Shield the US from Imports! – GDP impacts on Finland and other European Union member states

Jyrki Ali-Yrkkö
The Research institute of the Finnish Economy (ETLA)
Arkadiankatu 23 B
00100 Helsinki
e-mail: jyrki.ali-yrkko@etla.fi
Phone: +358-46 8510 501

Tero Kuusi
The Research institute of the Finnish Economy (ETLA)
Arkadiankatu 23 B
00100 Helsinki
e-mail: tero.kuusi@etla.fi
Phone: +358-41 4448144

Abstract

We analyze the value-added impacts of rising U.S. protectionism on Finland and other EU countries using a hypothetical extraction method. Our results show that for many countries, trade to the U.S. represents more than 10% of the value added from exports to all countries. We quantify the value added generated by Finland and other EU countries through Mexico and China to the U.S. For the EU, we find that Mexico has recently been a more important trade route to the U.S. than China has. Furthermore, we analyze the value-added impacts of recent tariff increases and find that their relative impacts are smaller for Finland than for the EU. For both, the direct, static impacts are less than 1% of the GDP, while the dynamic effects may be greater. Our results also suggest that despite highly integrated global value chains, the indirect impact channels of the tariff measures through countries like China are not important enough to affect the Finnish and EU value added by more than 0.1 percentage point of GDP. (JEL: F13, F14, F23, L23).

Key words: Global value chain, GVC, tax, tariff, customs, border, GDP, impact, indirect

1. Background

"I will bring jobs back from China. I will bring jobs back from Japan. I will bring jobs back from Mexico," the president of the United States Donald Trump tweeted on February 6, 2016. Since then, the Trump administration has increased tariffs on these and numerous other countries to shield the U.S. against, arguably, unfair import competition and trade restrictions. In the interconnected world, the bilateral tariffs do not only affect bilateral trade relations between countries like China, Mexico, and the US, but also other countries. These impacts arise from global value chains (GVCs) that link economies with each other. For instance, in the first step, Finnish companies produce goods and services that are exported to Sweden. In the second step, Swedish companies use these products as intermediates in their own goods, which, in turn, are exported to China where the final assembly is completed. In the final step, China exports these goods to the U.S. Thus, the gross imports to the U.S. from China consist of value added from not only China but also Finland and Sweden.

Thus, bilateral tariffs have potential impacts on multiple economies, but these impacts are not observable by bilateral trade flows published by national statistical authorities. Traditionally, economic analyses have focused on bilateral effects such as the impact of domestic import tariffs on domestic companies and industries, especially to assess the impact of trade policies, testing the firm-level predictions of the so-called "new" trade theory, which has its origins in the seminal work of Melitz (2003). Some studies have reported the impacts more extensively, including external effects on a broader group of countries and industries. The results by Kühn and Viegelahn (2019), for example, suggest that manufacturing trade barriers have a greater impact on service jobs than on production jobs in the manufacturing industry.

A recent study by Vandenbussche, Connell, Simons, and Zaurino (2017b) used an approach close to ours, but the authors focused on employment rather than value added. Their results suggest that tariff increases by the U.S. would have non-negligible employment effects on European countries. For the EU, estimated job losses vary between 50,000 and 240,000, depending on the U.S. tariff rate scenario. The export value would also decrease significantly, varying between 5% and 24%.

This paper analyzes the value-added content of key trade routes to the U.S., especially via China and Mexico, and quantifies the impacts of recent tariff hikes on value added. To consider the indirect exports of Finland and other countries via China and other countries to the U.S., we use the World-Input-Output-Database (WIOD). Furthermore, we revisit the effects of higher tariffs against EU exports to the U.S. more generally.

2. Data and methodology

In our analysis, we use the 2016 release of the WIOD database (Timmer et al. 2015, 2016). The data comprise sector-level World Input-Output Tables (WIOTs) with underlying data for 44 countries and 56 sectors, which serve as a model for the rest of the world for the period 2000–2014.[1] Together, the countries cover more than 85% of the world GDP (at current exchange rates). WIOTs are built based on National Accounts data, which are extended by means of disaggregating imports by country of origin and using categories to generate international supply and use tables (Timmer et al. 2016).

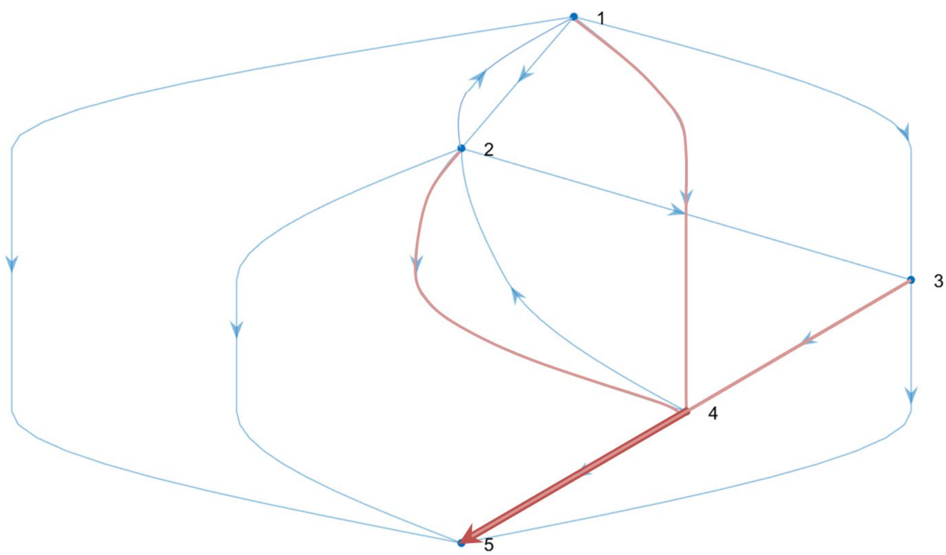
We apply a measurement framework for the decomposition of value-added trade to the U.S. grounded on hypothetical extraction, a parsimonious mathematical technique based on an input-output representation of the global economy (Los, Timmer, and de Vries 2016). This approach has a clear economic intuition and can be easily applied to the data. It compares the actual GDP in a country with a hypothetical GDP in cases where there are no production activities related to exporting. The difference is defined as the domestic value added of exports.

It is useful to illustrate the exclusion of direct trade linkages between two countries or regions with a simplified example (Figure 2.1). The figure illustrates the value-added trade of countries 1–4 to country 5 (the U.S.) with nodes marking the countries. An edge marks a direct trade relationship between two countries, and the associated arrow marks the direction of the trade. The trade may include both final and intermediate goods and services; thus, the figure illustrates value chains by linking several countries. For example, country 1 exports intermediate goods to country 2, which uses these goods to produce another intermediate good that is exported via country 3 to country 5 as part of the final product. This type of value chain has three stages. Even this simple exercise illustrates how complex the system of value chains can be. In principle, the example includes a limitless number of value chains with a different number of stages, due to the link from country 4 back to country 2. Thus, countries may contribute value added to a vast number of potential value chains and trade patterns, and the key challenge of GVC analysis is accounting them in value added terms.

In this example, the direct trade link from country 4 to country 5 is excluded (dark red edge). As a result, the direct and last mile of trade from country 4 to country 5 stops. Despite the direct trade ending, country 4 can still trade with country 5 via indirect trade (via country 2). Typically, we allow such trade to be unaffected when direct trade barriers are raised. However, the exclusion of direct trade from country 4 to country 5 also has indirect trade effects. In particular, all trade routes and value chains that include exporting first from countries 1–3 to country 4 and then to country

[1] *The countries have been chosen by considering both the data availability of sufficient quality and the desire to cover a major part of the world economy. They include 27 EU countries and 15 other major countries. Data for the 56 sectors are classified according to the International Standard Industrial Classification Revision 4 (ISIC Rev. 4). The tables adhere to the 2008 version of the System of National Accounts (SNA). The dataset provides World Input-Output Tables (WIOTs) in current prices, denoted in millions of dollars (Timmer et al. 2016).*

Figure 1. Illustration of the "hypothetical extraction" method



5 are blocked (the light red edges). Ultimately, the affected, indirect trade includes all exporting countries through the potentially limitless number of value chains that have these linkages.

We next formally represent the exclusion method. Similar to Los, Timmer, and de Vries (2016), we partition the global input-output table such that we have a country *s* and a region *r* containing all other countries *c* in the world and construct a matrix **A** as follows:

$$\boldsymbol{A} = \begin{bmatrix} \boldsymbol{A_{ss}} & \boldsymbol{A_{sr}} \\ \boldsymbol{A_{rs}} & \boldsymbol{A_{rr}} \end{bmatrix} \quad (1)$$

A contains the input coefficients a_{ij}, which give the value units of intermediate goods from industry *i* required to produce one value unit of gross output in industry *j*. $\mathbf{A}_{ss}$ represents the domestically purchased requirements of industries in country *s*, while $\mathbf{A}_{sr}$ gives the requirements by industries in *r* of products bought from industries in *s*. For the final demand block, we can similarly write:

$$\boldsymbol{y} = \begin{bmatrix} \boldsymbol{y_{ss}} & \boldsymbol{y_{sr}} \\ \boldsymbol{y_{rs}} & \boldsymbol{y_{rr}} \end{bmatrix} \quad (2)$$

in which the vectors y_{ss} and y_{sr} represent the values of flows from industries in country *s* to all domestic final users and to final users in *r*.

For any country *c,* ratios of value added to gross output in industries in country *c* are contained in a row vector $\boldsymbol{v_c}$. The length of this vector equals the number of industries in *s* and *r* (with *r* containing multiple countries), with value-added ratios for industries in *c* as elements ($\overline{\boldsymbol{v}}_{\boldsymbol{c}}$) and zeros elsewhere: $\boldsymbol{v_c} = [\mathbf{0}\ \overline{\boldsymbol{v}}_{\boldsymbol{c}}\ \mathbf{0}]$.

The actual value added in country *c* ($\boldsymbol{GDP_c}$) then equals

(3) $$\boldsymbol{GDP_c = v_c(I - A)^{-1}Y * i}$$

in which **i** is a column vector where all elements are unity, implying that it sums the two elements in each of the rows of the matrix **Y**. The element $\boldsymbol{(I - A)^{-1}}$ is the well-known Leontief inverse, in which **I** is the identity matrix of appropriate dimensions. The expression is key to account for the complexity of trade patterns. $\boldsymbol{GDP_c}$ can be interpreted as the limiting value of the infinitely long sum of value-added contributions, with the number of stages varying from 1 to ∞.

What amount of domestic value added should be attributed to exports to *s* from the region *r*? To measure this, we create a hypothetical world in which *r* (or its member country *c*) does not export anything to *s* while leaving the rest of the economic structure of the world unaffected (an analogy of the exclusion of trade from country 4 to country 5 in our example). In the case of a region *r*, blocks from $\boldsymbol{A}_{rs}$ that represent trade from *r* are set to zero We define the matrices $\boldsymbol{A*}$ and $\boldsymbol{Y*}$ as

(4) $$\boldsymbol{A}^* = \begin{bmatrix} \boldsymbol{A_{ss}} & \boldsymbol{A_{sr}} \\ \boldsymbol{0} & \boldsymbol{A_{rr}} \end{bmatrix}$$

and

(5) $$\boldsymbol{Y}^* = \begin{bmatrix} \boldsymbol{y_{ss}} & \boldsymbol{y_{sr}} \\ \boldsymbol{0} & \boldsymbol{y_{rr}} \end{bmatrix}$$

The hypothetical GDP in *c* can be obtained by post-multiplying the hypothetical Leontief inverse with the hypothetical final demand as

(6) $$\boldsymbol{GDP} \;\; = \boldsymbol{v_r(I - A^*)^{-1}Y^* * i}$$

Following the logic of hypothetical extraction, the domestic value added in exports to country *s* can be derived as the difference in GDP in the actual and hypothetical situations:

(7) $$\boldsymbol{\Delta VA_r = GDP_r - GDP}$$

$\boldsymbol{\Delta VA_r}$ correctly measures the indirect and direct effects on the value chains and trade routes that follow from the exclusion of the direct trade linkage for region *r*.

More generally, the effects can be allocated to any single country, including the importing country *s* via indirect trade. In this paper, we are interested in the following counterfactual measurements for individual countries:

- The total value added of country *c* in all trade from region *r* to country *s*. In that case, we use

  $$\boldsymbol{A}^* = \begin{bmatrix} \boldsymbol{A_{ss}} & \boldsymbol{A_{sr}} \\ \boldsymbol{0} & \boldsymbol{A_{rr}} \end{bmatrix} \text{ and } \boldsymbol{Y}^* = \begin{bmatrix} \boldsymbol{y_{ss}} & \boldsymbol{y_{sr}} \\ \boldsymbol{0} & \boldsymbol{y_{rr}} \end{bmatrix},$$

  and the corresponding measure is $\boldsymbol{\Delta VA_c^{total}}$ with the value-added vector v_c entering $\boldsymbol{GDP_c^*}$;

- The direct value added of country *c* in the trade to country *s*. In that case, we use $\boldsymbol{A*} =$

  $$\begin{bmatrix} \boldsymbol{A_{ss}} & \boldsymbol{A_{sr}} \\ \boldsymbol{A_{rs}^{a_{cs}=0}} & \boldsymbol{A_{rr}} \end{bmatrix} \text{ and } \boldsymbol{Y}^* = \begin{bmatrix} \boldsymbol{y_{ss}} & \boldsymbol{y_{sr}} \\ \boldsymbol{y_{rs}^{y_{cs}=0}} & \boldsymbol{y_{rr}} \end{bmatrix},$$

  and the corresponding measure is denoted as $\boldsymbol{\Delta VA_c^{direct}}$ with the value-added vector v_c entering $\boldsymbol{GDP_c^*}$; and

- The indirect value added of country *c* via the exports of country *k* to *s*. In that case, we use

$$\boldsymbol{A}^{*}=\begin{bmatrix}\boldsymbol{A}_{ss} & \boldsymbol{A}_{sr}\\ \boldsymbol{A}_{rs}^{a_{ks}=0} & \boldsymbol{A}_{rr}\end{bmatrix} \text{ and } \boldsymbol{Y}^{*}=\begin{bmatrix}\boldsymbol{y}_{ss} & \boldsymbol{y}_{sr}\\ \boldsymbol{y}_{rs}^{y_{ks}=0} & \boldsymbol{y}_{rr}\end{bmatrix},$$

and the corresponding measure is $\boldsymbol{\Delta VA_c^{via\ k}}$ with the value added vector $\boldsymbol{v_c}$ entering $\boldsymbol{GDP_c^*}$.

3. Value-added trade to the U.S.

3.1 Total direct and indirect value-added trade

Traditional trade statistics reported by national statistical authorities only report bilateral trade flows. In the GVC world, however, an increasing number of goods and services are produced in long, geographically fragmented value chains. Often, this means that companies buy their inputs from multiple countries, do their own value-added activities, and export their output again to third countries that use them as intermediates, which export more finalized output to other countries. As a result, the direct exports' destination does not necessarily equal the ultimate destination country. We use the term "indirect" trade to describe trade that originates from country *c*, goes to country *k*, and is re-exported directly or through multiple countries to country *s*.

To determine the total value added of U.S. trade, we calculate the hypothetical GDP assuming there are no production activities related to direct exports from any country to the U.S. and compare it to the actual GDP. The difference is defined as the total value-added content of gross exports to the U.S. ($\boldsymbol{\Delta VA_c^{total}}$).

For Finland, the total value-added content of gross exports to the US, including both direct and indirect, constituted \$6.7 billion in 2014. From 2000–2008, the value added of Finnish exports to the U.S. increased from \$4.7 billion to \$6.7 billion. The following years witnessed a downward trend and a recovery at the end of the period (see Appendix, column *a* in Table A.1).

In relative terms, the total significance of U.S. trade for the Finnish economy increased in the early 2000s, reaching 13.8% of the value added of all Finnish exports in 2001 (Table A.1).[2] Since then, this figure has decreased. Currently, U.S. trade accounts for 10.6% of the total Finnish value added generated from exports. As mentioned previously, these figures take into account the value added of Finnish indirect exports, such as when Finland exports intermediate goods to Sweden where the final assembly is made and the finalized products are exported to the U.S. In other words, the domestic value added of exported Finnish intermediates to Sweden is included in our figures, but the value added created in Sweden is, naturally, excluded.

The changes in value added for the entire EU area with the U.S. are very similar to those in Finland (see Appendix, column *b* in Table A.1). Thus, from this perspective, the development of Finnish trade has not differed from the EU. In 2014, the exports of EU countries that went directly or indirectly to the U.S. generated as much as \$460 billion value added to

[2] *We calculate the total Finnish value added in trade from the WIOD data by summing all the domestic value added after setting the production of Finnish final goods for Finnish final demand purposes to 0.*

member countries, representing 10% of the value added of exports to all countries.

The country breakdown, however, reveals interesting differences between EU member states (Table 1). As much as $128 billion is generated in Germany, followed by the UK ($85 billion) and Italy ($43 billion).

When the importance of U.S. trade is measured in relative terms (column *b* in Table 1), the most dependent EU countries are Ireland and the UK. The U.S. accounts for as much as 15% of the value added generated from Irish and UK exports to all countries. U.S. trade is also important for Finland, Italy (11%), and Germany (11%) but less important for countries such as Luxembourg (3%) and Malta (3%).

3.2 The importance of different trade routes to the U.S.

Next, we analyze the value-added exports to the U.S. in more detail by investigating the alternative trade routes through which value added is generated. In particular, we index the trade routes by countries that operate as: (1) the last mile exporters of goods and services to the U.S. or (2) the producers of final goods or services that are consumed in the U.S. market. In case (1), we calculate the hypothetical GDP where there are no production activities related to direct exports from a particular country *k* to the U.S. and compare it to the actual GDP. Using the notation of Section 2, we calculate the contributions of Finland and the EU ($\boldsymbol{\Delta VA^{via\,k}}$) and $\boldsymbol{\Delta VA^{direct}}$ as their special case.

In case (2), we instead use the *total* value-added contribution ($\boldsymbol{\Delta VA^{total}}$). We first calculate the hypothetical GDP where there are no production activities related to direct exports from *any* country to the U.S. and compare it to the actual GDP. We then assign the changes in the value added to different final producer countries. We measure changes in the GVC matrix[3] and collect the rows of the matrix that decompose the contribution of a certain country-industry to final production within different countries.

This latter approach is particularly useful because the different scenarios in case (1) may overlap. For example, the contribution of Finland to the Chinese trade route to the U.S. may decrease when the German trade route is also cancelled. This is the case when part of the Finnish contribution to the Chinese trade route channels through Germany. For this reason, the total contributions of the alternative scenarios that cancel trade routes one-by-one may exceed the total value-added trade. Therefore, it is also useful to decompose the *total* value-added contribution by the final producer country – a measurement that does not suffer from similar aggregation problems.

First, we consider the direct gross exports from Finland to the U.S. We calculate the hypothetical GDP where there are no production activities related to direct exporting and compare it to the actual GDP. The difference is defined as the direct value added content of gross exports ($\boldsymbol{\Delta VA^{direct}_{FIN}}$). In Figure A1 in the Appendix, we find that the value added originating directly from Finland to the U.S. has evolved very similarly to the total value added

[3] *In this global value chain (GVC) matrix, every row is a value chain whose figures indicate the participation of industries in different countries in final production within a certain industry. The sum of these values is the value of final production in a certain country and industry.*

Table 1. The value added of exports by EU countries ending up in the U.S. (billion $ and %), 2014

	(a) Value added of direct and indirect exports to the U.S., billions of $	(b) Share of total value-added exports (to all countries), %
UK	84.6	15%
Ireland	19	15%
Germany	127.8	11%
Finland	6.5	11%
Italy	43.4	11%
France	49.6	10%
Belgium	18.1	9%
Netherlands	30.8	9%
Sweden	13.7	9%
Austria	10.3	8%
Denmark	7.9	8%
Hungary	3.7	7%
Czech Republic	4.7	6%
Spain	15.9	6%
Croatia	0.9	6%
Portugal	3.1	6%
Romania	3.1	6%
Bulgaria	1	5%
Estonia	0.5	5%
Greece	1.8	5%
Poland	8.8	5%
Slovenia	0.9	5%
Cyprus	0.3	4%
Lithuania	0.9	4%
Latvia	0.4	4%
Slovakia	1.7	4%
Luxembourg	1.3	3%
Malta	0.1	3%
Sum	460.7	
Average		7%

Source: Authors' calculations based on WIOD data.

Table 2. Decomposition of Finnish value-added trade by the main (top 10) trade routes

	(*a*) Finnish value added that would be lost without a country's direct final and intermediate exports to the U.S., billions of $.	(*b*) The Finnish value-added contribution of U.S. exports by the producer of the final good or service, billions of $, top 10.
U.S.	–	3.90
Finland	4.40	1.25
Germany	0.27	0.14
China	0.14	0.12
Canada	0.17	0.12
Mexico	0.13	0.12
UK	0.09	0.05
Ireland	0.10	0.05
Sweden	0.11	0.05
Japan	0.05	0.05

Note: In column (a), we calculate the VA contents of different trade routes using method 1; in column (b), we use method 2. To interpret the figures, let us consider the role of Mexico, for example. The 6th row in column (a) implies that the absence of Mexico's intermediate and final exports to the U.S. would decrease the Finnish value added by $0.13 billion. Respectively, in column (b), we first measure the total Finnish value added contributed to direct exports to the U.S. from any country and decompose the trade by the final producer country. In the example, Finland exports $0.12 billion in intermediate products to Mexico for final assembly that are then exported to the U.S. as final goods, as the 6th row of column (b) suggests.

Source: Authors' calculations based on WIOD data.

generated in trade to the U.S. In 2014, if direct trade had been stopped, the value-added loss would have been $4.4 billion.[4]

We then consider other trade routes. The results suggest that other countries play limited roles as trade routes, a result that is not sensitive to whether it is calculated from the decomposition based on the final producer in the total trade (column *b*) or the exclusion of the direct trade of a country (column *a*) in Table 2. Rather, a large majority of the Finnish value added goes directly to the U.S. (Table 2, column *a*). The value added is associated with either the Finnish final product ($1.25 billion) or the final production in the U.S. ($3.9 billion[5]). The most important other trade route is Germany, through which trade constitutes $0.1–0.3 billion, depending on the calculation method.

[4] *Here, we can refer to other data sources for the estimated gross export value added. In particular, the OECD collects its own trade in a value-added dataset (TIVA – Trade in Value Added), and its measures for gross exports are comparable to ours. OECD TiVA estimates are collected in Figure A1 in the Appendix. The results suggest that the pattern observed in the WIOD data is also evident in the OECD's dataset, although there are some differences. Most noticeable is that the TiVA dataset yields moderately larger estimates. In Figure A5, we make the same comparison for the direct VA trade from Finland to China and find that the datasets provide very similar views on the magnitude of trade; however, TiVA provides marginally larger numbers. It should also be noted that there are relatively large revisions in the WIOD. In the 2016 release, the value-added exports from Finland to China have been revised downward when compared to the estimates based on the last years of the 2013 release.*

[5] *This $3.9 billion can be interpreted as the Finnish value added of intermediates that have been exported to the U.S. where final production occurs.*

We further investigate the value-added exports from the entire EU area to the U.S. (Table 3). Similar to the Finnish case, the table isolates the value-added contribution by countries that operate as either the last mile exporters of goods and services to the U.S. (column *a* in Table 3) or the producers of final goods or services that are consumed in the U.S. market (column *b* in Table 3).

Column *a* shows that extracting the German direct exports to the U.S. would decrease the EU's value added by a total of $114.1 billion. The second largest effect would be caused by extracting the UK's direct exports for a total of $71.9 billion. As the producer of final goods (column *b* in Table 3), almost half of the EU's total value added attributed to U.S. trade is generated in the production of U.S.-made final goods. Thus, EU countries export intermediates to the U.S. where final production is done. Other important final producers are Germany, the UK, Italy, and France, which together constitute roughly 25% of the exported value added.

Finally, we pay special attention to the value added in trade routes that include direct exports to the U.S. via China or Mexico, as the potential new tariffs especially concern imports from these two countries to the U.S. As reported in Table 2, in 2014, the Finnish value added exported to the U.S. via China constituted $0.14 billion and via Mexico only $0.13 billion. For Finland, the importance of the route via China to the U.S. has significantly varied between 2000 and 2014 (Figure 2).

Table 3. Decomposition of the EU's value-added trade to the U.S. by the main (top 10) trade routes

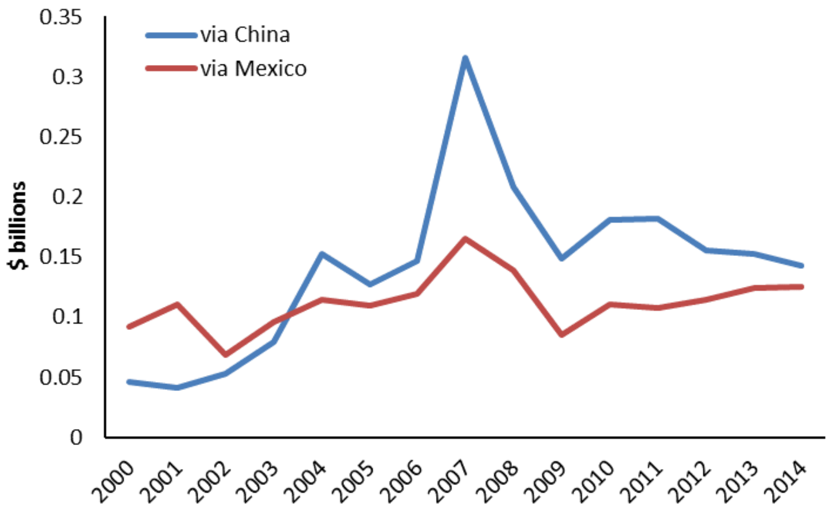
	(*a*) EU's value added that would be lost without the row country's direct final and intermediate exports to the US, bil. $.	(*b*) The EU's value added contribution of US exports by the producer of the final good or service, bil. $, top 10
USA	233.94	234.02
DEU	114.13	59.13
GBR	71.88	28.53
ITA	37.55	20.76
FRA	40.39	17.09
MEX	10.48	8.39
IRL	20.08	8.31
CAN	10.64	7.61
NLD	20.66	6.63
CHN	7.35	6.48

Note: In column (a), we calculate the VA contents of different trade routes using method 1; in column (b), we use method 2. To interpret the figures, let us consider the role of Mexico, for example. The 6th row in column (a) implies that the absence of Mexico's intermediate and final exports to the U.S. would decrease the EU value added by $10.48 billion. Respectively, in column (b), we first measure the total EU value added contributed to direct exports to the U.S. from any country and decompose the trade by the final producer country. In the example, the EU exports $8.39 billion in intermediate products to Mexico for final assembly that are then exported to the U.S. as final goods, as the 6th row of column (b) suggests.

Source: Authors' calculations based on WIOD data.

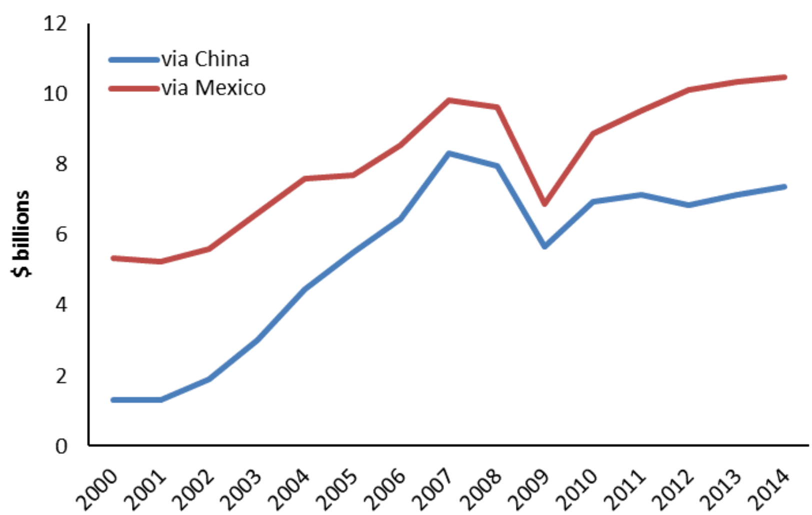
From 2000–2007, an increasing amount of Finnish value added went via China to the U.S. In 2007, the peak year, the value of this trade was $0.3 billion. However, by 2009, this amount drastically dropped and has not recovered to its previous level. For Finland, the route via Mexico does not reach the Chinese level, but the difference is rather small. Previously, the difference between Chinese and Mexican routes was significantly larger, but during the past five years, the distinction has shrunk.

Figure 2. Value added of Finnish exports via China and Mexico to the U.S., billions of $ (in current prices).



Source: Authors' calculations based on WIOD data.

Figure 3. Value added of EU's exports via China and Mexico to the U.S., billions of $ (in current prices).



Source: Authors' calculations based on WIOD data.

Unlike for Finland, for the entire EU area the route via Mexico is more important than the Chinese route to the U.S. (Figure 3). Furthermore, after the financial crisis the Mexican route to the U.S. has become increasingly important for the EU area. Surprisingly, the value added created by the EU area passing through China to the U.S. has not reached the pre-crisis level, and the difference between the Mexican and Chinese routes widened.

Although for the entire EU region the Mexican route is more important than the Chinese route, the breakdown by EU members reveals that this is not true for all EU countries (Table 4). The Chinese route to the U.S. is more important for countries such as Finland, the Netherlands, and Luxembourg, but many other countries such as Germany, France, and the UK export more to the U.S. through Mexico than through China.

The relative importance of the Chinese route to the U.S. ranges between 1% and 4% of the total value added generated by U.S. exports (column *b* in Table 4). For Bulgaria, Greece, and Luxembourg, the route via China to the U.S. is more important than for the UK, Ireland, and Italy. On average, the Chinese route to the U.S. accounts for 2.3% of the value added generated by exports to the U.S. The role of Mexico as a route to the U.S. accounts for, on average, 2.7% of the value added generated by exports to the U.S. (column *d* in Table 4). In relative terms, the Mexican route is the most important for Spain (6%) and the Czech Republic (4%) and the least important for the UK (1%).

3.3 Value-added exports: The U.S. vs. China

It is useful to relate U.S. trade developments to another large trade partner of the EU, China (Table 5). To determine the total value added of Chinese trade, we use the same method as in the case of the U.S. (see Section 3.1). Thus, we calculate the hypothetical GDP where there are no production activities related to direct exports from any country to China and compare it to the actual GDP. The difference is defined as the total VA content of gross exports to China ($\boldsymbol{\Delta VA_c^{total}}$).

For Finland, the total value-added content of gross exports to China varied considerably after 2000 (Column *a* in Table 5). From 2000–2008, the value added of Finnish exports to China increased sharply. The value added peaked in 2007 at $6.8 billion, an amount that was almost equal to the U.S. trade value. However, the value added generated by exports to China has decreased since then, and in 2014, it was $4.8 billion. Thus, Finland has experienced opposite development post-crisis compared to exports to the U.S. (Figure 2).

For the EU in general, the share of Chinese trade has increased rather steadily throughout the period of 2000–2014, both in absolute and relative terms (Column *b* in Table 5). In 2014, the EU countries created as much as $302.1 billion value added, which was exported to China. This exceeds eight-fold the corresponding amount in 2000. In addition to absolute growth, the increasing importance of China as an export destination is also seen in relative terms. Whereas in 2000 the value-added exports from the EU to China represented only 13.7% of the value-added exports to the U.S., in 2014, the ratio had risen to 65.6%.

Table 4. The value-added exports via China and Mexico to the U.S. by EU countries (2014)

	(*a*) Value added of exports via China to the U.S., millions of $	(*b*) % of the value added of exports to the U.S.	(*c*) Value added of exports via Mexico to the U.S., millions of $	(*d*) % of the value added of exports to the U.S.
Austria	196	2%	271	3%
Belgium	276	2%	290	2%
Bulgaria	33	4%	22	3%
Cyprus	7	3%	6	2%
Czech Republic	93	2%	157	4%
Germany	2439	2%	3527	3%
Denmark	154	2%	154	2%
Spain	282	2%	800	6%
Estonia	11	2%	14	3%
Finland	143	2%	125	2%
France	826	2%	1103	2%
UK	887	1%	1027	1%
Greece	63	4%	43	3%
Hungary	54	2%	111	3%
Ireland	160	1%	275	2%
Italy	490	1%	1111	3%
Lithuania	22	3%	15	2%
Luxembourg	47	4%	35	3%
Latvia	11	3%	7	2%
Malta	3	3%	4	3%
Netherlands	532	2%	522	2%
Poland	163	2%	262	3%
Portugal	63	2%	88	3%
Slovakia	32	2%	45	3%
Slovenia	18	2%	28	3%
Sweden	266	2%	332	3%
Sum of EU countries	7268		10375	
Unweighted average of EU countries		2%		3%

Source: Authors' calculations based on WIOD data.

Table 5. Value added of total direct and indirect exports to China ($ billions and %)

	(*a*) From Finland to China		(*b*) From the EU to China	
	Value added, $ billions	Share of total VA in exports	Value added, $ billions	Share of total VA in exports
2000	1.27	3.6%	35.5	1.9%
2001	1.23	3.5%	41.9	2.2%
2002	1.40	3.7%	52.0	2.5%
2003	2.00	4.5%	75.1	3.1%
2004	3.51	6.8%	100.4	3.5%
2005	2.58	4.9%	109.5	3.6%
2006	3.02	5.2%	128.1	3.8%
2007	6.80	9.6%	167.8	4.2%
2008	5.03	6.4%	194.6	4.4%
2009	4.61	7.7%	181.1	5.0%
2010	5.23	8.9%	224.3	5.8%
2011	5.84	9.3%	266.7	6.1%
2012	4.98	8.6%	260.6	6.3%
2013	4.98	8.2%	280.6	6.3%
2014	4.77	7.8%	302.1	6.6%

Note: Column (a) describes the Finnish value added in production of all final and intermediate goods that are directly or indirectly exported to China. Column (b) describes the EU value added in production of all final and intermediate goods that are directly or indirectly exported to China.

Finally, we briefly address the value-added contributions of different EU countries to the Chinese trade. Table 6 isolates the value-added contribution by countries that operate as either the last-mile exporters of goods and services to China (column *a* in Table 6) or the producers of final goods or services that are consumed in the Chinese market (column *b* in Table 6).

The list of top 10 countries arranged by the importance of their contribution as a final producer are quite similar to U.S. trade (see column *b* in Table 3). Specifically, 50% of the trade is associated with the production of domestic final goods by China. In other words, approximately half of the EU's exports to China are intermediates that are used in final production in China. In addition to these intermediates, EU countries also export final products (and services) to China. The most important producers of these final products are Germany, the UK, Italy, and France, which together constitute roughly 25% of the total.

Perhaps surprisingly, from the European point of view, the role of China as a location for final production is smaller than the role of the U.S. In the case of final production in China, the value added of European intermediates is $150.3 billion (column *b* in Table 6) while in the case of the U.S it is as much as $234 billion (column *b* in Table 3).

4. Value-added impacts of recent tariff rises

Finally, we analyze value-added losses due to actual and potential tariff rises imposed by the U.S. and the counter-tariffs proposed by other countries. We next discuss the scenarios and their quantification in more detail.

4.1 An overview of the actualized and proposed tariff rises

Our quantitative exercise refers to the trade policy measures that the Trump administration has so far implemented or threatened to implement and their countermeasures imposed by other countries. The industry-level details of the tariffs are taken here from Nilsson-Hakkala, Wang, and Kuusi (2018) to calibrate the quantitative model together with trade elasticities that we discuss in the next subsection. We next provide a short summary of the scenarios (for further detail, see Appendix B).

The U.S. administration has so far applied Sections 232 and 301 of the U.S. trade legislation by starting investigations and actions against unfair import competition and trade restrictions. In the first report of the administration under Section 232, it was claimed that imports of steel and aluminum products pose a threat to U.S. national security. To restrict imports, the Trump administration imposed a 25% duty on steel products and a 10% duty on aluminum products. These duties entered into force on March 23, 2018 and apply to all U.S. imports with a few exceptions.[6] Initially, the EU countries and Finland, Canada, and Mexico were temporarily excluded from customs duties, but the derogation only lasted until May 31, 2018, after which the duties entered into force.

The second report applied Section 301 of 1974, with the support of which the U.S. can

[6] *Australia has been able to negotiate itself out of customs duties, and Argentina, Brazil, and South Korea faced import quotas on steel instead of customs duties. In addition, Argentina also received import quotas for aluminum instead of customs duties.*

Table 6. Decomposition of the EU's value-added trade to China by the main (top 10) trade routes

	(*a*) EU's value added that would be lost without the row country's direct final and intermediate exports to China, billions of $	(*b*) The EU's value-added contribution of Chinese exports by the producer of the final good or service, billions of $, top 10
China	–	150.3
Germany	103.5	56.2
UK	22.3	12.3
France	24.4	12.0
Italy	15.5	9.9
U.S.	3.1	4.9
Netherlands	10.9	4.1
Sweden	6.3	3.1
South Korea	6.2	3.0
Denmark	5.8	2.8

Note: In column (a), we calculate the VA contents of different trade routes using method 1; in column (b), we use method 2. To interpret the figures, let us consider the role of South Korea, for example. The 9th row in column (a) implies that the absence of South Korea's intermediate and final exports to China would decrease the EU value added by $6.2 billion. Respectively, in column (b), we first measure the total EU value added contributed to direct exports to China from any country and decompose the trade by the final producer country. In the example, the EU exports $3.0 billion in intermediate products to South Korea for final assembly that are then exported to China as final goods, as the 9th row of column (b) suggests.

Source: Authors' calculations based on WIOD data.

respond to various unfair practices and policies used by U.S. trading partners. The investigation, initiated by President Trump, has applied Section 301 to establish the laws, policies, practices, and actions of China, which are discriminatory and unreasonable and may impede American intellectual property, innovation, and technological developments. As a countermeasure, the U.S. imposed a 25% duty on imports of goods from China, which are equivalent to about $50 billion. These duties entered into force in two phases. On July 6, 2018, import duties worth $34 billion came into force, and on August 23, 2018, the remaining duties were initiated.

In addition to these duties, in the first year of the Trump presidency, the U.S. imposed tariffs on washing machines and solar panels to protect producers of these products from dumping and unfair import competition. Moreover, the Trump administration announced on September 17, 2018 that has imposed more customs duties against China under Section 301, now regarding imports worth $200 billion from China. The duties entered into force on September 24, 2018 and were originally set at 10%. In the early 2019, they will potentially rise to 25%. Trump has also threatened to impose tariffs on Chinese imports worth $267 billion if China responds to the latest U.S. tariffs in the same manner; the duties would then cover all imports from China to the U.S. China has already replied by imposing on September 24, 2018 5% and 10% customs duties worth $60 billion on U.S. imports, but there is still uncertainty as to whether the threat of additional tariffs will lead to additional duties.

Furthermore, the EU has imposed countermeasures against the U.S. steel and aluminum tariffs. The EU's first counter-customs duties entered into force on June 20, 2018 and covered U.S. imports amounting to some EUR 2.8 billion. In addition to steel products, customs duties include the import of Bourbon whisky, denim pants, and motorcycles to target key imported goods from the U.S. In addition, the EU has announced a second list of EUR 3.6 billion, which will enter into force on either March 23, 2021 or the fifth day after the World Trade Organization (WTO) disputes jury has declared the U.S. tariffs unfounded, whichever occurs first. As a countermeasure, President Trump has threatened to impose a 20–25% duty on imported cars and car parts. At present, the situation with regard to these duties has been brought to a calm through negotiations. However, since the actions of the Trump administration are difficult to predict, the avoidance of new possible duties is uncertain.

Finally, we note that the imposed and proposed measures increase the tariffs considerably. Before the new tariff measures were established, the U.S. tariff on China's imports across all sectors was, on average, 3%. The U.S. tariff on imports from the EU was 2.1%.

4.2 Quantifying the impacts of tariff rises

To measure the impacts of the tariffs, we employ trade elasticity estimates reported in previous literature to calculate how intensively trade flows react to increased import tariffs. In our baseline, we follow Vandenbussche, Connell, Simons, and Zaurino (2017b) and assume that each 1% increase in the tariff rate decreases exports by -2%. They argued that this trade elasticity (-2) can be regarded as prudent, with many products and sectors displaying higher trade elasticities. As an alternative, we apply individual trade elasticities for ISIC-rev2 level manufacturing industries that are estimated by Imbs and Mejean (2017), while we calibrate trade elasticity at -4 for service sectors, as assumed by Vandenbussche, Connell, and Simons (2017a). The used trade elasticities of manufacturing industries are the median-country estimates by Imbs and Mejean (2017). Their estimates were moderately larger than the ones used by Vandenbussche, Connell, Simons, and Zaurino (2017a).

Overall, the impacts of the actual and potential tariff rises reported in Table 7 are relatively small. Based on our results, the entire EU area would, depending on the used elasticities, lose a total of $39 to $146 billion value added if all proposed tariffs are implemented, representing approximately 0.2% to 0.8% of the EU's total GDP. The largest impact would result from the proposed car tariffs by the U.S. For Finland, the total effect of the tariffs would be approximately $0.3 to $1 billion value added that would account for roughly 0.1% to 0.4% of the GDP. Thus, for Finland, the relative impact of the tariffs would be somewhat smaller than for the EU as an average. By far, the greatest hit would be taken by Germany. Its loss of value added would be almost half of the total EU's loss of value added.

The results in Table 7 concerning tariff measures directed against third countries like China also suggest that despite highly integrated global value chains, the indirect channels are not important enough to affect considerably the Finnish and EU value added. For example, all scenarios involving tariffs against China together contribute only around 0.1 percentage point to the EU GDP.

Finally, we acknowledge that there is a considerable amount of uncertainty in the estimates. First, the trade elasticity estimates are noisy and they have been estimated on the basis of data in a period of (generally small) reductions in trade barriers. Thus, it is questionable whether the used trade elasticities can describe the behavioral changes as a consequence of large tariff increases (Chen et al. 2018). Moreover, it could be that there are large dynamic effects associated with them, and it is important to recognize the counterfactual, ceteris paribus nature of this type of analysis. Firms have already begun rerouting some of their trade via other countries that are not subjected to the tariff rises, and thus in a static sense, the estimates might be seen as upper bounds. On the other hand, the dynamic implications may also be greater than currently estimated. For example, Dhingra et al. (2017) showed in the case of Brexit that an attempt to capture the dynamic effects of Brexit on productivity more than triples its welfare losses. Even more difficult is the question concerning the cost of financial reactions, especially given the vulnerable state of European financial markets in the aftermath of the Great Recession.

5. Conclusions

In this paper, we analyzed the value-added impacts of rising U.S. protectionism on Finland and other EU member states. The U.S. president has proposed tariff increases, particularly on imports from Mexico and China to the U.S. However, in the era of GVCs, potential tariff increases have impacts that reach beyond the target countries. Furthermore, the threat of protectionism involves the possibility of higher tariffs against EU exports to the U.S. more generally. To analyze the impacts of protectionism, we applied a measurement framework for the decomposition of value-added trade to the U.S. grounded on hypothetical extraction, a mathematical technique based on an input-output representation of the global economy (Los, Timmer, and de Vries 2016; Timmer et al. 2016).

Our results showed that trade to the U.S. has continued to be an important source of value added for Finland as well as the majority of EU countries, even when trade slowed temporarily during the Great Recession. For many

Table 7. The value-added impact of various tariff scenarios

	Finland				EU			
	General trade elasticity = -2		Industry-specific trade elasticities		General trade elasticity = -2		Industry-specific trade elasticities	
	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)	(*g*)	(*h*)
	Mil. $	% of GDP	Mil. $	% of GDP	Mil. $	% of GDP	Mil. $	% of GDP
U.S. Section 232 tariffs (against rest of the world)	-104	-0.04%	-281	-0.10%	-6761	-0.04%	-17847	-0.10%
EU retaliatory 232 tariffs Annex 1 (against U.S.)	-1	0.00%	-2	0.00%	-32	0.00%	-100	0.00%
EU retaliatory 232 tariffs Annex 1+2 (against U.S.)	-1	0.00%	-4	0.00%	-66	0.00%	-207	0.00%
China retaliatory 232 tariffs (against U.S.)	0	0.00%	-1	0.00%	-16	0.00%	-47	0.00%
U.S. Section 301 tariffs 2018 (against China)	-18	-0.01%	-66	-0.02%	-973	-0.01%	-3613	-0.02%
U.S. Section 301 tariffs 2019 (against China)	-35	-0.01%	-124	-0.05%	-1826	-0.01%	-6702	-0.04%
China retaliatory 301 tariffs (against U.S.)	-9	0.00%	-29	-0.01%	-549	0.00%	-1833	-0.01%
Threatened additional U.S. 301 tariffs (against China)	-69	-0.03%	-252	-0.09%	-3560	-0.02%	-13251	-0.07%
U.S. threatened car tariffs (against EU)	-73	-0.03%	-290	-0.11%	-25652	-0.14%		-0.55%
Total	-310	-0.11%	-1049	-0.38%	-39434	-0.21%		-0.78%

Note: Authors' calculations based on WIOD data.

EU countries, trade to the U.S. represents more than 10% of the value added of exports to all countries. Furthermore, we found that a large majority of both Finnish and EU value added goes directly as intermediate or final goods and services to the U.S. Much less value added is generated via other countries to the U.S. For Finland, the next most important trade channel is through Germany.

Regarding the trade routes that are at the greatest risk of facing higher trade barriers, we find that for Finland, the route via China to the U.S. is more important than the route via Mexico when measured by the total value-added exports associated with the trade route, but for the entire EU area, the Mexican route is more important. After the financial crisis, the Mexican route became increasingly more important, exceeding its pre-crisis level.

We also investigated the effect of the trade barriers in several counterfactual scenarios. Using standard export elasticity estimates, we found that the value added generated by Finland and other EU countries to the U.S. would decline only moderately if all proposed tariff increases are implemented. The worst impacts would be seen if the U.S. establishes tariffs against cars produced in the EU, and the worst hit would be taken by Germany. The results concerning tariff measures against third countries like China, also suggest that despite highly integrated global value chains, the significance of indirect channels is likely to be rather small for the EU.

In addition to the trade impacts we have analyzed, tariff increases potentially affect the investment of companies currently producing goods in China or Mexico and exporting the output to the U.S. Companies have, however, several alternatives to change the geography of their activities. First, companies may transfer production to the U.S. instead of importing from these two countries. Second, companies may also transfer production to other countries with lower tariff rates and export from these new locations to the U.S.

Our findings show that as a result of global fragmentation of production processes, bilateral trade barriers may potentially have impacts not only on targeted countries but also on third countries. Thus, they may harm economies that were not directly targeted. We, however, find that the effects of the current tariff measures are likely to be small. Thus, the real risk appears to be that they can lead to more direct escalations by increasing the probability that other countries will launch further countermeasures to increased tariffs. □

References

Chen, W., Los, B., McCann, P., Ortega-Argilés, R., Thissen, M., and van Oort, F. (2018). "The continental divide? Economic exposure to Brexit in regions and countries on both sides of the Channel". *Papers in Regional Science* 97, 25–54.

Dhingra, S., Huang, H., Ottaviano, G., Pessoa, J.P., Sampson, T., and Van Reenen, J. (2017). "The costs and benefits of leaving the EU: Trade effects". *Economic Policy* 32(92), 651–705.

Imbs, J. and Mejean, I. (2017). "Trade Elasticities". *Review of International Economics* 25 (2), 383–402.

Kühn, S. and Viegelahn, C. (2019). "Foreign trade barriers and jobs in global value chains." *International Labour Review* 158 (1), 137–167.

Los, B., Timmer, M. P., and de Vries, G. J. (2016). "Tracing Value-Added and Double Counting in Gross Exports: Comment." *American Economic Review* 106(7), 1958–66.

Melitz, M. J. (2003). "The impact of trade on intra-industry reallocations and aggregate industry productivity." *Econometrica* 71(6), 1695–1725.

Nilsson-Hakkala, K., Wang, M., and Kuusi, T. (2018). (in Finnish) "Tariffs and Threats: President Trump's Trade Policy and Its Consequences to Finland." *ETLA Brief No 73*, The Research Institute of the Finnish Economy, Helsinki, Finland.

Office of the United States Trade Representative (2017). "2017 Trade Policy Agenda and 2016 Annual Report of the President of the United States on the Trade Agreements Program." *Office of the United States Trade Representative*, United States.

Statistics Denmark (2008). "International Sourcing, Moving Business Functions Abroad." *Statistics Denmark*, Copenhagen.

Timmer, M. P., Dietzenbacher, E., Los, B., Stehrer, R., and de Vries, G. J. (2015). "An illustrated user guide to the world input-output database: The case of global automotive production." *Review of International Economics* 23(3), 575–605.

Timmer, M. P., Los, B., Stehrer, R., and de Vries, G. J. (2016). "An anatomy of the global trade slowdown based on the WIOD 2016 release." *GGDC Research Memorandum*, 162, University of Groningen, Netherlands.

Vandenbussche, H., Connell, W., and Simons, W. (2017a). "Global Value Chains, Trade Shocks and Jobs: An Application to Brexit." KU Kleuven Center of Economic Studies discussion paper series 17.13.

Vandenbussche, H., Connell, W., Simons, W., and Zaurino, E. (2017b). "'America First!' What are the job losses for Belgium and Europe?" *VIVES Discussion Paper*, 57, University of Leuven, Belgium.

Appendix A. Additional details

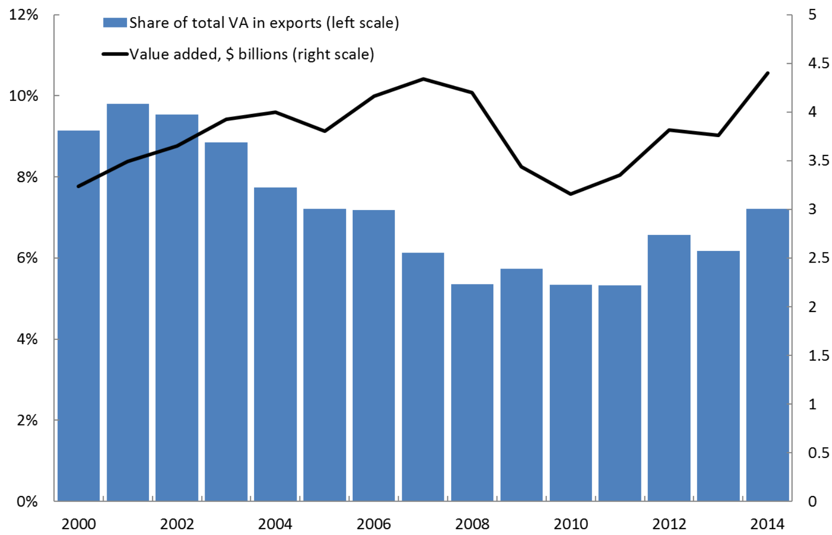
Table A.1. Value added of total direct and indirect exports to the U.S. ($ billion and %)

	(*a*) From Finland to the U.S.		(*b*) From the EU to the U.S.	
	Value added, $ billion	Share of total VA in exports	Value added, $ billion (right scale)	Share of total VA in exports (left scale)
2000	4.66	13.2%	258.70	14.0%
2001	4.93	13.8%	260.24	13.8%
2002	5.13	13.4%	278.02	13.6%
2003	5.58	12.6%	309.14	12.6%
2004	6.03	11.7%	346.06	12.0%
2005	5.81	11.0%	360.78	11.7%
2006	6.34	11.0%	387.39	11.4%
2007	6.86	9.7%	411.94	10.3%
2008	6.72	8.6%	424.60	9.7%
2009	5.18	8.7%	336.14	9.2%
2010	5.13	8.7%	367.10	9.5%
2011	5.50	8.8%	409.11	9.4%
2012	5.89	10.1%	412.01	9.9%
2013	5.91	9.7%	430.30	9.7%
2014	6.46	10.6%	460.68	10.1%

Note: Column (a) describes the Finnish value added in the production of Finnish intermediate and final goods that are directly or indirectly exported to the U.S. ($ billions) in current prices and its share of the value added of Finnish exports to all countries. Column (b) describes the EU value added in the production of EU intermediate and final goods that are directly or indirectly exported to the U.S. ($ billions) in current prices and its share of the value added of EU exports to all countries.

Source: Authors' calculations based on WIOD data, 2000–2014.

Figure A.1. Value added of Finnish direct exports to the U.S. ($ billions and %)



Appendix B. Tariff scenarios

Tariffs imposed by the U.S.

Section 232[7]

Current duties:

	Countries	Amount of additional duties	Announced	Entered into force
Steel	All except Argentina, Brazil, and South Korea (import quotas) and Australia (released)	25% (except Turkey 50% from Aug. 13, 2018)	Mar. 1, 2018	Mar. 23, 2018
Aluminum	All except Argentina (import quotas) and Australia (exempted)	10% (except Turkey 20% from Aug. 13, 2018)	Mar. 1, 2018	Mar. 23, 2018

For the EU, Mexico, and Canada, the duties entered into force June 1, 2018. The subject of customs duties is steel products belonging to the HTS-customs codes of classes 72 and 73 and aluminum products in category 76: https://www.cbp.gov/trade/programs-administration/entry-summary/232-tariffs-aluminum-and-steel.

[7] *United States Trade Act 301 allows the president to impose sanctions on countries that violate trade agreements or otherwise engage in unfair trade policies. (https://www.trade.gov/mas/ian/tradedisputes-enforcement/tg_ian_002100.asp)*

Proposed duties:

	Countries	Amount of additional duties	Announced
Cars and car parts	EU	20 or 25%	Aug. 21, 2018

Section 301[8]

Current duties:

	Countries	Amount of additional duties	Announced	Entered into force
USD 50 billion worth of imports (List)	China	25%	Apr. 3, 2018	First $34 billion, Jul. 6, 2018 The remaining $16 billion, Aug. 23, 2018
USD 200 billion worth of imports (List)	China	10% to begin with, 25% from Jan. 1, 2019	Jul. 10, 2018	Sep. 24, 2018

Proposed duties:

	Countries	Amount of additional duties	Announced
Imports worth USD 267 billion	China	?	Aug. 21, 2018

In relation to car duties, the situation is uncertain. President Trump threatened to impose them in the summer of 2018, but at the moment they are on hold.

President Trump has threatened these additional duties if China responds to the $200 billion customs duties already in force.

[8] *United States Trade Act 301 allows the president to impose sanctions on countries that violate trade agreements or otherwise engage in unfair trade policies. (https://www.trade.gov/mas/ian/tradedisputes-enforcement/tg_ian_002100.asp)*

Counter-tariffs imposed on the U.S.
Section 232

Current duties:

Imposing country	Item	Amount of additional duties	Announced	Entered into force
EU	EUR 2.8 billion worth of imports (List)	10 or 25%	Jul. 20, 2018 (scheduled until March)	Jul. 22, 2018
China	USD 3 billion worth of imports (List)	15 or 25%	Mar. 23, 2018	Apr. 2, 2018
Canada	CAD 16.6 billion worth of imports (List)	10 or 25%	May 31, 2018	Jul. 1, 2018
Mexico	USD 3 billion worth of imports (List)	7–25%	Jun. 5, 2018	Jun. 5, 2018 and Jul. 5, 2018 (Exceptions)
Russia	Approx. USD 3.16 billion worth of imports (WTO bulletin)	25–40%	Jul. 6, 2018	Jul. 6, 2018
Turkey	22 categories (List)	4–140%	Aug. 14, 2018	Aug. 15, 2018

Proposed duties:

Imposing country	Item	Amount of additional duties	Announced
EU	EUR 3.6 billion worth of imports (List)	10–50%	Jun. 20, 2018 (scheduled until March 2019)
India	Approx. USD 10 billion worth of imports (List)	5–100%	Jun. 20, 2018

The EU's second list of customs duties has been reported to come into force on March 23, 2021 or the fifth day after the WTO has declared them fair.

The Indian duties were supposed to come into effect in August 2018, but they were moved three times to begin December 17, 2018.

Section 301: Chinese counter-tariffs

Section 301: Chinese counter-tariffs

Current duties:

Item	Amount of additional duties	Announced	Entered into force
$50 billion worth of imports	25%	Jun. 15, 2018 (first version Apr. 4, 2018)	First $34 billion, Jul. 6, 2018 The remaining $ 16 billion Aug 23rd, 2018
$60 billion worth of imports	Annex 1 and 2: 10% Annex 3 and 4: 5%	Aug. 3, 2018	Sep. 24, 2018