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**The Optimum Import Tariff in the Presence of Outward
Foreign Direct Investment**

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Summary:

International Economics shows in the field of import tariff analysis that for small open economies the optimum import tariff is zero, while for a large economy the welfare-maximizing import tariff is given by $1/E'$ where E' is the foreign supply elasticity. This result, however, no longer holds if there is foreign direct investment in the respective export sector abroad. The higher the share of outward cumulated FDI in the foreign export sector is, the higher the dampening effect on the traditional optimum import tariff. As cumulated outward FDI has become rather important in the case of US and EU FDI in China, Japan, India and other countries, it is important to reconsider optimum import tariffs. It is argued that outward FDI could also affect optimum import tariffs through a macroeconomic channel, namely the effect of changes in net income from abroad. Since the optimum tariff will affect the real exchange rate, FDI in turn will be affected by the tariff policy – in line with the FROOT/STEIN argument on the real exchange rate affecting international FDI inflows and FDI outflows, respectively. Moreover, both outward FDI in the tradable and non-tradable sectors are relevant. In the US-China tariff conflict under President Trump, the FDI-related aspects have been ignored – and similarly in the UK with respect to No-Deal tariffs vis-à-vis the EU27 - so that import tariffs imposed/announced in several sectors are too high.

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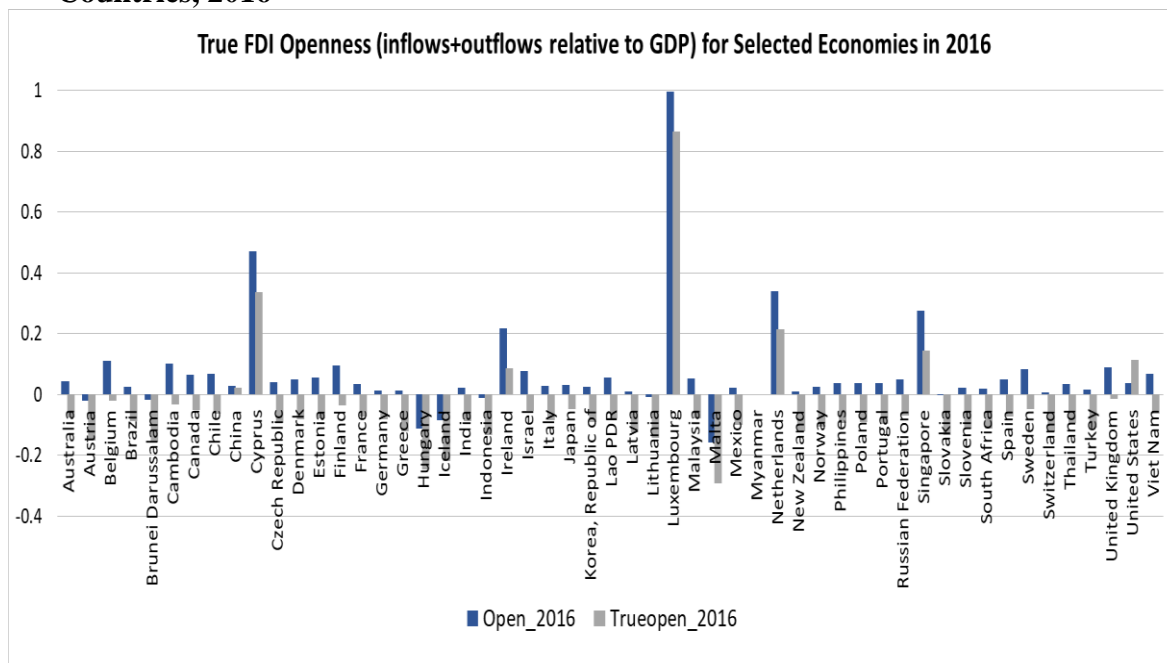
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1. Introduction

In Economics, the optimum import tariff of country 1 (home country) is shown to be $1/E'$ where E' is the foreign export elasticity (supply elasticity). If, however, there is outward foreign direct investment (FDI) in country 2, the situation is different as will be shown subsequently. Since cumulated outward foreign direct investment has increased considerably in OECD countries and Newly Industrialized Countries since the mid-1980s, it is important to consider the effects of outward FDI in the optimum tariff literature. The share of foreign investment also varies considerably by sector; as regards the necessary modification of the optimum tariff literature, one might argue that only outward FDI in the tradable sector is important, but additional reflections will show that outward FDI in the non-tradable sector could also be relevant. It is remarkable that the Trump Administration, in its trade conflicts with China, has emphasized that US import tariffs would be quite favorable for the United States and that high import tariff revenues would accrue to the US. However, the Trump Administration's list of import tariffs vis-à-vis China has ignored any foreign direct investment effects although US multinational companies have relatively high investments in many sectors in China. WELFENS (2019a, pp. 325-327) has pointed out this US policy inconsistency – with key aspects explained in a graphical approach. Subsequently, the simple mathematics of the modified optimum tariff solution, namely for the case of outward cumulated FDI, are presented.

The debate about import tariff and inward FDI has played some role in the literature, particularly as BHAGWATI (2004) has argued that the presence of foreign investors and multinational companies, respectively, will create strong lobbying pressure in host countries to have low import tariffs – and this pressure should be the higher, the higher the share of intermediate imports relative to gross domestic products is. As regards the openness of countries with respect to trade and foreign direct investment, one may point out that for many economic aspects effective trade openness (BRETSCHGER/HETTICH, 2002) is crucial where one has corrected the trade-GDP ratio for the size effect of countries. In a similar way, the following graph shows the true FDI openness of selected countries.

Figure 1: True FDI Openness (Inflows and Outflows Relative to GDP), Selected Countries, 2016



Source: Own representation

As regards FDI inflows in OECD countries, many crucial factors can be shown within a gravity modelling approach to influence FDI dynamics (WELFENS/BAIER, 2018) and in a similar way outward FDI dynamics (BAIER/WELFENS, 2019) show clearly the variables that are influencing FDI flows. While FDI flows have become increasingly important in the world economy since the 1980s, the impact of FDI on key economic variables has not been studied broadly, despite the fact that the role of multinational companies has been growing over decades in many countries.

In the subsequent analysis, the role of FDI for trade in intermediate products will not be analyzed. Section 2 presents the theoretical derivation of a new optimum tariff formula. Section 3 shows the crucial policy relevance of this new formula for both the United States, for example in the context of the US-Sino trade conflicts under the Trump Administration, and it is argued that the UK import tariff list for a No-Deal case with the EU – it might become relevant in 2021 – also contains import tariffs which are too high for an optimum tariff rate.

2. Optimum Tariff in the Presence of Outward FDI:

Theoretical Aspects

In the traditional optimum tariff literature, the case of a large economy typically is considered. The foreign exports are shown as the supply curve k^* (* for foreign variable, k' is marginal costs). Import demand is given by the schedule DD_0 in the sector considered. Import quantity is denoted by J , the foreign offer price net of the import tariff t' is denoted

as p . The optimum tariff will balance the additional gains which emerge from a reduced world market price (Jdp/dt') – after the imposition of the tariff in country 1 – and the welfare loss from reduced import volume; both areas are shown in the subsequent figure.

$$(1) \quad \frac{Jdp}{dt'} - t'^{opt} \left(\frac{pdJ}{dt'} \right) = 0$$

$$(2) \quad t'^{opt} = \frac{\left(\frac{dp}{dt'} \right) J}{\left(\frac{dJ}{dt'} \right) P}$$

The reduction of the world market price through import tariffs in country 1 amounts to lower profits of the exporting country (country 2). As the supply elasticity of exports E' is $(dJ/dt')/(dp/dt')(P/M)$, the traditional result is given by:

$$(3) \quad t'^{opt} = \frac{1}{E'}$$

If, however, foreign investors own a share α in the capital stock abroad and all goods are tradables, the marginal gain from reduced profits abroad is – with β^* denoting the share of profits in gross domestic product abroad - given by the term $(1 - \alpha\beta^*) J(dp/dt')$, so that welfare maximization is now given by the condition:

$$(1') \quad (1 - \alpha\beta^*) \frac{Jdp}{dt'} - t'^{opt} \frac{pdJ}{dt'} = 0$$

Here it has to be considered that the import tariff reduces the exports of country 1 firms' subsidiaries in country 2, and lower profits in subsidiaries abroad reduce overall profits of country 1 companies – this should dampen the stock market price index in country 1; lower profits in MNC subsidiaries also imply a lower real national income (Z) which is the sum of real GDP (Y) plus net income from abroad.

In the presence of outward FDI, the optimum import tariff for any sector (i ; subscripts are dropped here) is now given by

$$(3') \quad t'^{opt} = \frac{1 - \alpha\beta^*}{E'}$$

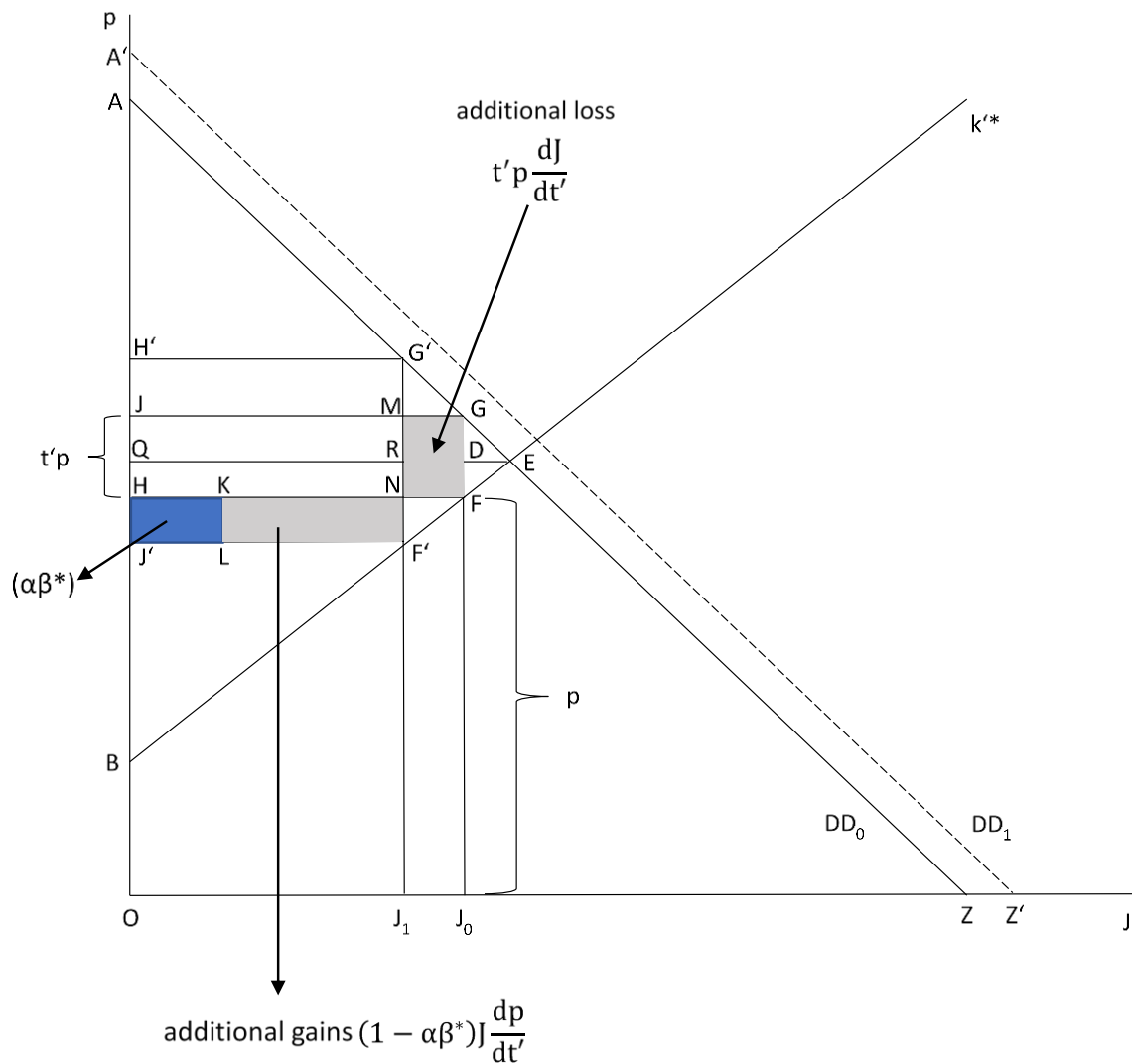
Accordingly, the presence of outward foreign direct investment reduces the optimum import tariff. If foreigners would own the whole capital stock so that α would be unity and if one assumes that β^* is 40% - as in many developing countries (e.g., in China) – or the familiar 1/3 in many OECD countries, then the optimum import tariff of a big OECD economy would be only 60% of the traditional optimal import tariff.

The Bhagwati conjecture that foreign direct investment should bring about less protectionism is reinforced by the analysis presented here – even if there is no trade in intermediate products. This in turn implies that regional integration schemes should be viewed with modest reservations provided that the (small) countries that create a regional integration club can be considered to be important source countries of outward FDI. As most Western EU countries were already major FDI source countries in the 1980s, the EU

southern enlargement, the EFTA enlargement round in the 1990s and the eastern EU enlargement rounds after 2004 should be rather uncritical in terms of import tariff pressure. In this perspective, the UK – BREXIT implementation has started on January 31, 2020 – has been an important country for a rather pro-free trade policy stance in the EU (not just because of the long-standing UK tradition of free trade, but also because the UK has been a major source country of outward FDI in the EU).

In the reality of import tariff policy, one will have to consider various sectors ($i=1, 2, \dots, N$) which will all have different supply elasticities. Typically, supply elasticities will be rather high in sectors which can be characterized by low-technology products. In contrast, the export elasticity of high technology products should have a rather low price elasticity unless the respective firms are obtaining a patent-based monopoly position which is a special aspect not considered further here – clearly, the monopoly firms (after having obtained a patent) will offer in the price-elastic part of the demand curve.

Figure 2: Optimum Import Tariff in Setting with Outward Foreign Direct Investment



Source: Own representation

An analysis with a focus on certain individual sectors is not a macroeconomic approach, but one could easily integrate macro aspects in the analytical framework presented here if a broad trade policy with generally rising import tariff is considered:

- If country 1's government imposes import tariffs on all or many sectors of a big trading partner, the macroeconomic effect in country 2 will be a decline of real gross domestic product. Thus real imports from country 2 will reduce which, in turn, will dampen the real GDP of country 1 whose net exports of goods and services will decline.
- It is noteworthy that aggregate consumption C is a positive function of real national income $Z = Y + \alpha\beta Y^*q^*$ where q^* is the real exchange rate; here asymmetric FDI is considered, so that only MNCs from country 1 are investors abroad (in addition, two-way FDI could also be considered: WELFENS, 2011). Not only is C proportionate to real disposable national income $((1-t'')Z)$ – with t'' denoting the income tax rate – but also the demand for goods imported in general and for imported goods in individual sectors. If import tariffs are imposed by country 1 on many export sectors of country 2, then Y^* will decline and therefore (at a given real exchange rate) Z will decline and this in turn implies a downward shift in all import markets and actually also in all consumption markets. This further adds a negative welfare effect on country 1 so that the optimum import tariff rate will be smaller than in the modified new formula presented above.
- It should be noted that the negative welfare effect of outward FDI for country 1 would be smaller than shown in the above new equation for the modified optimum import tariff, if part of the economy abroad consists of a non-tradables sector and if indeed part of outward FDI of country 1 firms went to the non-tradables sector in country 2. However, the negative macroeconomic effect discussed would still be relevant for an enhanced welfare analysis.

It is clear that an approach with inward and outward FDI would require to change the definition of Z to become $Z = Y(1-\alpha\beta) + \alpha\beta Y^*q^*$. This in turn would be an adequate framework to study the problems of an international tariff war, but clearly that scenario would be more complicated than the rather simple setup presented here. However, this rather compact setting has already shown clear implications for policymakers, including for the Trump Administration in the US and the Johnson government in the United Kingdom post-BREXIT – with both governments so far lacking an adequate optimal import tariff policy.

The optimum tariff analysis is related to the Marshall Lerner condition and the enhanced (sharper) Marshall Lerner condition (WELFENS, 2019b) which takes into account the role of foreign direct investment. Clearly, an optimum sectoral import tariff will reduce the expenditures for imports in a given sector and broad application of optimal import tariffs across sectors will in turn affect both imports as well as real national income. If the application of the optimum import tariffs brings about a real appreciation of the currency of country 1 – hence a depreciation of the currency of country 2 –, there is a further macroeconomic effect: As the FROOT/STEIN (1991) arguments suggest that a real depreciation in a world of imperfect capital markets will go along with higher FDI inflows, multinationals from country 1 will invest more in country 2 in the setting with asymmetric FDI considered above at first. In a two-way FDI setting, both higher outward FDI from country 1 and lower inward FDI from country 2 have to be considered – and the associated shifts in market demand curves in the tradables sector.

3. Conclusions

The Trump Administration has adopted a rather aggressive tariff policy vis-à-vis China in 2018/19; only in January 2020 has a first US-China agreement in trade policy been adopted. As regards the US-Sino trade conflict under President Trump, one may assume that the Trump Administration has chosen import tariffs for Chinese exporters in line with the traditional optimum tariff literature. Since the US and US firms are important FDI sources for most export sectors in China it is clear that the Trump Administration has adopted excessive import tariffs where it has not been considered that profits of US subsidiaries in China will be reduced by US import tariffs. This in turn would partly explain why the US stock market indices have reacted negatively to US import tariffs.

It is also noteworthy that the UK under the May government has already released a list of intended import tariffs for the potential case of a No-Deal BREXIT (see appendix). To the extent that the UK government has chosen import tariffs for the No-Deal scenario on the basis of the traditional import tariff literature, the proposed import tariffs are too high. This implies, of course, that the tariff revenues expected for the UK could be somewhat lower than considered so far in the literature; for example, the Institute for World Economics (IfW, Kiel) has calculated that the UK could, under a No-Deal scenario, expect import tariff revenues that would equal about €6 billion.

In the US-China tariff conflict under President Trump, the FDI-related aspects have been ignored – and similarly in the UK with respect to No-Deal tariffs vis-à-vis the EU27 - so that import tariffs imposed/announced in several sectors are too high. While it should not be difficult to calculate optimum import tariffs in an enhanced approach with outward foreign direct investment, one should also be aware that import tariffs are not likely to generate considerable medium-term benefits for a big economy in a system of flexible exchange rates. To the extent that higher import tariffs transitorily improve the current account balance in the medium term, one should not overlook that an appreciation of the currency will make import goods relatively cheaper while exports become less profitable – with profits expressed in domestic currency units. This well-known foreign exchange rate argument from CORDEN (1987) also suggests that aggressive US import tariffs will not generate much benefit for the United States.

Moreover, to the extent that a rather ad hoc trade policy of the Trump Administration undermines confidence in US economic policy, the tariff policy of that administration could indeed indirectly dampen global output growth and thereby the prospects for higher US net exports of goods and services. One should not overlook that part of the US economic expansion in the years 2018-2019 was not due so much to a successful US trade policy – as emphasized by President Trump – but rather to a strong fiscal stimulus in the form of a strange expansionary fiscal policy in an economic upswing: with deficit-GDP ratios of 4 percent to 5 percent in 2018/2019; if such policies would be continued, the Congressional Budget Office (CBO, 2020) expects a US debt-GDP ratio of 180% by 2050 which is such a negative US outlook that one may think that voters will stop a continued strange fiscal experiment in the USA.

References

- BHAGWATI, J. (2004), *In Defense of Globalization*, Oxford University Press: New York NY
- BAIER, F.J.; WELFENS, P.J.J. (2019), The UK's banking FDI flows and Total British FDI: a dynamic BREXIT analysis, *International Economics and Economic Policy*, vol. 16 (1), 193-213 <https://doi.org/10.1007/s10368-018-00426-x>
- BRETSCHGER, L.; HETTICH, F. (2002), Globalisation, Capital Mobility and Tax Competition: Theory and Evidence for OECD Countries, *European Journal of Political Economy*, Vol. 18, 695-716.
- CBO (2020), *The Budget and Economic Outlook: 2020 to 2030*, Congressional Budget Office (CBO), Congress of the United States, January 2020 <https://www.cbo.gov/publication/56073>
- CORDEN, W.M. (1987), *Protection and Liberalization: A Review of Analytical Issues*, Occasional Paper No. 54, International Monetary Fund, Washington DC
- FROOT, K.; STEIN, J. (1991), Exchange Rates and Foreign Direct Investments: An Imperfect Capital Markets Approach, *Quarterly Journal of Economics*, 1191-1217
- WELFENS, P.J.J. (2011), *Innovations in Macroeconomics*, 3rd revised and enlarged edition, Springer: Heidelberg and New York.
- WELFENS, P.J.J. (2019a), *The Global Trump – Structural US Populism and Economic Conflicts with Europe and Asia*, London: Palgrave Macmillan
- WELFENS, P.J.J. (2019b), New Marshall-Lerner conditions for an economy with outward and two-way foreign direct investment, *International Economics and Economic Policy*, 16, 593-617 <https://doi.org/10.1007/s10368-019-00450-5>
- WELFENS, P.J.J.; BAIER, F. (2018), BREXIT and FDI: Key Issues and New Empirical Findings, *International Journal of Financial Studies*, 6(2), 46 <https://doi.org/10.3390/ijfs6020046>

Appendix

Table 1: Import Tariff List of the UK¹ – For Selected Commodities

Selected „Most-Favoured-Nation“ Tariffs as per the UK Govt. in the event of No Deal BREXIT	Tariffs; Ad valorem, specific and compound tariffs
Motor cars and other motor vehicles principally designed for the transport of <10 persons, including station wagons and racing cars, with diesel engine/ with both spark-ignition internal combustion reciprocating piston engine and electric motor as motors for propulsion capable of being charged by plugging to external source of electric power/ with only electric motor for propulsion	10.0%
Motorcycles, including mopeds, with reciprocating internal combustion piston engine of a cylinder capacity <= 250 cm ³	8.0%
Bananas, fresh (excluding plantains)	114 euros /1000kg
Bananas, dried (excluding plantains)	16.0%
Fresh or chilled bovine meat, boneless	6.8 + 160.1 euros/100kg
Natural butter of a fat content, by weight, of >= 80% but <= 85%, in immediate packings of a net content of <= 1 kg (excluding dehydrated butter and ghee)	60.5 euros /100kg
Grated or powdered cheese, of all kinds	24.9 euros /100kg
Processed cheese, not grated or powdered, in the manufacture of which no cheeses other than emmentaler, gruyère and appenzell have been used and which may contain, as an addition, glarus herb cheese ‘known as schabziger’; put up for retail sale, of a fat content by weight in the dry matter of <= 56%.	19.1 euros /100kg
Vanilla, neither crushed nor ground	6.0%
Cloves, whole fruit, cloves and stems, neither crushed nor ground	8.0%
Cocoa paste (excluding defatted)	9.6%
Cocoa butter, fat and oil	7.7%
Fresh or chilled beans ‘vigna spp., phaseolus spp.’, shelled or unshelled	10.4% + 1.6 euros/100kg
Fresh or chilled boneless cuts of fowls of the species gallus domesticus	61.8 euros /100kg
Semi-milled round grain rice, parboiled	145 euros /1000kg
Frozen meat of lambs, boneless, frozen	12.8% + 234.5 euros /100kg
Fresh or chilled loins and cuts thereof of domestic swine	11.4 euros /100kg
Pneumatic tyres, new, of rubber, of a kind used for buses or lorries, with a load index of > 121	4.5%
Men’s or boys’ swimwear (excluding knitted or crocheted)	12.0%

¹ Note that the UK government guidance on non-preferential tariff rates and quotas on imports if the UK leaves the EU with no deal was officially withdrawn as of 30 January 2020 per the website: <https://www.gov.uk/government/publications/temporary-rates-of-customs-duty-on-imports-after-eu-exit>

Figure 3: Average US Tariff Rate on Chinese Imports

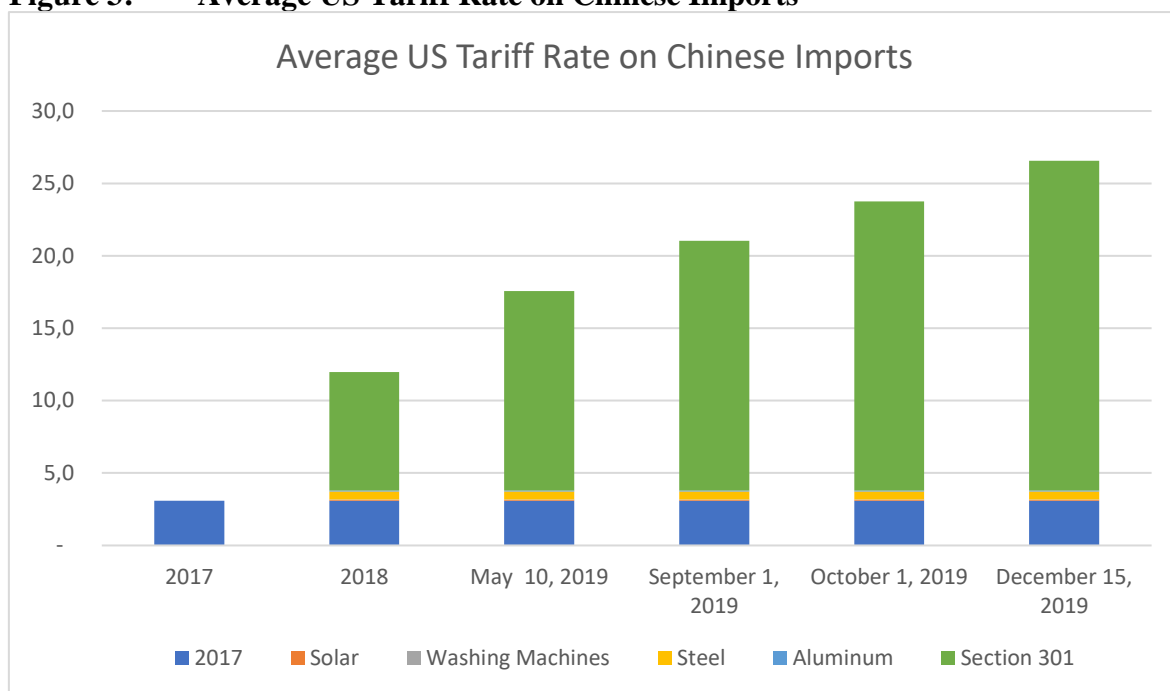


Table 2: US Import Tariff Rates on Chinese Goods

Commodity (Top 10 US Imports from China by Value (US\$) in 2018)	Tariff Rate (as of 15 December 2019)
RADIO TELEPHONES DESIGNED FOR THE PUBLIC CELLULAR RADIOTELECOMMUNICATION SERVICE, EXCLUDING FOR MOTOR VEHICLES	15%
PORTABLE DIGTL AUTOMATIC DATA PROCESSING MACHINES,WEIGHT NOT MORE THAN 10 KG,CONSISTING OF AT LEAST A CENTRAL PROCESSING UNIT,KEYBOARD & A DISPLAY	15%
MACHINES FOR THE RECEPTION, CONVERSION & TRANSMISSION OR REGENERATION OF VOICE, IMAGES OR OTHER DATA, INCLUDING SWITCHING & ROUTING APPARATUS, NESOI	30%
TOYS, PARTS AND ACCESSORIES SUBJECT TO 15 U.S.C. 2052, LABELED OR DETERMINED BY IMPORTER AS INTENDED FOR USE BY PERSONS 3 TO 12 YEARS OF AGE, NESOI	15%
PARTS AND ACCESSORIES OF AUTOMATIC DATA PROCESSING MACHINES AND UNITS NOT INCORPORATING CATHODE RAY TUBE, PRINTING CIRCUIT ASSEMBLIES, MEMORY MODULES	30%
DIGITAL PROCESSING UNITS EXCLUDE SUBHEADING 8471.41 OR 8471.49, MAY CONTAIN IN SAME HOUSING 1 OR 2 OF	30%

FOLLOWING: STORAGE, INPUT OR OUTPUT UNITS, NESOI	
VIDEO GAME CONSOLES AND MACHINES, OTHER THAN THOSE OF SUBHEADING 9504.30 (COIN OPERATED OR BY OTHER MEANS OF PAYMENT)	15%
MACHINES FOR THE RECEPTION, CONVERSION AND TRANSMISSION OR REGENERATION OF VOICE, IMAGES OR OTHER DATA, NESOI	15%
MONITORS, OF A KIND SOLELY OR PRINCIPALLY USED IN AN AUTOMATIC DATA PROCESSING SYSTEMS OF HEADING 8471, NESOI	15%
PARTS AND ACCESSORIES OF AUTOMATIC DATA PROCESSING MACHINES AND UNITS NOT INCORPORATING A CATHODE RAY TUBE, PRINTED CIRCUIT ASSEMBLIES; NESOI	30%

Source: Own representation of data from Bown (2019), US-China Trade War: The Guns of August, PIIE Trade and Investment Policy Watch blog, Peterson Institute for International Economics (August 26).

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