



Staff memo

# Macroeconomic effects of increased import tariffs

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## **Staff memos**

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## Summary

In recent years, the United States, China and the EU have raised import tariffs on various goods. Even so, import tariffs are generally still significantly lower than in the 1990s.<sup>1</sup> However, there are indications that US import tariffs could be further increased when Donald Trump becomes the new president. The purpose of this Staff Memo is to investigate what the economic literature has to say about the macroeconomic effects of increased import tariffs. The economic impact on importing countries, exporting countries and countries not affected by tariff increases is analysed.

Increased trade barriers hamper global economic activity. This hampers trade and limit competition, the pace of innovation and the opportunities to benefit from economies of scale. This ultimately leads to weaker productivity and GDP. Economic theory does not provide a clear answer to how a higher import tariff affects the real economy of a country that has raised import tariffs. The protection of certain domestic industries from competition, along with businesses and consumers possibly being more likely to choose domestic goods over imported ones, can have positive effects on the economy. Higher customs revenue for the government can also have positive economic effects. Large countries, unlike small countries, can also benefit from improved terms of trade because they can influence the world market prices of goods. These positive effects are clearly diminished if other countries also choose to increase import tariffs. Higher import tariffs have significant negative effects. This leads to higher consumer and input prices and indirectly taxes exports, which dampens economic activity. Increased import tariffs are also associated with reduced trade, which tends to dampen productivity and welfare. In the case of countries facing higher import tariffs, the theoretical arguments are more clear that higher import tariffs are negative for GDP. The impact on countries not affected by increased import tariffs is uncertain.

Empirical and model-based studies, on the other hand, show unequivocally that higher domestic import tariffs have negative effects on the real economy of both the country that has raised its import tariffs and countries that are impacted by the higher import tariffs. The negative effects are amplified by the existence of global value chains with the greatest negative impacts on countries and sectors further down the production chain. Empirical studies also show that higher import tariffs lead to higher producer and consumer prices. The pass-through to producers and consumers has varied over time but the pass-through to producer prices was almost complete of US and Chinese import tariff increases in 2018 and 2019. The impact on consumers in the United States varied considerably across products and partly depended on the extent to which companies not directly affected by the higher import tariffs raised their prices in response to the improved competitive situation. Inflation rises relatively quickly after import tariffs are raised but there is no clear evidence of elevated inflation after the first year.

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<sup>1</sup> Sweden's average import tariff has fallen from just over six per cent in the mid-1990s to 1.5-2 per cent in 2020. Source: World Bank WITS database.

Studies that attempt to estimate the impact of Donald Trump's proposal to sharply increase import tariffs on all countries show that this would have a clearly negative impact on both the US and global economies, as well as significantly higher US inflation in the short term. There are no studies on the short-term effects on the Swedish economy. However, the United States is an important export destination for Sweden, which suggests that the Swedish economy would also be negatively affected by higher import tariffs. However, the effect on Swedish inflation is uncertain.

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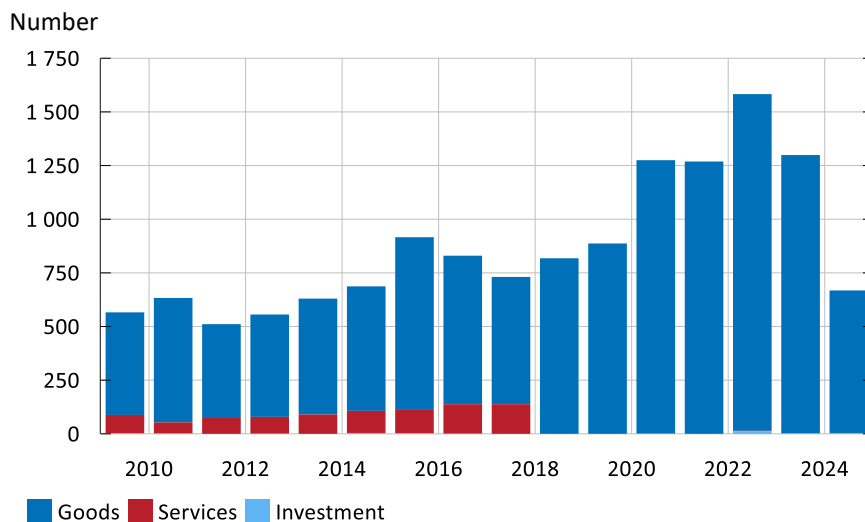
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# 1 Theoretical framework

Import tariffs have generally fallen since the mid-1990s. The decline is most evident in emerging market economies such as China but tariffs have also fallen in countries such as the United States and Sweden. US import tariffs have remained largely unchanged at just over one per cent against most countries in recent years. Import tariffs on Chinese goods, on the other hand, have been gradually increased to around 11 per cent at present. Sweden's import tariffs have remained largely unchanged at just over one per cent in recent years.<sup>3</sup> While import tariffs are relatively low, other trade barriers have increased significantly in recent years (see Figure 1). For example, this includes limits on how much can be imported, export restrictions, licensing requirements for imports, subsidies to domestic producers and trade embargoes. The new trade barriers have mainly targeted various Swedish goods such as motor vehicles and iron and steel.

**Figure 1. New trade barriers for Swedish goods, services and investments**



Note. Number of new trade barriers on Swedish goods, services and investments.

Sources: Global Trade Alert.

According to trade theory, the effects of import tariff increases may differ between large and small countries. Krugman et al. (1995) show that a large country that raises import tariffs can improve the terms of trade (the price of exports relative to the price of imports) in a way that small countries cannot. Higher import tariffs reduce the demand for imports, which can lead to lower world market prices for goods as a large country imports large quantities. Lower world market prices lead to an improvement in the terms of trade. Small countries, on the other hand, have no impact on world market prices.

A framework for analysing the impact of higher import tariffs on the economy is described by Mundell and Fleming. Mundell (1961) argues that the country that raised import tariffs may benefit because more people choose domestically produced goods

<sup>3</sup> Source: World Bank and US Census Bureau

over imported ones. Domestic industries can also benefit from being protected from foreign competition. Large countries could also benefit from improved terms of trade. Increased import tariffs are assumed to lead to an increase in the current account balance by increasing savings relative to investment. Higher savings dampen aggregate demand. The situation of households deteriorates as a result of rising consumer prices. Domestic industries are also negatively affected by lower household demand and the need to pay more for imported input goods.

Over the years, Mundell and Fleming's model has been developed further. For example, Krugman (1982) and Eichengreen (1981) introduced different wage rigidities as well as rational expectations. Obstfeld and Rogoff (1995) introduced intertemporal optimising agents and various market imperfections. Reitz and Slopek (2005) introduced a bond market. Eichengreen (2018) argues that the short-term impact on GDP of higher import tariffs partly depends on how the revenue from import tariffs is used, how the central bank reacts and whether the composition of currencies in terms of assets and liabilities gives rise to capital gains or losses.

Overall, the theoretical literature shows that higher import tariffs can affect the economy through a variety of channels. The impact on the economy differs between the country imposing the tariffs and countries exporting to the country raising the tariffs. However, countries that are not subject to the increased import duties are also affected. The following sections outline the main channels through which increased import tariffs can affect the economy.

### 1.1 Effects on the country increasing import tariffs.

Higher imported inflation: Higher import tariffs lead to higher prices for imported goods. Depending on which tariffs are increased, this could lead to higher prices for both consumers and companies. Domestic companies may also raise their prices as a result of reduced competition from foreign companies (see Cavallo et al. (2021)). Higher consumer prices lead to a decline in real disposable household income, which hampers private consumption. All else being equal, higher business costs affect companies' profits, which can dampen employment and companies' willingness to invest. Companies are also likely to pass on some of their higher costs to consumers in the form of higher prices. The rise in imported prices may be smaller in large countries as they are more able to influence the world price of goods.

Increased consumption of other goods: Higher imported prices can lead to consumers and companies increasingly buying cheaper domestic goods. But it can also lead to increased imports of goods from countries not subject to higher import tariffs.

Domestic industries are protected: Increased import tariffs improve the competitive position of domestic companies. This can lead to increased production, investment and employment in protected industries. However, companies that rely on imported goods and exports are negatively affected, with potentially negative effects on production and employment. The net effect on employment is uncertain and depends, among other things, on the extent to which the terms of trade and the exchange rate are affected and on the capacity of the economy to adjust and reallocate resources.

The longer-term impact of protecting some industries from competition can be negative, as it may reduce incentives to improve production efficiency, thereby dampening productivity and GDP.

Decreased trade: Higher tariffs normally lead to reduced trade. This can lead to reduced knowledge transfer between countries in the form of less direct investment, reduced technology transfer and reduced access to skilled labour. This in turn can lead to firms moving further away from the technological frontier, thereby hampering productivity (see, for example, Frankel and Romer (1999) and Dornbusch (1992)).

Improved terms of trade: As mentioned above, a large country that raises import tariffs may see an improvement in the ratio of export prices to import prices, as a result of lower world market prices for goods.

Stronger exchange rate: The initial shift in demand from foreign to domestic production tends to result in a countervailing exchange rate appreciation. One reason is that higher inflation often leads to higher interest rates relative to other countries. The nominal exchange rate may appreciate if imports decline significantly and demand for foreign currency falls. An appreciation of the exchange rate hampers exports but makes imports cheaper.

Global value chains:<sup>4</sup> Higher tariffs can lead to disruptions in global value chains by making imported inputs from abroad more expensive. If companies are part of global value chains, higher costs for companies facing higher import costs may also lead to higher costs for domestic companies further down the production chain.

Public finances: Increased revenue from import duties can lead to better public finances and increased opportunities to stimulate the economy. However, the improvement in public finances depends on whether the increase in customs revenues outweighs the negative impact on public finances of lower economic activity resulting from the tariff increase.

Uncertainty and confidence: Increased import tariffs may give rise to increased uncertainty about future trade policy and lead to increased pessimism among companies and households. This may hamper business investment and household consumption (see Boer and Rieth (2024) and Altig et al. (2018)). Increased uncertainty may also affect direct investment by foreign companies in the country imposing the import tariffs. This can lead to companies increasing their direct investment in the country imposing the import tariffs for the purpose of circumventing the import duty (see Chahinea et al. (2021)). However, Posen (2018) shows that the higher US import tariffs in 2018 instead led to a decrease in direct investment.

To summarise, increased import tariffs can have a positive impact on GDP and employment in the short term by protecting domestic industries from competition and

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<sup>4</sup> Global value chains are the international networks and processes through which different steps in the production of a good or service take place in several different countries. In a global value chain, production is spread across different geographical locations, with each stage of value creation – from design and raw materials to production, marketing and distribution – taking place in the country or region best suited to that stage.

increasing import revenues. At the same time, the economy is negatively affected by higher consumer and/or input prices, reduced productivity, increased uncertainty and reduced trade.

## 1.2 Effects on exporting countries facing higher import tariffs

Higher import tariffs can have a significant impact on countries exporting goods to the country that raised import tariffs. Economies can be affected through the following channels:

Reduced exports: Higher tariffs make the exporting country's goods more expensive in the importing country, reducing demand for these goods. This can lead to a reduction in exports if consumers and companies in the country that raised tariffs switch to cheaper domestically produced goods or if they import from countries not subject to higher tariffs. Countries that are heavily dependent on exports to the country that raised tariffs can have a negative impact on production, exports and employment, especially in the industries most affected by higher tariffs.

Decreased trade: Higher tariffs can hamper productivity due to a reduced knowledge transfer between countries in the form of less direct investment, reduced technology transfer and reduced access to skilled labour.

Company export prices: Exporters may want to lower their prices to remain competitive in the country that raised import tariffs. This can lead to lower profit margins, increasing the likelihood of bankruptcies and financial difficulties for companies with low profit margins.

Market diversification: Exporting countries may need to diversify their exports so that they are less dependent on the country that raised import tariffs. Establishing new trade relationships can be both time-consuming and require significant investment.

Weaker currency: If demand for the country's exports falls significantly, this could lead to a weaker currency. This could make the country's exports more competitive while making household and company imports more expensive. Thus, a weaker currency can at least partially counteract the deterioration in the terms of trade caused by higher import tariffs.

Increased uncertainty and reduced confidence: These effects are basically the same as for households and companies in the country that raised import tariffs. Both households and companies may reduce their consumption and investment in response to increased uncertainty.

Global value chains: Exporting countries participating in global value chains are negatively affected if increased import tariffs affect their ability to export inputs. Companies in the country that raised import tariffs may face higher input prices. This in turn can lead to higher input prices for both domestic and foreign companies further down the production chain. Companies in the exporting country may want to move their



production to another country to avoid the higher import tariffs, which can dampen both production and employment.

To summarise, higher import tariffs can have negative effects on the economy, including lower exports, fewer jobs and increased uncertainty. The extent of the negative effects depends, among other things, on the dependency of the exporting country on the country that raised tariffs, its ability to find alternative export markets and its ability to adapt its economy to the new conditions.

### 1.3 Effects on countries not facing higher import tariffs

The impact on countries not directly affected by higher import tariffs can be both positive and negative. Increased import tariffs affect these countries through the following channels, among others:

Changed trade: Increased import tariffs can lead to companies in the country that raised the tariffs looking for new suppliers to avoid the higher costs. This may lead to an increase in exports from countries not affected by the increase in tariffs as they become more competitive.

Global value chains: Countries participating in global value chains may see reduced demand for their exports and increased costs for imported inputs from the country that raised import tariffs. On the other hand, countries may see increased investment and demand for their goods if foreign companies restructure their production chains to avoid higher import tariffs.

Economic contagion effects: If higher tariffs lead to reduced global trade and growth, countries are negatively affected due to lower demand for their exports.

To summarise, higher import tariffs that do not directly affect a country's exports can have both positive and negative effects on the economy. The impact on the economy depends, among other things, on what tariffs are being raised and how trade and investment flows are affected.

## 2 Empirical studies and modelling analyses

### 2.1 General studies

Dizioli and van Roye (2018) use the ECB's global model and the IMF's Global Integrated Monetary and Fiscal model to simulate the effects of an increase in US import tariffs.<sup>5</sup> More specifically, it is assumed that the United States will raise import tariffs on all goods from abroad by 10 percentage points.<sup>6</sup> Other countries are then assumed to respond by raising import tariffs on all US goods by 10 percentage points. The study shows that the US GDP level would be 2.2 per cent lower in the first year as a result of lower consumption, investment, exports and lower confidence among both households and businesses. The negative GDP effects in most other countries will be smaller than in the United States and global GDP is estimated to be  $\frac{3}{4}$  of a per cent lower in the first year.

Obstfeld (2016) also uses the IMF's Global Integrated Monetary and Fiscal model to estimate the effects of the United States raising import tariffs on goods from emerging markets in East Asia to 20 per cent without these countries retaliating. In an alternative scenario, the countries in East Asia raise import tariffs on US goods by the same amount as the United States has raised tariffs. In both scenarios, GDP in the United States is lower compared to the baseline scenario where no import tariffs are raised. The level of GDP is 0.7 per cent lower after five years in the scenario where East Asia does not raise its import tariffs and 1.3 per cent lower when East Asia raises its import tariffs. One reason for the fall in GDP is that exports initially fall more than imports. The higher import tariffs cause US companies to buy from other countries instead and the appreciation of the dollar reinforces this. At the same time, the stronger dollar causes exports to slow down.

Boer and Rieth (2024) examine the effect on the US economy of both increased import tariffs and increased uncertainty about trade policy using Bayesian SVAR models, where monetary policy is assumed to remain unchanged. The study finds that both shocks have negative effects on the economy, but that higher import tariffs have much larger negative effects. Higher import tariffs lead to significantly lower imports, exports and investments in most sectors over a longer period. Consumer prices rise and the dollar appreciates. Unlike Obstfeld (2016), the trade balance improves slightly in the short term but GDP falls below trend as all components of domestic demand fall.

To summarise, the above studies indicate that increased US import tariffs lead to lower US GDP levels in both the short and medium term. Barattieri and Cacciatore (2023) study the impact on employment of temporary trade barriers in companies involved in global value chains. The study uses company-level data and is estimated us-

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<sup>5</sup> See Anderson et al. (2013), "Getting to Know GIMF: The Simulation Properties of the Global Integrated Monetary and Fiscal Model", IMF Working Paper 13/55.

ing local projections according to Jordà (2005). The study finds that increased protectionism generally has a marginally positive effect on employment in industries exposed to foreign competition. However, the effect on employment in industries affected by higher imported input prices is clearly negative.

Furceri et al. (2021) analyse the impact of higher import tariffs using panel data for 151 countries over the period 1963-2014. The study shows that higher tariffs lead to persistent and economically significant declines in domestic output and productivity, and increased unemployment. Unlike the studies above, the effect on the trade balance is not statistically significant, which is largely explained by the appreciation of the real exchange rate. The study finds a range of state-dependent effects. The impact on output and productivity of higher import tariffs is greater when the economy is strong. The impact on production of raising tariffs is greater than that of lowering them.<sup>7</sup>

Several studies have analysed whether higher import tariffs lead to an increase in foreign direct investment in the country that has raised import tariffs. The studies give different results. Chahinea et al. (2021) find that increased import tariffs tend to lead to increased foreign direct investment. But both Posen (2018) and Van der Merve (2021) show that the US import tariff increases in 2018 and 2019 did not lead to an increase in foreign direct investment in the United States.

Empirical studies indicate that tariff increases mainly affect inflation in the short term. Boer and Rieth (2024) show that inflation rises relatively quickly after import tariffs are raised, but that inflation then falls back after a year. The study assumes no change in monetary policy. In a literature review on the effects of globalisation on inflation, Attinasi and Balatti (2021) show that the rapid increase in trade in the 1990s and early 2000s led to lower prices but had little effect on more persistent inflation.

Overall, empirical studies show unequivocally that the negative effects of increased import tariffs are greater than the positive effects. In all of the empirical studies, the GDP of the country imposing import tariffs is dampened and the real exchange rate appreciates with negative effects on exports and investment. The negative effects of increased import tariffs are amplified by the existence of global value chains. Consumer prices increase and inflation rises in the short term but then falls back.

The empirical studies above mainly analyse the effects on GDP in the short and medium term. A certain level of import tariffs can negatively affect the level of GDP through reduced efficiency gains from specialisation and reduced opportunities to benefit from economies of scale. This does not necessarily affect the growth rate, but lowers the level of GDP. Longer-term growth depends to a large extent on productivity developments. A number of studies show that countries that are more open to

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<sup>7</sup> One possible interpretation of these results, according to the authors, is that tariff reductions often lead to a small immediate increase in demand, as buyers believe that the lower price will persist in the future. The announcement of higher tariffs often leads to an increase in purchases before the tariffs are raised, and then a sharp decline once the tariffs are raised. The authors also argue that higher import tariffs can have a greater impact when the economy is strong, due to monetary policy. Raising tariffs when the economy is strong can lead to higher inflation that threatens price stability, leading to tighter monetary policy. The negative effects of higher import tariffs are reinforced by tighter monetary policy

trade have grown faster and raised their productivity more (see, for example, Frankel and Romer (1999), Rodrik (2007), Dornbusch (1992), Dollar and Kraay (2004) and Bhagwati and Srinivasan (2002)). Alcalá and Ciccone (2004) show that increased trade has an economically significant positive effect on productivity. Increased trade can raise productivity, partly through increased competition from foreign companies. Increased competition from the outside world may force companies to become more efficient and invest more in new technologies. This can lead to a reallocation of resources towards more productive companies. At the same time, increased availability of imported inputs can lead to lower costs for companies. Empirical studies by Schwörer (2013), Constantinescu et al. (2017) and Bernard et al. (2006) show that increased trade in global value chains can raise productivity partly as a result of increased knowledge transfer that reduces the distance to the technological frontier. An empirical study by the ECB (2017) shows that there is a clear positive correlation between international trade and productivity. In particular, the study shows that trade in global value chains has the clearest positive effect on productivity via lower imported input prices and increased knowledge transfer. Furceri et al. (2019), find in a study using panel data for a large number of countries that an increase of one standard deviation in import tariffs (corresponding to around 3.5 per cent) leads to a one per cent decrease in productivity over five years. Overall, there are reasons to believe that increased protectionism will lead to reduced trade and lower GDP also in the long run.

## 2.2 Studies of specific events

### **The trade conflict between the USA and China**

#### **Price effects**

In 2018 and 2019, the United States raised import tariffs on Chinese goods worth USD 360 billion. China responded by raising import tariffs on USD 110 billion worth of US goods. Both Amiti et al. (2019) and Fajgelbaum et al. (2022) find that producer prices in the United States increased by about the same amount as import tariffs increased. Chang et al. (2021) and Ma et al. (2021) find that the Chinese import tariffs on US goods also led to a full pass-through to the producer level in China. This is in contrast to several previous studies on the price pass-through of tariff changes (for instance, Feenstra (1989), Winkelmann and Winkelmann (1998), Hummels and Skiba (2004), Mallick and Marques (2008), Ural Marchand (2012), Irwin (2014), De Loecker et al. (2016) and Ludema and Yu (2016)), which find that there is often not a complete pass-through to producer prices.

With regard to the pass-through of increased import tariffs to consumer prices in the United States, the results are mixed. Both Flaaen et al. (2020) and Cavallo et al. (2021) find that the price of one specific product, namely washing machines, rose more than could be justified by the higher US import tariffs in 2018. One contributing factor was that domestic producers of washing machines took the opportunity to raise their

prices in response to the increase in import duties. However, Cavallo et al. (2021) find that the pass-through to consumers of other goods also affected by the import tariff increases was relatively small, indicating that companies reduced their profit margins. Amiti et al. (2019) estimate the impact on US consumer prices of the higher import tariffs in 2018 (on goods representing 12 per cent of total US imports). The study finds that consumer prices were 0.3 per cent higher than if no import tariffs had been raised. The increase was in line with the historical correlation between producer and consumer prices. The study also finds that domestic companies often raise their prices in response to higher imported prices, even if their marginal costs are not affected by the higher import tariffs. Small companies tend to raise their prices by roughly the same amount as their costs have increased, while large companies are more likely to lower their profit margins. Hale et al. (2019) also analyse the impact on inflation of the increase in import tariffs in 2018. This study finds that inflation was 0.1 percentage points higher.

Overall, higher import tariffs lead to higher producer and consumer prices. The extent of the pass-through has varied over time and differs between products. Consumer prices rise in the short term, but there is no empirical evidence that inflation is also higher in the longer term.

### **Real economic effects**

The US raised import duties on Chinese tyres in 2009. Hufbauer and Lowry (2012) conclude that at most this led to 1,200 US jobs not being lost. At the same time, US consumers had to pay more for Chinese tyres to the tune of USD 1.1 billion. This led to reduced consumption of other goods and reduced employment in the retail sector. The net effect of the higher import tariffs is estimated at just over 2,500 fewer jobs. The biggest winners from the higher import tariffs were tyre exporters in Asia and Mexico.

More generally, Flaaen and Pierce (2019) find that the industries with the largest share of imported inputs had the largest decline in employment as a result of higher import tariffs. Bown et al. (2020) studies the impact of various trade barriers on the US economy since the late 1980s. The study finds that 1.8 million jobs were lost up to 2016, as a result of various US trade barriers, while they see no clear increase in new jobs in protected sectors. The negative effects of trade barriers are greatest in sectors that are highly dependent on inputs from companies further up the production chain. Meinen (2019) also finds that global value chains amplify the negative impact of higher import tariffs. The study shows that the negative impact on industrial production of an increase in import tariffs depends to a large extent on how much the sectors further down the chain depend on imported inputs.

Reyes-Heroles et al. (2021) argue that most studies analysing the real economic effects of higher US import tariffs have focused on the effect on household consumption and little on the effect on business investment. The study analyses the impact of the increased US and Chinese import tariffs in 2018 and 2019 for a large number of countries using a 40-sector model. The study finds larger negative effects on GDP in both the United States and China than studies that do not take into account the effect on business investment. The study finds that the long-term level of GDP will be 1.3

per cent lower in the United States and 0.7 per cent lower in China. A contributing factor to the greater impact in the United States is that it has raised import tariffs on many inputs used for investment, while China mainly imports consumer goods that are more easily substitutable with other suppliers. The study shows that countries such as Mexico, Turkey, Hungary and South Korea would see positive GDP effects from the United States-China trade conflict. The impact on Swedish GDP is estimated to be close to zero.

Altig et al. (2018) find in a 2018 survey that one in five US companies had reassessed their investment plans due to concerns about higher import tariffs. Six per cent of companies had already reduced their investments as a result of such concerns. Handley et al. (2019) show that increased import tariffs have negative effects on companies' financial performance. Companies that have a lot of trade with China have seen their share prices decline and their risk of bankruptcy increase, following the announcement of higher import tariffs.

Fajgelbaum et al. (2019) analyse the short-term effects of the increase in US import tariffs in 2018 and the effects of other countries' tariff increases on US goods. The study finds that both imports and exports in the United States fell sharply. The increased cost to US households and businesses of buying imported goods amounts to 0.27 per cent of GDP. The loss after taking into account increased import revenues and the protection of domestic companies from competition amounts to 0.04 per cent of GDP.

Grossman et al. (2024) analyse the impact of an unexpectedly higher import tariff when companies are involved in global value chains. A higher import tariff leads to negotiations with suppliers and a search for new suppliers. The model is calibrated to analyse the impact of US import tariffs on Chinese goods in 2018 and 2019. The study finds a welfare loss of 0.12 per cent of GDP, with clearly negative contributions from search costs and switching suppliers.

### **Potential effects of increased US import tariffs**

Donald Trump is the President-elect of the United States. He has said that he wants to raise import tariffs on all Chinese goods to 60 per cent and tariffs on goods from all other countries by 10 or 20 per cent.<sup>8</sup> Obst et al. (2024) have used the Global Economic Model of Oxford to estimate the economic impact of this proposal. In an alternative scenario, China responds by raising import tariffs on US goods by 40 percentage points. In both scenarios, the Federal Reserve is assumed to leave the federal funds rate unchanged. The model is based on both theoretical correlations and empirically estimated parameters and assumes that household and business optimism will fall in the short term. The study shows that US GDP would be 1-1.4 per cent lower in 2025 and 2026 and the negative impact would be greatest in the scenario where China responds by raising tariffs. An important channel for the decline in GDP is lower

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<sup>8</sup> US import tariffs clearly differ between countries. In the case of goods from the EU, import tariffs on industrial goods, for example, are generally low (0-5 per cent). The highest import tariffs are on lorries, various agricultural products and steel and amount to 25 per cent. US import tariffs on Chinese goods generally range from 7.5-25 per cent. Import tariffs on electric cars amount to 100 per cent.

optimism and falling private consumption. Global GDP is slightly less affected than US GDP in the short term, but slightly more in the longer term. In the scenario where all countries raise import tariffs on US goods, global GDP is about 1 per cent lower in 2028 than if no import tariffs were raised. German GDP is 1.4 per cent lower in 2028. US inflation is just under 1 percentage point higher in 2025 in both scenarios, while German inflation is marginally lower in 2025 in both scenarios.

McKibbin et al. (2024) also analyse the potential impact of higher US import tariffs on all countries' goods. If Trump were to raise import tariffs by 10 percentage points on all countries' goods, US GDP would be 0.3-0.4 per cent lower in a couple of years than if no tariffs were imposed. If all other countries raised import tariffs on US goods by the same amount, US GDP would be almost one per cent lower in the next few years and just over 0.2 per cent lower in the long run. Countries such as Mexico and Canada would be hit hardest in both the short and long term, while the impact on GDP in European countries would be relatively small.

Clausing and Lovely (2024) analyse the effects on US households if US import tariffs were to be raised to 60 per cent on all Chinese goods and 20 per cent on all other goods. The study finds that those with the lowest incomes would be the biggest losers from higher import tariffs. The median household would see a fall in its after-tax income of just over four per cent, equivalent to USD 2,600 in a year.

### 3 Effects on the Swedish economy

It is unclear how the Swedish economy would be affected by increased US import tariffs on Swedish export goods. The United States is one of Sweden's most important trading partners. Around nine per cent of total exports in 2023 went to the United States. Higher US import tariffs would likely lead to lower exports to the United States. The United States is also one of the most important suppliers of imported input goods to the Swedish manufacturing industry, for example. In 2020, around ten per cent of total manufacturing industry imports came from the United States. Higher US import prices as a result of higher import tariffs can, with an unchanged exchange rate, lead to higher Swedish import prices for US input goods. But higher US prices can also affect the Swedish economy via global value chains. A positive factor is that relatively few goods imported from the United States are difficult to substitute with another supplier. The IMF (2024) estimates that about one per cent of Swedish imports of US inputs are difficult to replace with another supplier.

The National Board of Trade (2024) has analysed the effects on the Swedish economy in the medium term if US import tariffs on Chinese goods were to be raised to 60 per cent and the import tariffs on all other countries' goods were to be raised by 20 percentage points. The analysis has been made using the OECD global model METRO.<sup>9</sup> The results show that the negative effects on Swedish GDP in the medium term (5-7 years) would be small, only -0.02 per cent. Domestic production would fall by 0.1 per cent. Swedish imports would fall slightly more than exports. Swedish exports to the United States would fall by around 16 per cent in the medium term. The automotive, pharmaceutical and industrial machinery industries would see the largest declines. The decline in exports to the United States would be partly offset by increased exports to the rest of the world. But the study only shows the impact in the medium term, when the global economy has reached a new equilibrium. The transition to the new equilibrium may be characterised by significant shocks and volatility in the short term. Finally, the METRO model does not take into account the impact of increased import tariffs on the behaviour of households and businesses, as well as the possible negative effects of disruptions in global value chains.

There are reasons to believe that the Swedish economy will be negatively affected by increased US import tariffs as a result of lower exports to the US, weaker global demand and disruptions in global value chains. If Swedish companies were to move production to the US in order to avoid the higher import tariffs, this would also have negative effects on production and employment. Increased uncertainty and pessimism could hold back both household consumption and corporate investment. The effect on Swedish inflation is more uncertain. Weaker Swedish and global economies suggest lower inflationary pressures. A weaker global economy could also lead to lower inflationary pressures as a result of lower commodity prices. If the US were to significantly increase import tariffs on Chinese goods, China's exports to the US would likely decrease significantly. China may then want to export more to Europe and to achieve

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<sup>9</sup> METRO is a general equilibrium model developed by the OECD to analyse changes in trade policy. It is a global model with 65 sectors, five production factors and 161 countries (regions). Countries and sectors are linked using input-output tables.



this, their export prices may be lowered and give rise to lower inflationary pressures in Sweden and elsewhere. On the other hand, higher imported prices for US consumers and businesses could also lead to higher prices in Sweden via both direct trade and trade in global value chains. Increased US import tariffs could also lead to a weakening of the krona as a result of reduced demand for Swedish goods. The krona could also depreciate if sharply higher import tariffs were to give rise to increased uncertainty and volatility in financial markets.

## References

- Alcalá, F. and A. Ciccone (2004), "Trade and productivity", *The Quarterly Journal of Economics*, May 2004: 613-648.
- Altig, D., N. Bloom, S.J. Davis, B. Meyer and N. Parker (2018), "Are Tariff Worries Cutting into Business Investment?", *Federal Reserve Bank of Atlanta, Policy Hub: Macroblog*, August 7, 2018.
- Amiti, M., S.J. Redding and D.E. Weinstein (2019), "The Impact of the 2018 Tariffs on Prices and Welfare", *Journal of International Perspectives* 33(4): 187-210.
- Amiti, M., S. Heise and N. Kwicklis (2019), "The Impact of Import Tariffs on U.S. Domestic prices", *Federal Reserve Bank of New York Liberty Street Economics (blog)*, 4 January 2019.
- Anderson, D., B. Hunt, M. Kortelainen, M. Kumhof, D. Laxton, D. Muir, S. Mursula and S. Snudden (2013), "Getting to Know GIMF: The Simulation Properties of the Global Integrated Monetary and Fiscal Model", *IMF Working Paper* 13/55.
- Attinasi, M.G., and M. Balatti (2021), "Globalisation and its implications for inflation in advanced economies", *ECB Economic Bulletin*, Issue 4/ 2021.
- Autor, D.H., D. Dorn and G.H. Hanson (2016), "The China shock: Learning from labor-market adjustment to large changes in trade", *Annual Review of Economics* 8:205-240.
- Barattieri, A. and M. Cacciato (2023), "Self-harming trade policy? Protectionism and production networks", *American Economic Journal: Macroeconomics* 15 (2): 97-128.
- Barbiero, O., E. Farhi, G. Gopinath and O. Itskhoki (2019), "The Macroeconomics of Border Taxes", In *NBER Macroeconomics Annual 2018*, Vol. 33, ed. M. Eichenbaum and J.A. Parker, 395-457. Chicago: Chicago University Press.
- Bernard, A., J. Jensen and P. Schott (2006), "Trade costs, firms and productivity", *Journal of Monetary Economics*, Vol. 53: 917-937.

## References

- Bhagwati, J. (1978), "Foreign Trade Regimes and Economic Development". Cambridge, MA: Ballinger.
- Boer, L. and M. Rieth (2024), "The Macroeconomic Consequences of Import Tariffs and Trade Policy Uncertainty", IMF Working Paper 24/13.
- Bown, C., P. Conconi, A. Erbahar and L. Trimarchi (2020), "Trade Protection along Supply Chains", CESifo Working Paper 8812.
- Cavallo, A., G. Gopinath, B. Neiman and J. Tang (2021), "Tariff Pass-Through at the Border and at the Store: Evidence from US Trade Policy", *American Economic Review: Insights* 3(1): 19-34.
- Chahinea, S., W. Dbouka and M. El-Helaly (2021), "M&As and political uncertainty: evidence from the 2016 US presidential election", *Journal of Financial Stability* 54:100866.
- Chan, K. (1978), "The Employment Effects of Tariffs Under a Free Exchange Rate Regime", *Journal of International Economics* 8: 415-423.
- Chang, P.L. and Y.K. Zheng (2021), "The response of the Chinese economy to the US-China trade war: 2018-19", Working paper 25-2020, Sch. Econ. Res., Singapore Management University, Singapore.
- Clausing, K. and M.E. Lovely (2024), "Trump's bigger tariff proposals would cost the typical American household over \$ 2,600 a year", Special project, PIIE Charts.
- Constantinescu, C., A. Mattoo and M. Ruta (2017), "Does vertical specialization increase productivity", World Bank, Policy Research Working Paper 7978.
- Dizioli, A.G. and B. van Roye (2018), "Macroeconomic implications of increasing protectionism", *ECB Economic Bulletin*, Issue 6/2018.
- Dollar, D. and A. Kraay (2004), "Trade, Growth, and Poverty", *The Economic Journal* 114 (493): 22-49.
- Dornbusch, R. (1992), "The Case for Trade Liberalisation in Developing Countries", *Journal of Economic perspectives* 6 (1): 69-85.
- De Loecker, J., P.K. Goldberg, A.K. Khandelwal and N. Pavcnik (2016), "prices, markups, and trade reform", *Econometrica* 84(2): 445-510.
- Eichengreen, B. (1981), "A Dynamic Model of Tariffs and Employment under Flexible Exchange Rates", *Journal of International Economics* 11:341-359.
- Eichengreen, B. (2018), "Trade Policy and the Macroeconomy", Keynote address Mundell-Fleming Lecture, International Monetary Fund, 13 March 2018.
- Erceg, C., A. Prestipino and A. Raffo (2018), "The Macroeconomic Effects of Trade Policy", *International Finance Discussion Papers* 1242.

## References

European Central Bank (2017), "Does trade play a role in helping to explain productivity growth?", ECB Economic Bulletin, Issue 7.

Fajgelbaum, P.D., P.K. Goldberg, P.J. Kennedy and A.K. Khandelwal (2019), "The return to protectionism", *The Quarterly Journal of Economics* 135(1): 1-55.

Fajgelbaum, P.D. and A.K. Khandelwal (2022), "The Economic Impacts of the US-China Trade War", *Annual Review of Economics*.

Feenstra, R.C. (1989), "Symmetric pass-through of tariffs and exchange rates under imperfect competition: an empirical test", *Journal of International Economics* 27(1): 25-45.

Flaaen, A. and J.R. Pierce (2019), "Disentangling the effects of the 2018-2019 tariffs on globally connected U.S. Manufacturing sector", Working Paper, Finance Economic Discussion Series 2019-086, Board of Governors Federal Reserve System, Washington DC.

Flaaen, A., A. Hortacsu and F. Tintelnot (2020), 'The production relocation and price effects of US trade policy: the case of washing machines', *American Economic Review* 110(7): 2103-2127.

Frankel, J.A. and D.H. Romer (1999), "Does Trade Cause Growth", *American Economic Review* 89 (3): 379-399.

Furceri, D., S.A. Hannan, J.D. Ostry and A.K. Rose (2021), "The Macroeconomy After Tariffs", World Bank Group, Policy Research Working paper 9854.

Grossman, G.M., E. Helpman and S.J. Redding (2024), "When Tariffs Disrupt Global Supply Chains", *American Economic Review* 2024, 114(4): 988-1029.

Hale, G., B. Hobijn, F. Nechio and D. Wilson (2019), "Inflationary Effects of Trade Disputes with China", FRBSF economic Letter 2019-07, Federal Reserve Bank of San Francisco.

Handley, K., F. Kamal and R. Monarch (2019), "Rising Import Tariffs, Falling Export Growth: When Modern Supply Chains Meet Old-Style Protectionism", NBER Working paper 26611.

Handley, K. and N. Limao (2022), "Trade policy uncertainty", NBER Working Paper 29672.

Hufbauer, G.C. and S. Lowry (2012), "US Tire Tariffs: saving Few Jobs at High Cost", Policy Brief 12-9, Peterson Institute for International Economics.

Hummels, D. and A. Skiba (2004), "Shipping the apples out? An empirical confirmation of the Alchian-Allen conjecture", *Journal of Political Economy* 112(6): 1384-1402.

Irwin, D.A. (2014), "Tariff incidence: evidence from US sugar duties, 1890-1930", NBER Working Paper 20635.

## References

- Jordà, Ò. (2005), "Estimation and Inference of Impulse Responses by Local Projections." *American Economic Review*, 95(1): 161-182.
- Kreuter, H. and M. Riccaboni (2023), "The impact of import tariffs on GDP and consumer welfare: A production network approach", *Journal of Economic Modelling* 126.
- Krugman, P. (1982), "The Macroeconomics of Protection with a Floating Exchange rate", *Carnegie-Rochester Conference Series on Public Policy* 16: 141-182.
- Krugman, P., R.N. Cooper and T.N. Srinivasan (1995), "Growing World Trade: Causes and Consequences", *Brookings Papers on Economics Activity*, 1995, No.1.
- Lindé, J. and A. Pescatori (2017), "The Macroeconomic Effects of Trade Tariffs: Revisiting the Lerner Symmetry Result", *IMF Working Paper* 17/151.
- Ludema, R.D. and Z. Yu (2016), "Tariff pass-through, firm heterogeneity and product quality", *Journal of International Economics*, 103:234-249.
- Ma, H., J. Ning and M.J. Xu (2021), "An eye for an eye? The trade and price effects of China's retaliatory tariffs on US exports", *China Economic Review* 69:101685.
- Mallick, S. and H. Marques (2008), "Passthrough of exchange rate and tariffs into import prices of India: currency depreciation versus import liberalisation", *Review of International Economics* 16(4): 765-782.
- McKibbin, W., M. Hogan and M. Noland (2024), "The International Economic Implications of a Second Trump Presidency", *Peterson Institute for International Economics, Working Paper* 24-20.
- Meinen, P. (2019), "The effects of tariff hikes in a world of global value chains", *ECB Economic Bulletin*, Issue 8/2019.
- Mundell, R. (1961), "Flexible Exchange Rates and Employment Policy", *Canadian Journal of Economics and Political Science* 27: 509-517.
- Nordgren, L., N. Norell and P. Stålenheim (2024), "Economic backfire: The Costly Impact of Trump's proposed tariffs", *National Board of Trade Sweden*.
- Obst, T., J. Matthes and S. Sultan (2024), "What if Trump is re-elected", *IW-Report* 14/2024, *Institut der Deutschen Wirtschaft*.
- Obstfeld, M. and K. Rogoff (1995), "Exchange Rate Dynamics Redux", *Journal of Political Economy*, 103: 624-660.
- Obstfeld, M. (2016), "Tariffs Do More Harm Than Good at Home", *IMF Blog, International Monetary Fund*.
- Pierce, J.R. and P.K. Schott (2016), "The surprisingly swift decline of US manufacturing employment", *American Economic Review* 106(7): 1632-1662.

## References

Posen, A. (2018), 'The cost of Trump's economic nationalism: a loss of foreign investment in the United States, Peterson Institute for International Economics.

Reitz, S. and U.D. Slopek (2005), "Macroeconomic Effects of Tariffs: Insights from a New Open Economy Macroeconomics Model," *Swiss Journal of Economics and Statistics (SJES)*, Swiss Society of Economics and Statistics (SSES), vol. 141(II), pages 285-311, June.

Reyes-Heroles, R., C.T. Singer and E. Van Leemput (2021), "The Effects of US-China Tariff Hikes: Differences in Demand Composition Matter", Board of Governors of the Federal Reserve System, FEDS Notes.

Rodrik, D. (2007), "One Economics, Many Recipes: Globalization, Institutions, and Economic Growth", Princeton: Princeton University Press

Roeger, W. and P.J.J. Welfens (2022), "The macroeconomic effects of import tariffs in a model with multinational firms and foreign direct investment", *International Economics and Economic Policy* 19: 245-266.

Schwörer, T. (2013), "Offshoring, domestic outsourcing and productivity: evidence for a number of European countries", *Review of World Economics*, Vol. 149: 131-149.

Ural Marchand, B. (2012), "Tariff pass-through and the distributional effects of trade liberalization", *Journal of Developing Economics* 99(2): 265-281.

Van der Merve, B. (2021), "How trump lost his war on FDI, investment monitor, online: <https://investmentmonitor.ai/us/how-trump-lost-his-war-on-fdi>.

Winkelmann, L. and R. Winkelmann (1998), "Tariffs, quotas and terms-of-trade: the case of New Zealand", *Journal of International Economics* 46(2): 313-332.

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