationship status with the European Union. Countries are grouped into EU and the Customs Union (dark blue), currently applied free trade agreement (light blue), FTAs awaiting application (orange), as well as FTA negotiations (red). The remaining countries trading at most-favored-nation WTO terms are not colored. Source: European Commission (`http://europa.eu/rapid/press-release_MEMO-13-734_en.htm`).

To describe the relative importance of each country in the United Kingdom's current trade, we show import and export statistics for the top-20 trading partners in Table 1. Notably, this group of countries covers 85% of British trade.

[2]Since 2013, China and the European Union have held talks about a possible investment agreement. However, these negotiations do not cover a potential trade agreement.

Table 1: The UK's Trade Relationships with its Top-20 Partners

Rank	Partner	Imports	Exports	Trade	Share Trade	Cum. Share	FTA Status
1	Germany	89.70	41.37	131.06	0.13	0.13	EU
2	USA	58.83	53.95	112.78	0.12	0.25	-
3	China	59.86	22.33	82.19	0.08	0.33	-
4	Netherlands	51.41	24.01	75.42	0.08	0.41	EU
5	France	36.50	31.12	67.63	0.07	0.48	EU
6	Belgium	32.16	19.64	51.79	0.05	0.53	EU
7	Ireland	18.76	19.59	38.35	0.04	0.57	EU
8	Italy	24.97	12.87	37.84	0.04	0.61	EU
9	Spain	20.20	12.91	33.11	0.03	0.65	EU
10	Switzerland	11.98	19.38	31.37	0.03	0.68	FTA
11	Norway	23.17	4.07	27.23	0.03	0.71	FTA
12	Canada	14.87	6.85	21.72	0.02	0.73	FTA
13	Japan	13.11	7.07	20.18	0.02	0.75	FTA
14	Poland	13.62	5.10	18.71	0.02	0.77	EU
15	Sweden	9.02	7.93	16.95	0.02	0.79	EU
16	Turkey	9.99	6.55	16.54	0.02	0.80	EU (*)
17	India	9.18	4.34	13.52	0.01	0.82	-
18	Hong Kong	5.36	7.97	13.33	0.01	0.83	-
19	South Korea	5.31	6.32	11.62	0.01	0.84	FTA
20	Czechia	7.28	4.23	11.51	0.01	0.85	EU
	World	599.60	383.89	983.49	1.00	1.00	-

Note: The table shows the United Kingdom's top-20 trading partners, sorted by total trade volume. Imports and exports are shown in billion USD as reported by UN Comtrade for 2017. Turkey and the EU have a customs union that does not cover agriculture, services or public procurement.

The table reveals that except for the United States, China, India, and Hong Kong, all of the top-20 trading partners are EU members or have signed an FTA with the EU. In total, over 52 percent (or more than 541 out of 1031 billion USD) of the UK's trade volume takes place with countries of the European Union. The bilateral FTAs with Switzerland, Norway, and other countries cover about 11 percent (or more than 118 billion USD) of British foreign trade. Hence, when leaving the EU Customs Union and not signing new trade deals, roughly 40 percent of British trade could face a tariff increase.[3] This would add to the current 18 percent of trade with the USA, China, and other countries that are not covered by any free trade agreement. Furthermore, the EU currently negotiates or has provisional trade agreements with countries that make up 19 percent of UK foreign trade (195 billion USD). In case of a hard Brexit, the UK potentially would have to start such negotiations on its own.

[3]This number controls for the fact that even under MFN tariffs more than one third of British trade would anyway face zero tariffs.

3 Tariffs on UK Imports

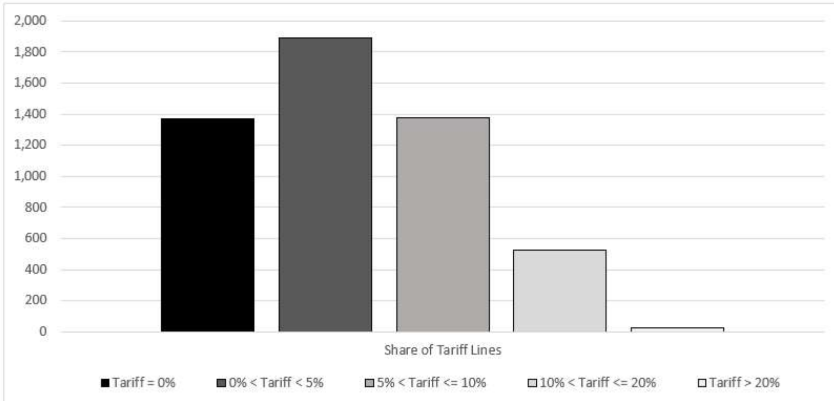
We begin our analysis of a hard-Brexit tariff impact by looking at British imports from its 238 trading partners. Given the UK's membership in the World Trade Organization (WTO), all of the imported goods are in principle subject to most-favored-nation (MFN) duties. These duties are specified as a percent of a product's value (*ad valorem* tariff). Note that such duties can be and actually are zero for many goods. If tariffs are above zero and goods originate from a country that has signed a free trade agreement (FTA) with the EU, goods could benefit from preferential tariffs. Lower duties, however, are only applied if firms can provide British Customs with necessary documentation (e.g. proofs of compliance with rules-of-origin requirements).

In this section, we address a number of questions researchers, managers, and policy-makers have with respect to British imports. How high are the UK's import tariffs? How much higher will tariffs be after a hard Brexit? And which country would benefit the most from an FTA with the post-Brexit United Kingdom?

How high are UK import duties?

British imports are by default taxed at the most-favored-nation (MFN) rate. As of now, if products originate from the European Union, no tariffs are due and in case products originate from a country that has signed an FTA with the EU, preferential rates can be applied. Should the UK leave the EU without any trade deal, all of its imports would be subject to MFN duties. Assuming that the UK keeps its current schedule (i.e. the EU schedule for products from third-countries), imports in the future would be subject to significant duties. In Figure 2, we illustrate the magnitude of MFN import duties that are currently applied by the European Union (including the United Kingdom).

Figure 2: MFN Import Duties of the European Union



Note: The figure shows the number of tariff lines (i.e. products) per MFN import tariff range. All tariffs are expressed as ad valorem duties (i.e. percent of the import value). Source: WTO Tariff Download Facility.

Even when applying MFN duties on all imports, more than a quarter of all products (26.4%) would remain duty-free. However, the average non-weighted duty is 4.37 percent (5.94 percent when leaving out duty-free products). For one in ten products the import tariff is larger than ten percent but only 0.5% of products face an import duty in excess of 20 percent.

Which country's exports would suffer the most from Brexit?

Given that the tariffs shown in Figure 2 could be applied to all British imports after Brexit and the UK losing the benefits from the European Union's customs union as well as network of FTAs, one might ask which country's exports to the UK would suffer the most if the UK leaves the EU Customs Union. We calculate this by assuming that after a hard Brexit, the UK will impose the current (EU) schedule of MFN duties to all imports from a given country in 2017.[4] This tells us how much UK Customs would collect in terms of tariff revenue in the absence of any new trade agreement. Notice that for the estimation we assume implicitly that the same goods would have been shipped at higher duties; in other words imports are assumed to not respond to higher tariffs.

[4] Note that the data from UN Comtrade is aggregated at the 6-digit HS level and we apply the average MFN duty for each 6-digit code.

Table 2: **The UK's Imports — Impact of Hard Brexit**

Trading Partner	UK Imports in 2017 (bn USD)	FTA Status	Estimated UK Tariff Revenue MFN (m USD)	Estimated UK Average Paid Import Duty (in %)
Germany	89.70	EU	4'143.69	4.64
USA	58.83	-	1'145.09	1.97
China	59.86	-	2'039.43	3.42
Netherlands	51.41	EU	1'698.48	3.31
France	36.50	EU	1'273.89	3.52
Belgium	32.16	EU	1'639.63	5.11
Ireland	18.76	EU	453.52	2.43
Italy	24.97	EU	993.35	4.02
Spain	20.20	EU	1'171.15	5.84
Switzerland	11.98	FTA	61.06	0.51
Norway	23.17	FTA	72.11	0.31
Canada	14.87	FTA	76.65	0.52
Japan	13.11	FTA	424.81	3.28
Poland	13.62	EU	722.71	5.33
Sweden	9.02	EU	264.95	2.96
Turkey	9.99	EU (*)	726.68	7.28
India	9.18	Negotiation	418.99	4.61
Hong Kong	5.36	-	55.15	1.04
South Korea	5.31	FTA	243.07	4.70

Note: The table shows the UK's top-20 trading partners, sorted by total trade volume. All tariff revenue figures are expressed in million USD. Turkey and the EU have a customs union that does not cover agriculture, services or public procurement. Data as reported by UN Comtrade for 2017.

The results show that by and large Germany would experience the biggest total increase in customs duties on its exports to the UK. If all German exports were subject to MFN duties, the average tariff rate would be 4.6 percent and UK customs authorities would collect about 4.1 billion USD. To a large extent this is driven by German cars and car parts exports creating 2.4 billion USD in revenue at an average tariff of 8.8 percent. Nothing would change for exports from the United States and China. However, other EU member countries such as the Netherlands, France, or Belgium would also see average duties increase to 3.3 to 5.1 percent. In total, EU countries would pay 13.7 billion USD in tariffs and the average applied duty would be above 4 percent. Notably, neither Switzerland nor Norway would see a large increase in how much their exports would generate in customs revenue.[5]

In total, UK customs authorities would collect about 20.4 billion USD if all imports remain at their 2017 level and were taxed at MFN level. Which sectors are hit the most by this? Our estimates suggest that 6.4 billion of revenue would come from cars and car parts. Other main contributors include textiles and footwear (3.9 billion), machinery and mechanical appliances

[5]The tariff impact of Brexit on Switzerland is examined in more detail by Legge and Lukaszuk (2018).

(2.5 billion), and plastics (1.1 billion). Notably, food imports would also face high tariffs. We find that preparations of vegetables (HS Section 20, 580 million USD in tariff revenue under MFN) would be taxed at 15.8 percent. In addition, the 585 million USD worth of annual potatoes imports would generate 93 million in revenue, facing a 16% duty when imported under MFN. Similarly, preparations of meat (530 million revenue, 11.6%), edible fruits and nuts (470 million, 7.3%), and edible vegetables (270 million, 6.5%) would face substantial import duties post-Brexit.

4 Tariffs on UK Exports

We now turn to British exports and examine how much they are currently taxed and what additional duties would be applied if the UK left the European Union without new trade agreements. To analyze the UK's export side, we combine data on British exports with import duties applied by trading partners. Given that imports are typically reported with greater accuracy than exports, we use information on *imports* reported by the UK's trading partners (instead of exports reported by British Customs). All such data is recorded for 2017 at the 6-digit product level by UN Comtrade. Information about import tariffs are provided by the WTO Download Facility.[6]

How high would be MFN duties on UK exports?

In case of a hard Brexit with no new trade deal, all UK exports to countries of the European Union would be subject to the EU's MFN import duties. As already shown in Figure 2 above, these are substantial and average 4.37 percent. On top of the tariff barrier when exporting to members of the EU, exports from the UK would no longer benefit from the EU's network of free trade agreements. Overall, such FTAs cover nearly 50 billion USD (or almost 12%) worth of UK's exports.

After a hard Brexit, all British exports would be subject to regular duties according to the destination country's tariff schedule. How much more would British exporters pay in foreign tariff duties? In Table 3, we show the estimated tariff revenue that customs authorities in the UK's top-20 trading partners would collect on British exports.

[6] We focus on *ad valorem* duties, i.e. duties determined as percentage of the imported value. Some products, mostly agricultural produce, may be subject to duties that depend on other units (weight, mass), for which we do not have sufficiently granular data.

Table 3: The UK's Exports — Impact of Hard Brexit

			Duties on British Exports under MFN	
Trading Partner	UK Exports in 2017 (bn USD)	FTA Status	Estimated Export Tariff Revenue (m USD)	Estimated Average Paid Export Duty (in %)
Germany	41.37	EU	1'203.26	3.34
USA	53.95	Negotiation	737.13	1.52
China	22.33	-	2'367.28	10.66
Netherlands	24.01	EU	666.99	2.78
France	31.12	EU	1'010.62	3.27
Belgium	19.64	EU	730.85	3.78
Ireland	19.59	EU	577.99	3.16
Italy	12.87	EU	463.75	3.67
Spain	12.91	EU	463.03	3.59
Switzerland	19.38	FTA	50.6	0.26
Norway	4.07	FTA	47.84	1.18
Canada	6.85	FTA	108.97	1.63
Japan	7.07	FTA	43.80	0.63
Poland	5.10	EU	207.69	4.09
Sweden	7.93	EU	206.72	2.81
Turkey	6.55	EU (*)	203.14	3.20
India	4.34	Negotiation	674.42	15.63
Hong Kong	7.97	-	0.00	0.00
South Korea	6.32	FTA	377.81	5.98
Czechia	4.23	EU	99.94	2.37

Note: The table shows the UK's top-20 trading partners, sorted by total trade volume. All tariff revenue figures are expressed in million USD and assume that the destination country applies its MFN duties on all British exports. Turkey and the EU have a customs union that does not cover agriculture, services or public procurement. Data as reported by UN Comtrade for 2017.

As the table shows, if all British exports were taxed at MFN duties this would generate substantial tariff revenue. Overall, we find that firms would pay about about 13.9 billion USD abroad. This is notably less than what UK customs authorities would receive on British imports. The difference of 7.2 billion USD results from the fact that the UK runs a substantial trade deficit of about 200 billion USD in 2017.

After leaving the EU, British exports would face very high average tariffs in both China and India. This is no different from the situation today as the EU has no trade agreement with either of the two countries. However, exports to several EU countries would face significant average tariff rates as is shown in Table 3. It is worth pointing out that British exports to the United States, Switzerland, Norway, Canada, and Japan would face relatively low duties even when MFN rates are applied.

After a hard Brexit, which country should the UK target for an FTA?

Somewhat ironically, the most relevant trade agreement a post-Brexit United Kingdom should seek would be one with countries of the European Union. Leaving the Customs Union would increase tariff costs for British exporters by 6.3 billion USD. As can be seen in Table 3, nearly a fifth of these additional costs is related to exports to Germany and further 16 percent to France.

As for the UK's third most important trading partner, China, Table 3 shows that an FTA could substantially improve British firms' access to the Chinese and Indian market. Despite recent unilateral tariff cuts by the Chinese government, the average import duties are still substantially higher than in developed countries.[7] However, thus far there is little evidence to suggest that the British government will be able to swiftly conclude an FTA with either China or India.[8] Furthermore, the benefits of such an agreement would potentially be much larger for the UK than for China or India, given the UK's lower MFN duties.

Considering other important trading partners of the UK, could future FTAs improve British trade? There appears to be a noticeably small incentive to conclude trade agreements with the United States, Switzerland, Norway, Canada, or Japan. For the products the UK currently trades with these countries, average import duties are relatively low as is reflected by Tables 2 and 3.

How high would tariffs be if the UK joined EFTA?

Subsequent to leaving the European Union, the United Kingdom might seek membership in the European Free Trade Association (EFTA) — an institution that the UK left in 1973 when joining what would eventually be the European Union. If we assume that post-Brexit UK can join EFTA again, would that be a viable solution the threat of high tariff barriers? At a first glance this appears to be a quick and straightforward alternative to building a new network of trade agreements. EFTA currently has 27 FTAs which cover 38 countries and territories outside the EU.[9]

[7] In 2018, the Chinese government announced tariff cuts on 1,585 products to be effective on November 1st, 2018. This adds to tariff reductions on 1,449 products that came into effect on July 1st this year.

[8] Recent statements by, for example, India's high commissioner to Britain indicate that it would take years to negotiate and implement a UK-India trade agreement ("Brexit: India 'not in a rush' to sign trade deal with Britain, ambassador says", *The Independent*, April 6, 2018). An analysis of the current EU-India negotiations about a trade agreement is provided by Roy and Mathur (2016).

[9] The EFTA website provides detailed information about both existing FTAs as well as the status of current negotiations: `http://www.efta.int/free-trade/fta-map`.

However, EFTA does not have a free trade agreement with the European Union. Norway, Iceland, and Liechtenstein are all members of the European Economic Area (EEA). This agreement provides for free movement of goods, services, people, and capital within the European Single Market. Swiss voters rejected membership in the EEA in 1992, resulting in the situation that Swiss-EU trade is facilitated by a free trade agreement signed in 1972.

For the UK, joining EFTA would potentially allow British firms and consumers to benefit from many FTAs. Yet, only a small fraction (about 15%) of British trade would be covered. Out of the top-20 UK trading partners, only trade with Switzerland, Norway, Canada, Hong Kong, and South Korea have a trade agreement with EFTA. Put differently, the UK would still have to negotiate FTAs with countries of the EU, with the United States, China, Japan, and India.

5 Conclusion and Policy Recommendations

In this paper, we analyze the possible tariff impact of a hard Brexit — the United Kingdom leaving the European Union without signing a new trade deal. Using data on all British imports and exports we apply most-favored-nation (MFN) duties and find that the failure to reach an agreement with the European Union could significantly increase tariff costs on British trade. Whereas tariff revenues for British Customs could quadruple to 21.1 billion USD, British firms would face higher tariffs worth 6.3 billion USD to exports to the European Union alone. A further 0.4 billion USD of additional tariffs would occur due to the FTAs the European Union has signed. Additionally, Britain would not benefit from potential preferential access to the markets with which the European Union is currently negotiating or concluding trade agreements covering 19 percent of UK trade.

All in all, our findings support the notion that a hard Brexit can lead to significant disruptions as suggested by van Reenen (2017) and others. Notably, just the uncertainty about what kind of relationship the UK will have with the European Union might have had a substantial impact (Born et al., 2018).

What are the options the UK government has to avoid the substantial increase in customs duties we estimate in the present paper? Obviously, by staying in the EU Customs Union, the United Kingdom could continue trading with other countries on current terms.[10] Such a path

[10]Brakman, Garretsen and Kohl (2018) explore the UK's option in more detail and conclude that only a comprehensive agreement with the EU can prevent trade losses.

has been described as Brino ('Brexit in name only') and would respect the referendum result, leave the Irish border open, minimize economic damage and satisfy most MPs, businesses and the EU.[11] However, such an outcome has been ruled out by leading British politicians as it would turn the UK into a 'vassal state'.[12] Another alternative would be for the UK to return to EFTA — the European Free Trade Association which the UK left in 1973 when joining what would eventually be the European Union. The benefit of such a scenario would be that the UK would quickly have FTAs with 38 countries — yet most of the UK's main trading partners do not have trade agreements with EFTA.

[11] Simon Kuper, "Forget Brexit, we're headed for Brino", *Financial Times*, October 4, 2018.

[12] This description is taken from Jacob Rees-Mogg and refers to the argument that staying in the Customs Union, the only significant difference to before Brexit would be that the United Kingdom lost its voting power in the EU.

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