



GED Focus Paper

Global Impact of a Protectionist U.S. Trade Policy

Thieß Petersen, Ulrich Schoof, Erdal Yalcin,
Gabriel Felbermayr, Marina Steininger

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Executive Summary

The inauguration of Donald Trump as President of the United States has raised the risk that U.S. trade policy will increasingly adopt protectionist measures. The three policies relevant in this context—a withdrawal from the North American Free Trade Agreement, destination-based cash flow taxation with subsidized exports and general economic isolation from the rest of the world—have been modelled by the ifo Institute in corresponding scenarios for the Bertelsmann Stiftung in order to quantify the global economic impact of these policies.

Currently, the US administration is examining the goods trade with all nations of the world and evaluating whether the trade is „fair“ from the point of view of the USA. If partner countries' practices are classified as non-competitive or unfair, the US administration intends to restrict access to the American market. The goal of such a potential U.S. isolationist policy is to secure jobs and income in the United States. In reality, however, such protectionist measures would lead to the fact that a weakness in international trade, triggered by the United States, results in losses of income worldwide—above all in the United States. In all the modelled scenarios, the United States is one of the four countries that will lose the most in income. For this reason, the U.S. government should generally distance itself from the threatened protectionist trade policies in its own interests.

The re-introduction of customs and non-tariff trade barriers in the North American free trade zone, which includes the United States, Canada and Mexico, would damage the American economy. Real per capita annual income would fall by roughly US \$125 in the long run there.¹ Only in Canada would the loss of income be greater at roughly US \$730 per resident. Many other countries could even gain slight advantages if there is a decline in cross-border trade between the United States, Canada

and Mexico. The corresponding increases in income would be hardly noticeable, however. In Germany, for example, long-term per capita annual income would rise by less than US \$12.

The now withdrawn consideration of a border adjustment tax, which would act as a 20% import tax and a 20% subsidy of U.S. exports would reduce U.S. exports and income in the United States. The long-term losses of income would be greater in the United States at just under US \$380 per resident than they would be from the reintroduction of trade barriers in the North American free trade zone. The economic impact on other countries would also be greater. Real per capita annual income in Germany would be almost US \$350 less in the long run. In addition, there would also be individual countries that could increase their production of goods. The greatest increases in income per resident connected with this would be achieved in the United Kingdom and Canada at roughly US \$330 in each case.

A U.S. protectionist policy for trade with other countries would cause the greatest economic damage—above all if these countries adopt protectionist policies for the United States as a countermeasure. If customs duties and non-tariff trade barriers in bilateral trade between the United States and other countries increased by 20 percent, for example, U.S. imports from these countries would decrease by 50 to 60 percent. U.S. exports to the individual other countries would even fall by 70 percent or more. The consequences would be high losses of income: Real per capita annual income in the United States would be US \$1,300 less in the long run, and in Canada it would even be roughly US \$1,800 less. A loss of income in the amount of roughly US \$160 per resident would be expected for Germany. Different than in the two preceding scenarios, there is no individual country in this scenario that could see rises in income if trade barriers are erected on both sides.

¹ The per capita income indicated here does not include customs revenue.

1. Introduction

It is necessary to consider in all these results that the simulation models used do not take account of dynamic effects and the parameters applied are conservative in nature. For this reason, these results represent the lower bound of the long-term impact (approx. 10–12 years) that a protectionist U.S. trade policy would have on income and production.

One of the core messages in Donald Trump's election campaign was the isolation of domestic markets from competition abroad. After his inauguration in January 2017, he followed up his campaign promises with action. One of his first acts in office was to issue an executive order to suspend the Trans-Pacific Partnership (TPP).

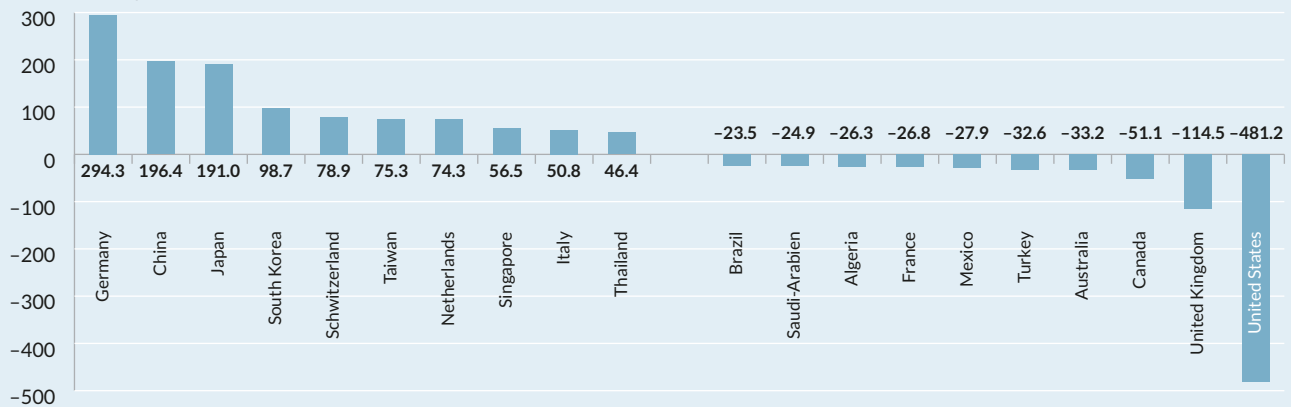
The goal of this and other envisioned protectionist measures is to secure jobs and income in the United States and to reduce the high current account deficit in the United States. According to the preliminary figures of the International Monetary Fund, the American current account deficit was almost US \$500 billion in 2016. This is by far the highest deficit in the world (see Figure 1).

In reality, however, these goals cannot be achieved by isolating the U.S. economy. On the contrary: if the United States imposes import duties on foreign products, for example, this may increase the prices of imported consumer goods and intermediate goods and services. The consequence will be an increase in the price level in the United States and also an increase in production costs. This will worsen the international competitiveness of the American economy and reduce U.S. exports as a result.

The explanatory remarks below summarize the most important results of a study prepared by the ifo institute on behalf of the Bertelsmann Stiftung (see Yalcin, Felbermayr and Steininger 2017). This study calculates the possible impact of three fundamental scenarios involving protectionist U.S. trade policy:

- In the **first scenario**, there is a partial withdrawal from the North American Free Trade Agreement. This Agreement entered into force on January 1, 1994, and includes the U.S., Canada and Mexico.

FIGURE 1 The ten countries with the highest current account surpluses and current account deficits in 2016, figures in U.S. dollars.



Source: International Monetary Fund, World Economic Outlook Database, April 2017 (downloaded on July 27, 2017).

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- The **second scenario** involves the impact of a so-called border adjustment tax introduced by the United States. This tax measure acts like a customs duty on imports to the U.S. in combination with a subsidy for U.S. exports.
- The **third scenario** ultimately involves protecting the U.S. market from the rest of the world by imposing tariffs and other trade barriers. It should also be considered that one-sided trade restrictions adopted by the United States could lead to retaliatory measures by the affected countries, with these countries also implementing protectionist measures against the United States.

2. Model-theoretical Fundamentals

The calculations forming the basis of these explanatory remarks were prepared with the simulation model of the ifo institute (see Aichele, Heiland and Felbermayer 2016 for a more in-depth discussion). This involves a static, general equilibrium model for international trade. Trade flows are influenced by customs duties and non-tariff trade barriers (e.g. technical requirements, documentation obligations, etc.), among others. The model covers 43 individual countries and the rest of the world. The base year for the simulation calculations is 2014. The trade data is reported for 50 sectors. This allows for statements about the structural adjustments to protectionist measures in the individual countries, i.e. statements about changes in trade flows and production structures and their impact on real gross income and real wages. Since the model involves a real economic model, it does not include monetary aspects—and thus also changes in exchange rates.

The fundamental economic interrelations can be clarified in one simple example. Let us assume that the United States imposes higher customs duties on imports from Canada. This measure will have numerous economic consequences and involves many interdependencies. Some of the most important ones are the following:

- In the **United States**, the higher price for Canadian products means that demand for these products will drop due to lower competitiveness, and imports from Canada will fall as a result. American consumers must pay a higher price for products that continue to be purchased from Canada. This reduces their purchasing power and their real income. The demand for U.S. products will fall due to the lower purchasing power. This means that production, employment and income will drop in the United States. If U.S. companies purchase intermediate goods or services from Canada, they must also pay a higher price for these products. Their production costs and international competitiveness decline as a result. The consequences
- are falling exports in the United States, i.e. also lower production and lower employment. However, there may be positive production and employment effects for some sectors. For example, this is the case in sectors that would not be able to compete with Canadian suppliers without the import duties and—after the import duties increased the prices for Canadian products—would be competitive again. However, this will also lead to an increase in the price level in the United States since American companies can only offer these products at a higher price due to the higher production costs. Theoretically, the effects could also be positive if the structure of comparative advantages in a U.S. sector largely matches those in Canada, and the other sectors have structures that are complementary to the Canadian ones.
- In **Canada** the lower exports to the United States will cause a decline in production, employment and income. The lower demand for products connected with this weakens the Canadian economy even more since the United States is its most important trading partner. The lower demand for goods also affects American products. For the United States, this means a decline in exports with a negative impact on production and employment in its own country.
- Finally, external countries such as **Germany** will also be affected by American customs duties on Canadian products. A possible scenario could look like this: If German consumers purchase U.S. products, they must pay a higher price for them due to the general increase in prices in the United States. This reduces real income in Germany and has a negative impact on demand and production in Germany. The production costs increase for German companies that need American intermediate products. This reduces the international competitiveness of these companies and decreases German exports to the rest of the world. Furthermore,

German exports to Canada will decline because the drop in Canadian real income will lower demand for German products. At the same time, German exports to the United States may increase. This is the case if Canadian products are no longer competitive due to the import duties in the United States, and American consumers switch to German products instead. On balance, production, employment and income in Germany could even rise due to the American import duties on Canadian products: Since Germany only imports relatively few products from the United States, the increase in prices connected with that is hardly of relevance. To the extent that the additional exports to the United States are relatively high, the positive production and income effects connected with that can overcompensate the outlined negative effects of these import duties.

Overall, the model allows for an analysis of complex structural adjustments due to consideration of the economic structure. The price for the consideration of the structural adjustments is the omission of dynamic effects. The model does not take account of investment activities and thus the connected changes in productivity, for example. Since the dynamic effects resulting from economic isolation are not taken into account, the results presented below represent the lower bound of the long-term impact that protectionist U.S. trade policies would have on income and production.

The results of the calculations in the simulation are to be interpreted as follows: The starting point is the economic actual situation in 2014 (base year). In each case, the scenarios calculate a hypothetical situation for the world in which various protectionist measures are implemented. Consequently, an alternative world will be modelled for 2014 in which all the framework conditions are identical with the exception of protectionist measures adopted. The protectionist measures increase the costs of cross-border trade. The adjustments companies and consumers make to the change in trade costs have effects on the trade flows and the production structure. These effects have consequences for wages, macroeconomic gross income and gross domestic product. Since monetary aspects are not included in the model, the metrics involve real figures.

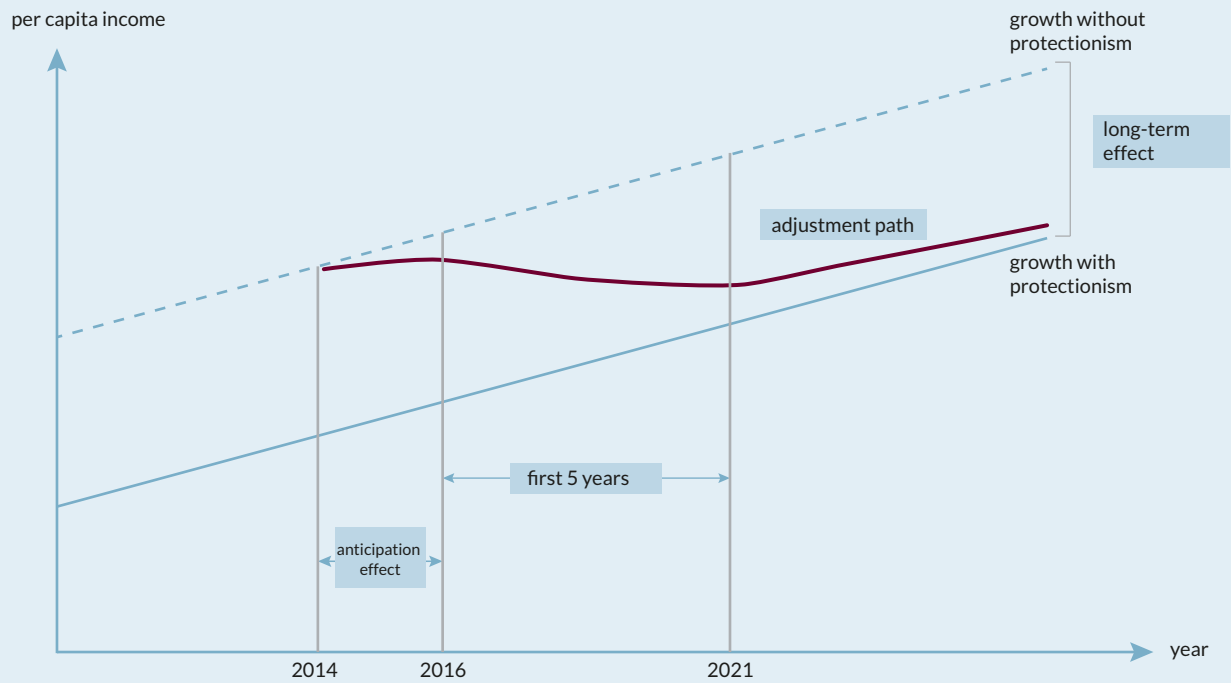
Clarification of terms: The trade model used calculates the change in income for all house-holds in a society. This metric is the annual gross household income or real income without taking account of customs revenue. Dividing this metric by the total population produces the real per capita income. The latter mainly corresponds in turn to real per capita gross domestic product (GDP).

In reality, an adjustment to a change in trade costs takes time. Experience with existing free trade agreements shows that a dismantling of trade barriers requires 10–12 years to have its full impact. It is therefore plausible to assume that the reintroduction of trade barriers would also entail an adjustment period. The associated path of adjustment over time can be seen in Figure 2.

As a result, it is possible to interpret the changes in real gross household income discussed below, i.e. the long-term losses and gains in income resulting from the application of various protectionist measures. These changes are also described as losses or gains in well-being.

To reduce the complexity of the comparison, this focus paper will limit itself to a discussion of the results in nine countries: the three NAFTA member states (the United States, Canada, Mexico), the three largest European economies (Germany, the U.K., France) and the three Asian countries with the highest current account surpluses (Japan, China, South Korea). The results for the other countries can be found in the long version (Yalcin, Felbermayr and Stein-inger 2017) and in Appendices 1 to 3.

FIGURE 2 The modelled path of adjustment in annual per capita income (without consideration of customs revenue) as a reaction to the introduction of a protectionist measure in 2014



Source: Trade model of the German Institute for Economic Research (ifo).

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3. Scenario I: Withdrawal from NAFTA

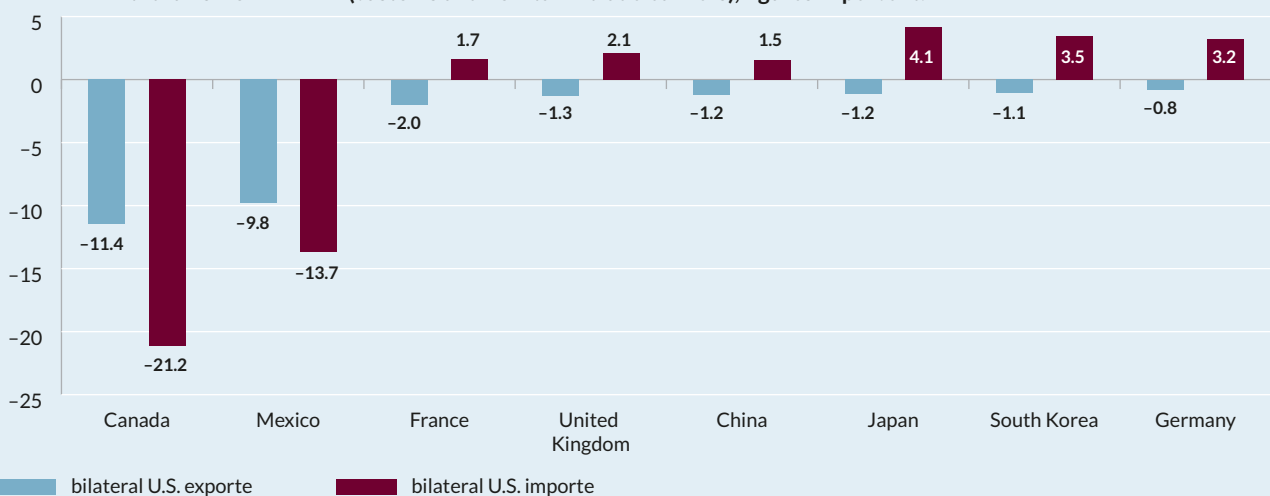
In this scenario, it is assumed that the United States reintroduces trade barriers in the North American free trade zone. The amount of the import duties collected by the United States from Canada and Mexico corresponds to the customs duty rates that apply to all members states of the World Trade Organization (WTO). The amount of non-tariff trade barriers corresponds to the costs that were eliminated in the regional free trade agreements concluded to date and are now reintroduced.

The increase in trade costs for imports from Canada and Mexico to the United States as a result of import duties and non-tariff trade barriers primarily changes trade flows within the North American free trade zone. U.S. imports from Canada drop the most (minus US \$74 billion or minus 21 percent) as do its imports from Mexico (minus US \$36 billion or minus 13.6 percent, see Fig. 3).

U.S. imports from other countries increase in part. In total, the United States lifts its imports from the rest of the world by roughly US \$29 billion. In absolute figures, imports from China (plus US \$5.4 billion), Japan (plus US \$5.0 billion) and Germany (plus US \$4.4 billion) rise the most. However, it is clear that the United States will have difficulty replacing the close, long-standing trade relations with Canada and Mexico.

Changes in trade flows and the associated adjustments in the production of goods and services have an impact on the annual real income of citizens. Table 1 shows the simulation results for selected countries. It can be seen that an increase only in customs causes just a minor loss of well-being. If non-tariff trade barriers are erected at the same time, Canada suffers the greatest percentage decline in income with a long-term drop of roughly 1.5 percent. The decline in income for the United States is relatively moderate at roughly 0.2 percent. It is necessary to consider, however,

FIGURE 3 Change in long-term bilateral trade relations between the United States and selected countries if the United States withdraws from NAFTA (customs and non-tariff trade barriers), figures in percent.



Source: Trade model of the German Institute for Economic Research (ifo).

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that this scenario does not assume retaliatory measures by Canada and Mexico. If the two countries also adopt protectionist policies for the United States, this would lead to a greater drop in income for the United States.

There are hardly any noticeable effects on income for the other countries. This is due to the fact that a change in the trade structures between member states of NAFTA has only an indirect economic impact. If the higher trade costs reduce the imports of all three NAFTA member states from the respective other two NAFTA countries, the United States, Canada and Mexico will replace a portion of the falling imports with products from the rest of the world. These external countries can increase their exports as a result. For example, countries such as Germany, Japan and South Korea can increase their exports to the United States by three to four percent and thus, *ceteris paribus*, raise real income.

Nonetheless, it is necessary to consider the negative impact that higher trade costs within NAFTA would have on external countries. An example is that falling real income in Mexico causes Mexico to buy fewer products from abroad. Countries that have relatively high exports to Mexico are negatively affected by this. Furthermore, intermediate goods and services that external countries import from NAFTA countries will become more expensive. This increases production costs in the affected external countries, which causes their international competitiveness to decline. That can lead to drops in exports, which in turn result in losses of income.

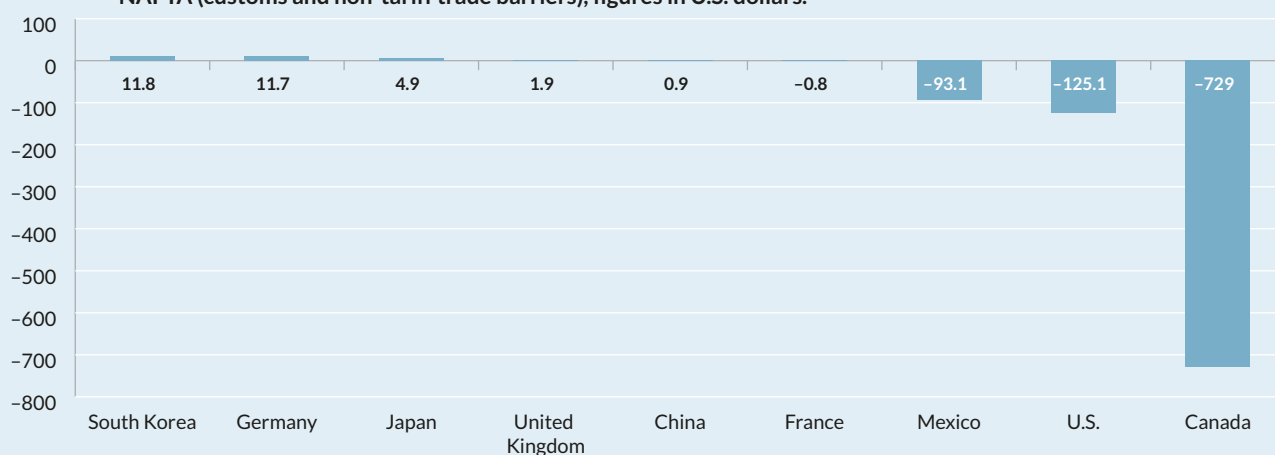
TABLE 1 Change in long-term real gross household income (annual income) in selected countries if the United States withdraws from NAFTA, figures in percent. NTTB = Non-tariff trade barriers.

	Change in real gross household income in percent		
	Only customs	Only NTTBs	Customs and NTTBs
U.S.	+ 0.0111	- 0.2309	- 0.2225
Canada	- 0.1886	- 1.3750	- 1.5436
Mexico	+ 0.0140	- 0.9619	- 0.9607
Germany	+ 0.0025	+ 0.0280	+ 0.0291
France	+ 0.0030	- 0.0039	- 0.0019
United Kingdom	+ 0.0032	+ 0.0069	+ 0.0044
China	- 0.0026	+ 0.0132	+ 0.0132
Japan	+ 0.0041	+ 0.0115	+ 0.0137
South Korea	+ 0.0063	+ 0.0407	+ 0.0481

Source: Trade model of the German Institute for Economic Research (ifo). | BertelsmannStiftung

If the percentage changes in income refer to per capita income in the base year of 2014, it becomes clear that Canada will be affected the most by the reintroduction of trade barriers (see Fig. 4). Real per capita annual income decreases by just under US \$730 there in the case of an increase in customs together with higher non-tariff trade barriers.

FIGURE 4 Change in long-term real per capita income (annual income) in selected countries if the United States withdraws from NAFTA (customs and non-tariff trade barriers), figures in U.S. dollars.



Source: Trade model of the German Institute for Economic Research (ifo).

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4. Scenario II: Introduction of a Border Adjustment Tax

The basic consideration in this measure is corporate tax reform where U.S. companies may no longer deduct imported intermediate goods from their taxes. In return, the exports of American companies are tax-exempt (see Hüther 2017: 161). In the case of the currently envisioned 20 percent corporate tax rate, this approach involves a 20 percent import tax and also a 20 percent export subsidy.

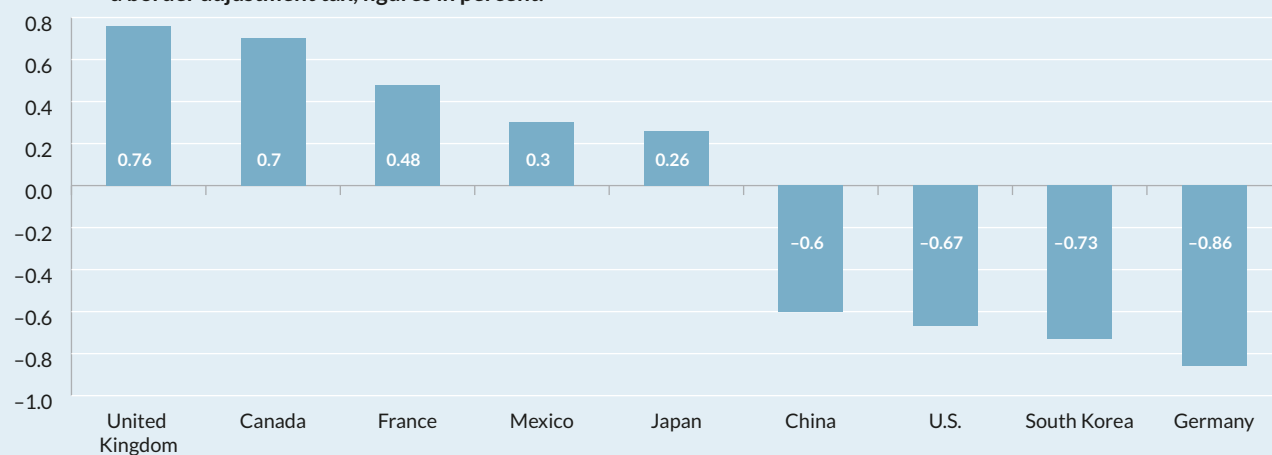
This idea was suggested in Donald Trump's campaign in order to protect domestic industry against the allegedly unfair trade practices of U.S. trading partners. However, Republicans withdrew this proposal at the end of the July 2017 (see FAZ 2017).

The calculations for such a scenario in the trade model of the ifo institute come to the conclusion that this tax proposal would reduce long-term real income in the United States. It is assumed that changes in the exchange

rate will neutralize the tax policy in the long run and the net trade balance will remain constant. Nonetheless, this will lead to adjustments in trade on the sectoral level—both in the United States and in the rest of the world.

This tax policy measure will protect sectors in the United States that are less competitive, for example. They can sell more in their own country so that U.S. imports will decline. This means a lower level of production and thus losses of income for countries from which these imports come. For the United States, however, declining income in these countries also means that the demand for goods will drop there. This limits U.S. exports to these countries. As a result, this leads to both a decline in imports and exports for the United States, which also ultimately results in a long-term decline of just under 0.7 percent in real income (see Fig. 5).

FIGURE 5 Change in long-term real gross household income (annual income) in selected countries if the United States introduces a border adjustment tax, figures in percent.



Source: Trade model of the German Institute for Economic Research (ifo).

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In addition, however, there are also some countries where real income will rise as a result of a change in U.S. tax policy. One reason for this, among others, is the lower number of U.S. exports, which makes it possible for individual countries to increase their exports to other external countries (trade diversion effects). Furthermore, relative changes in prices resulting from structural changes in production can increase the competitiveness of a country and thus be a cause for the increase in income. This would be the case if the structure of comparative advantages in a country largely coincides with that of the United States, and the other countries have structures that are complementary to the U.S. American ones.

If the percentage changes in income refer in turn to per capita income in the base year of 2014, the changes in income fluctuate for the nine countries observed here, ranging from an increase in income of roughly US \$330 in Canada and the United Kingdom to a per capita drop in income of almost US \$380 in the United States. A decline in real per capita annual income of almost US \$350 is calculated for Germany.

5. Scenario III:

Protectionist U.S. Trade Policy with Respect to the Rest of the World

In the last scenario, it is assumed that the United States adopts protectionist measures against all WTO countries. This case assumes a 20 percent increase in all customs duties. If a certain product is currently subject to five percent import duties, the customs duties in this scenario rise by 20 percent and are therefore six percent. Individual higher increases in customs duties are being discussed for selected countries. But since this scenario involves one U.S. measure that affects all countries, a conservative rise in customs duties is applied.

A pure increase in customs duties—as already discussed in the NAFTA scenario—and also an increase in non-tariff trade barriers are considered here. In this case, too, it is assumed that there will be a 20 percent rise in existing non-tariff trade barriers.

Both measures (an increase in customs duties and an increase in non-tariff trade barriers) are considered in two separate cases: 1) only the United States adopts such measures; or 2) the rest of the world also implements corresponding trade measures in response to the U.S. isolation policy. This results in a total of four sub-scenarios:

- 20 percent increase by the United States in customs duties on imports.
- 20 percent increase by the United States in customs duties on imports and also a 20 percent increase in customs duties by all WTO countries on imports from the United States as a countermeasure.
- 20 percent increase by the United States in customs duties on imports and non-tariff trade barriers, respectively.
- 20 percent increase by the United States in customs duties on imports and non-tariff trade barriers, respectively, and also a 20 percent increase in customs

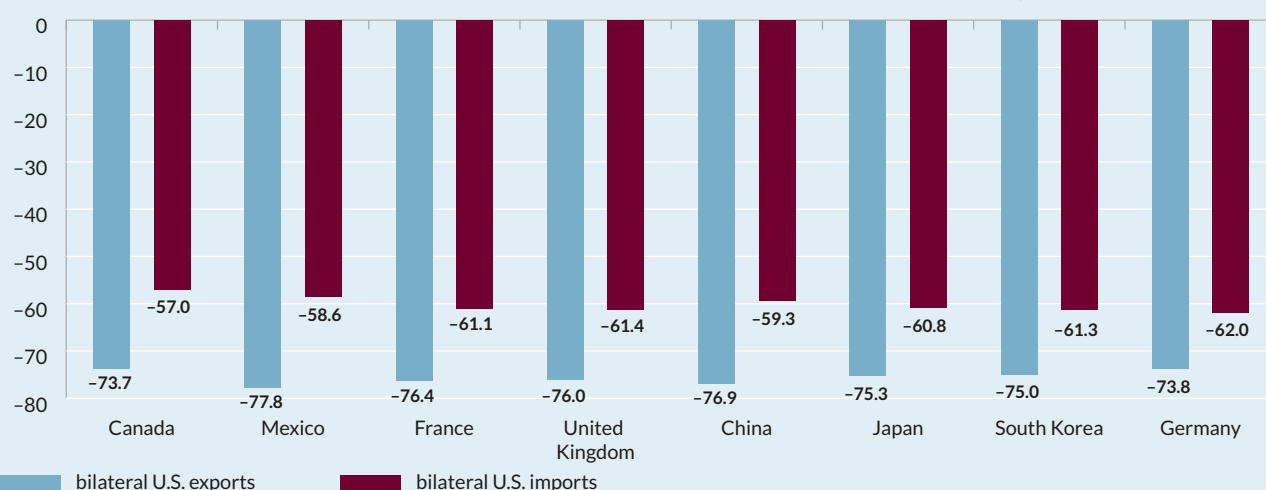
duties on imports and non-tariff trade barriers, respectively, by all WTO countries for the United States as a countermeasure.

The increases in trade costs between the United States and the rest of the world as a result of these trade-restricting measures lead to significant declines in U.S. exports and imports. Even in the most harmless case in which solely the United States increases its customs duties on imports by 20 percent, U.S. exports to individual other countries fall by 20 to 30 percent. The higher the trade costs rise on account of the protectionist measures adopted, the more cross-border trade will decline. In the sub-scenario with both increases in customs duties and higher non-tariff trade barriers, U.S. exports to other countries fall by 70 percent or more. U.S. imports from other countries drop by 50 to 60 percent or more (see Fig. 6).

The outlined trade effects reduce real gross income. Only in the case of a one-sided increase in customs duties by the United States can the United States achieve a 0.26 percent rise in real income (see Table 2). This rise is due to the principle of optimal customs. U.S. citizens also profit from an increase in customs duties due to U.S. customs revenue. Otherwise, the worldwide decline in foreign trade leads to production and income losses.

Above all in the two sub-scenarios with a simultaneous increase in tariff and non-tariff trade barriers, the United States suffers the fourth-largest percentage decline in income. Only in Canada, Mexico and Ireland (not included here), at minus 3.8, 3.4 and 3.6 percent, respectively, will the losses of income be greater since these countries depend greatly on the U.S. American market. Consequently, the United States cannot achieve the goal of improving its domestic population's income situation by economic isolation. On the contrary: the more extreme the protectionist measures are, the greater its own losses of income will be due to higher trade costs and the related

FIGURE 6 Change in long-term bilateral trade relations between the United States and selected countries if the United States increases customs duties and non-tariff trade barriers by 20 percent, respectively, figures in percent.



Source: Trade model of the German Institute for Economic Research (ifo).

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price increases. Countries with especially close ties to the American economy—Canada and Mexico—would also have to deal with above-average high losses of income due to their heavy dependency on the U.S. market.

Table 2 also shows that protectionist countermeasures in other countries ultimately cannot generate any increases in income. Some countries may be in the position to limit the potential losses of income by taking trade policy countermeasures (e.g. China, South Korea and Germany in Table 2). However, no country achieves a net increase in income.

If the percentage changes in income once again ultimately refer back to per capita income in the base year of 2014, it becomes clear that Canada will be affected the most by the two-sided introduction of tariff and non-tariff trade barriers (see Fig. 7). Real per capita annual income will decline by more than US \$1,800 there.

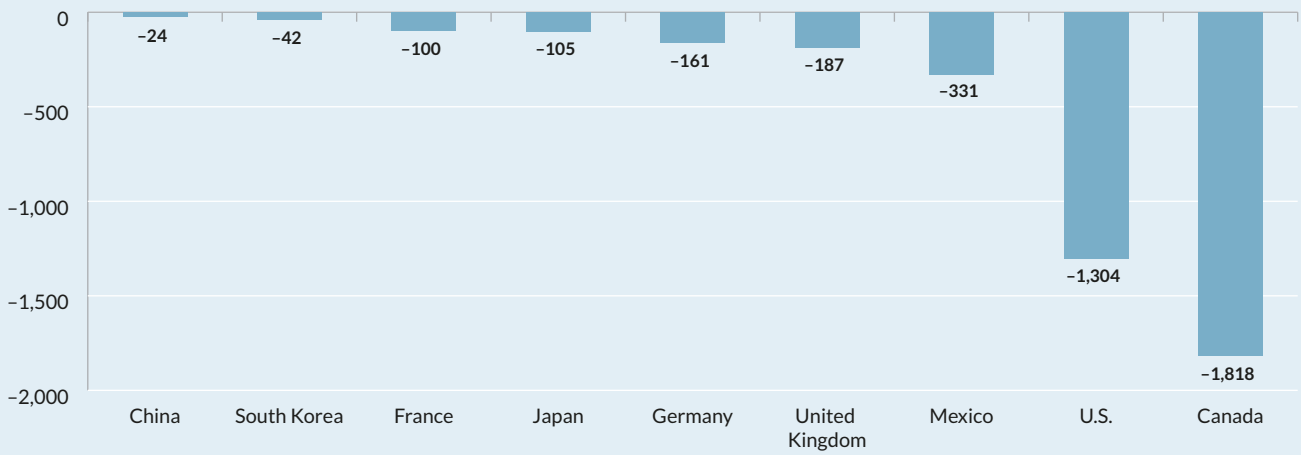
TABLE 2 Change in long-term real gross household income (annual income) in selected countries if the United States adopts protectionist U.S. trade policies (column “Only U.S.”) and if other WTO countries implement protectionist U.S. trade policies as retaliatory measures (column “U.S. and WTO”), figures in percent. NTTB = Non-tariff trade barriers.

	Change in real gross household income in percent			
	Customs duties		Customs duties and NTTBs	
	Only U.S.	U.S. and WTO	Only U.S.	U.S. and WTO
U.S.	+ 0.26	- 0.30	- 1.39	- 2.32
Canada	- 1.45	- 1.20	- 2.73	- 3.85
Mexico	- 1.43	- 1.10	- 2.51	- 3.42
Germany	- 0.29	- 0.14	- 0.68	- 0.40
France	- 0.05	- 0.04	- 0.16	- 0.25
United Kingdom	- 0.04	- 0.10	- 0.24	- 0.43
China	- 0.30	- 0.17	- 0.55	- 0.34
Japan	- 0.12	- 0.11	- 0.15	- 0.29
South Korea	- 0.42	- 0.16	- 0.88	- 0.61

Source: Trade model of the German Institute for Economic Research (ifo).

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FIGURE 7 Change in long-term real per capita income (annual income) in selected countries if the United States and WTO countries increase customs duties and non-tariff trade barriers by 20 percent, respectively, figures in U.S. dollars.



Source: Trade model of the German Institute for Economic Research (ifo).

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6. Summary and Outlook

The discussed results of the simulation show that the U.S. administration's plan to secure jobs and prosperity in the United States through protectionist measures is a fallacy. In the long term, all the measures examined here would have a negative impact on the U.S. economy and lead to losses of income. Above all in the likely case that the countries affected by the trade-restricting measures would also introduce protectionist trade measures for the United States, there would be a very high loss for the U.S. economy.

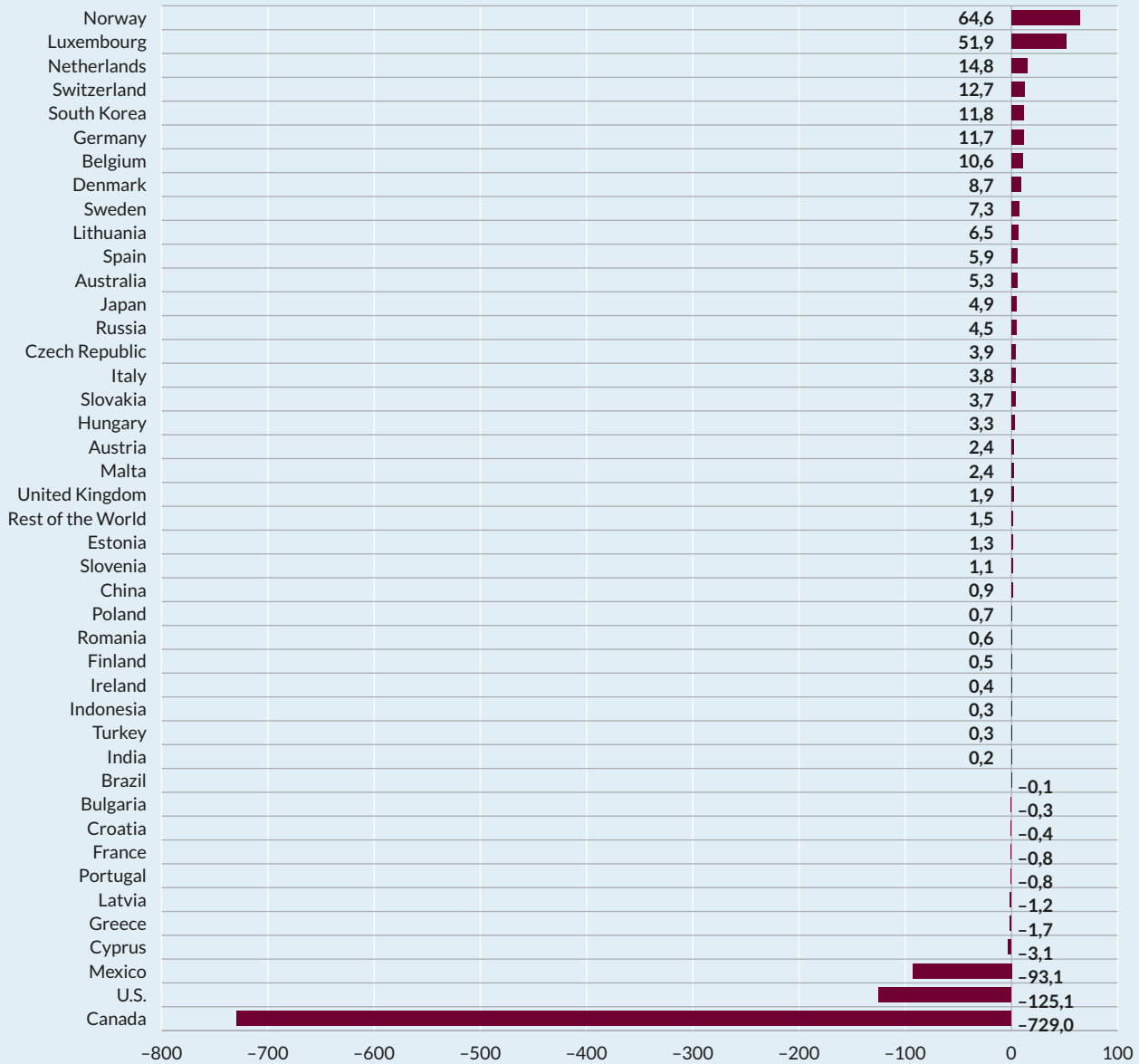
The U.S. government should generally distance itself from the threatened protectionist trade policies in its own interests. The withdrawal of the border adjustment tax is a first step in the right direction and shows that the U.S. government under Trump is not acting without economic reason.

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Appendix

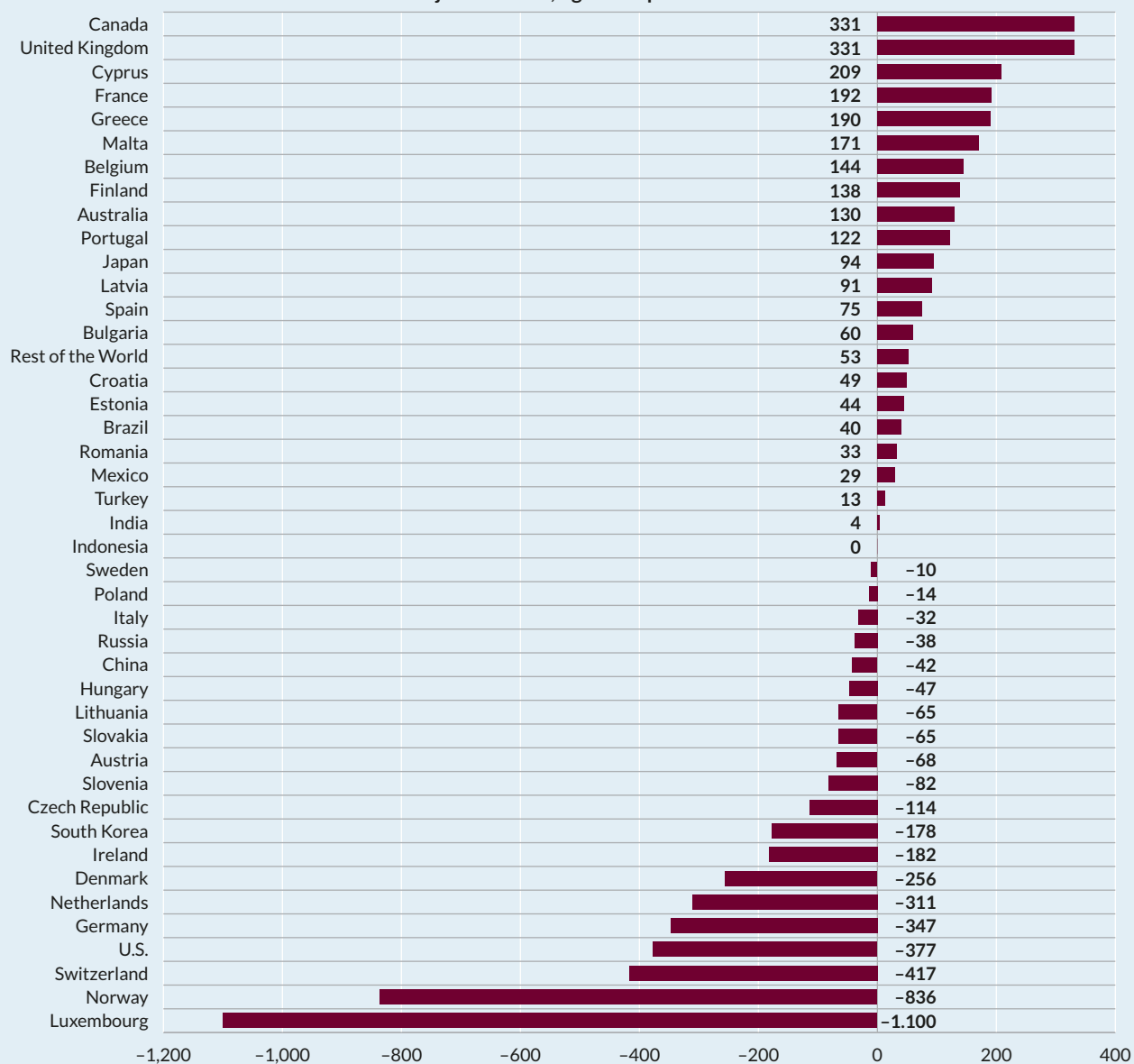
APPENDIX 1 Change in long-term real per capita income (annual income) in all countries included in the ifo trade model if the United States withdraws from NAFTA (customs and non-tariff trade barriers), figures in U.S. dollars.



Source: Trade model of the German Institute for Economic Research (ifo).

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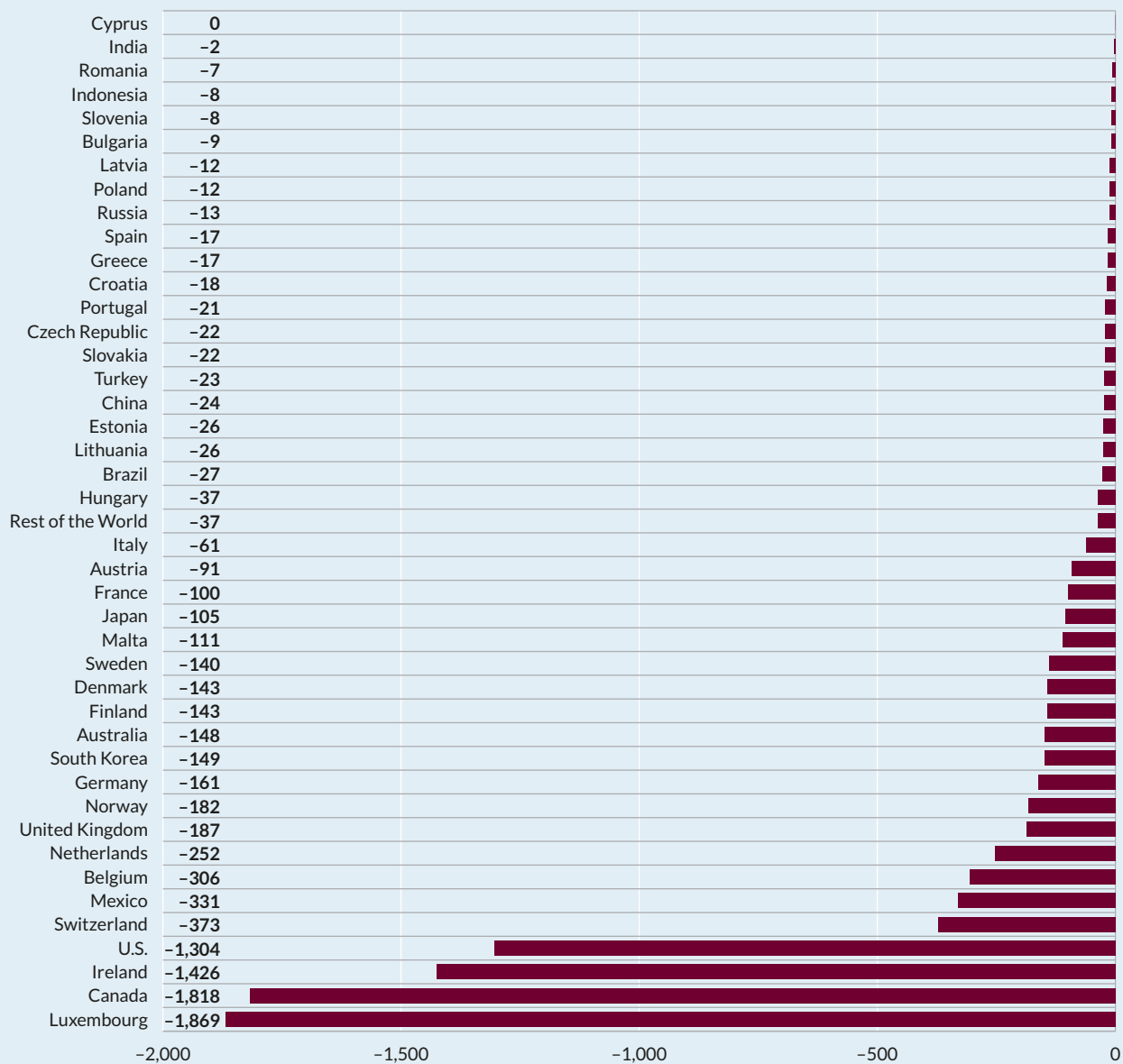
APPENDIX 2 **Change in long-term real per capita income (annual income) in all countries included in the ifo trade model if the United States introduces a border adjustment tax, figures in percent.**



Source: Trade model of the German Institute for Economic Research (ifo).

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APPENDIX 3 Change in long-term real per capita income (annual income) in all countries included in the ifo trade model if the United States and WTO countries increase customs duties and non-tariff trade barriers by 20 percent, figures in U.S. dollars.



Source: Trade model of the German Institute for Economic Research (ifo).

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