

Trade Policy and the Global Economy

Scenario 2: Increasing Tariffs

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This brief presents the results of analysis using the OECD Trade Model (METRO). METRO is a state-of-the-art analytical tool that uses a globally integrated approach to estimate likely outcomes from illustrative policy-change scenarios. METRO is not a forecasting tool and thus results are relevant only in the context of the specified scenario and are not reflective of actual policy actions in any specific country or sector.

Trade has been an engine of growth and prosperity across the world for centuries, creating jobs and increasing incomes while widening consumer choice. At the same time, not everyone benefits from trade. The process of some industries growing while others recede is a necessary part of any healthy, dynamic economy. It reflects not only beneficial domestic and international competition, but important advances in technology.

However, countries, on occasion, turn to restrictive trade policies in an attempt to protect industries and jobs from international competition and to slow the process of structural adjustment. While this can appear to be an attractive path, the evidence shows conclusively that any gains are both short-lived and extremely costly. Experience also shows that constraining firm participation in globally integrated value chains limits not just trade, but overall economic growth, without improving the prospects of workers affected by skill-biased technological change or addressing within country inequalities. A more effective approach is to ensure that an integrated package of policies is in place: to encourage opportunity, innovation, and competition; to facilitate adjustment, ensuring that no one is left behind; and, to make the international trading system work better, by updating and filling gaps in the rule book, and using the full range of international economic cooperation tools.¹

In recent years efforts to open global markets have largely stalled and trade restrictive policies have been gradually accumulating across G20 economies. Today, trade tensions are particularly high. Against this background, this policy note aims to shed light on the costs associated with trade protection. Rather than modelling specific policies of any specific country, it uses a scenario to illustrate expected outcomes if some of the largest trading economies were to introduce higher levels of border protection for selected traded sectors.

This is the second in a series of policy scenarios designed to address both long standing and emerging issues in the public policy debate on global markets, drawing upon the OECD METRO Model.² Results are presented for G20 economies in terms of estimated changes in economic output, trade (including at the sector level), incomes and jobs. Finally, overall policy considerations are summarised.

Restricting trade across selected G20 economies

In this theoretical scenario, tariffs in selected sectors and G20 economies (table) are increased to 25%.³ The sectors are chosen based on the frequency, over time, that they have been targeted in trade disputes. These hypothetical tariff increases affect about 7% of global trade, valued at about 1.4 trillion USD.

For some sectors, these tariffs would effect around 30% of their global trade; manufacturing sectors tend to be highly integrated in global value chains and oilseeds are a highly traded commodity, so new tariffs are expected to have a particularly strong effect on these sectors. Among countries, Canada, Mexico and the United States have the most trade affected, followed by China and Japan. The EU economies are affected to a much smaller degree as much of their trade takes place within the EU.

Higher tariffs on targeted sectors reduce trade in every economy imposing these measures, with both imports and exports declining

The first thing to note in this scenario is that both imports and exports decline for every economy that imposes a tariff increase (Figure 1). Some other economies would see trade increase, but not enough to overcome the drops in the taxing economies, leading to an overall decline in global trade of over 1.5%. The biggest declines are estimated to occur in

Table. Countries and sectors affected

Sector	Share of trade affected	Country	Share of trade affected
Cereal grains	16.3%	Canada	29.6%
Oil seeds	33.3%	China	16.7%
Meat	13.9%	EU24	3.0%
Motor Vehicles and Parts	31.8%	Germany	5.6%
Machinery and Equipment	31.3%	France	5.0%
Transport equipment	29.5%	Italy	3.3%
		Japan	11.8%
		Mexico	32.4%
		United Kingdom	5.2%
		United States	21.0%

Note: figures for EU24 and the EU members Germany, France and Italy include extra-EU trade.

NAFTA economies as they have the largest amount of internal trade, while the countries in the EU have smaller overall declines. While intra-EU trade would increase, with the largest expansion by Germany, overall EU trade (intra + extra) declines due to large falls in exports to Mexico, United States, Canada, China and Japan.

Looking at the sector-level impacts (Figure 2), global trade contracts in virtually every sector, even those where higher tariffs have not been imposed. The sole exceptions are small increases in ferrous metals (0.3%) and mineral products (0.1%) which stem largely from increasing demand in Southeast Asia. Trade and output in services sectors also declines on the back of declining trade and production more generally.

Trade and production decline most in sectors that are highly integrated in GVCs and where switching to alternative suppliers is difficult. The sectors with the largest declines in trade are machinery and equipment and transport equipment, underscoring the ripple effect that tariffs can have throughout the production process.

The relatively smaller declines of global production in meat and cereal grains illustrates the muted impact when there are other suppliers available. Australia/New Zealand and Mexico would be expected to increase meat production while Mexico and South Africa increase their output of cereal grains leading to declines in global output of less than 0.2% in both sectors. Both Argentina and Brazil would be expected to increase oilseed production.

A different dynamic is operating in the sectors that rely more heavily on imported inputs (Figure 3). The share of intermediate inputs imported for use in

the cereal grains, oilseeds and meat sectors is much smaller (average 13%) than the share of imported intermediates for the manufacturing sectors (almost 30%). However, a larger share of the output of these sectors is exported to other countries to be used as an imported intermediate input. The relatively greater reliance of the manufacturing sector on global value chains is demonstrated by the fact that the share of imports for intermediate use is much closer to the shares of their output that is exported for intermediate use. In addition, the largest share of intermediate inputs in manufacturing sectors comes from within the same sectors (e.g. 62% of motor vehicle imported inputs consist of motor vehicle parts); this means that the impact of increased tariffs is higher on both production and trade, and ultimately on jobs, in these sectors.

For the economies imposing an increase in tariffs, the share of imported inputs in total inputs used is expected to fall (Figure 4). For many other economies, the share grows. Given that access to world-class inputs, in terms of both quality and price, are vital to the productivity growth and competitiveness of domestic firms, the likely result would be a decline in market share for those losing access to those inputs. In contrast, firms operating in countries not imposing tariffs and with continued access to world-class intermediates would be expected to increase productivity, competitiveness and market share.

The costs of tariff increases – even by just a few economies and in selected sectors – are expected to be widespread and to increase the burden of adjustment on workers and firms across the global economy

The impact on sectors' output in each economy from increasing tariffs is shown in Figure 5. What this graph illustrates is the 'deadweight' loss associated with these tariffs. That is, the loss that is not recovered by other industries or workers. When output in a sector declines, it releases workers and capital to other, expanding industries. Here, however, we observe no net growth through reallocation. That is, there is no significant offsetting increase elsewhere in these economies as shown by the very small (in most cases zero) change in output for the rest of the economy ("All non-taxed sectors" in the figure). The only economy experiencing any appreciable increase in other sectors is Mexico. However, this slight increase (0.64%) is more than offset by the larger declines in manufacturing output.

Relative changes in labour demand directly follow from the new global production patterns induced by tariff increases (Figure 6). In this scenario, the largest share of jobs shed in the United States is expected to be in agriculture while in Mexico and Canada the largest losses are expected in manufacturing. Overall employment in Japan is expected to decline due to job losses in manufacturing, which far outweigh the small gains in agriculture. As global production is reallocated, workers in Australia/New Zealand, Brazil, Canada and China move out of manufacturing and into agricultural employment. Workers in Turkey and Korea move out of services (financial and insurance for Turkey and transport and communication for Korea) and in to manufacturing.

Even without any changes in trade policies, labour movement across sectors and in and out of employment, takes place within workforces across the world. Some workers become unemployed involuntarily and then find new employment elsewhere, others change jobs voluntarily, some enter the workforce for the first time, while for others, a job loss results in a longer-term absence from employment. For countries covered by OECD data, annual job change as a share of total employed across five broad sectors (agriculture, construction, industry, manufacturing and services) varies widely but averages close to 5%.⁴ However, changes in trade policy can aggravate these movements. The additional labour movement across each economy that is expected to result from higher tariffs is illustrated in Figure 7. In all cases, the volatility of labour movement increases. This expected response would represent a substantial adjustment burden on affected workers.

ILO estimates of the share of women employed by sector are used to estimate the change in labour demand by gender (Figure 8). For many economies, the agriculture sector accounts for the largest share of women's employment change, especially

in Turkey and the USA (declines) and, Korea, Italy, United Kingdom and Germany (increases). Canada, Mexico and Germany are expected to see relatively large declines in female manufacturing employment. In other economies, women lose relatively more positions in services sectors. This is noteworthy because while services sectors are not directly affected by tariff increases, services jobs are indirectly affected and have the largest impact on women. This outcome illustrates the high level of sectoral integration in today's economy and the extent to which policy and market changes in one sector can impact jobs in related sectors.

The overall declines in labour demand naturally lead to a declines in household incomes. Figure 9 shows these income declines per worker for all the economies examined. Most non-taxing economies see little change in income per worker while some, such as Korea, see an increase. Every tariff imposing economy experiences declines, with the largest in Canada (at 700 USD per worker), followed by the US (around 325 USD per worker), Mexico (270 USD per worker) and Japan (around 230 USD per worker).

Policy considerations

This exercise illustrates the widespread direct costs associated with higher tariffs on a relatively small share of global trade – and the consequent impact on labour markets. The costs of tariff increases are higher when the forgone benefits of tariff reductions are also taken into account (see Trade Policy and the Global Economy Scenario 1: Reducing Tariffs).

For example, were tariffs in all G20 countries to be reduced to the lowest level applied (which is almost always zero), affecting a large share of world trade (about 40%), the gains would be important. Each dollar of the simulated reduction of tariffs is estimated to increase global household income by 0.9 USD, trade by 1.4 USD and global gross production by 1.0 USD. In the increasing tariffs scenario described above, even though affecting a much smaller share of world trade, each dollar of tariff increase is estimated to decrease global household income by 0.4 USD, trade by 1.0 USD and global gross production by 0.6 USD (Figure 10).

Of course, trade policy is not the only factor affecting growth and jobs. The *OECD Employment Outlook 2017*⁵ concluded that technology has had a significant impact on job loss in manufacturing and that the impact of increased trade had been small. While this is consistent with much of the available literature, some researchers attribute a larger role to increased trade and investment flows, and in particular to the increased integration of emerging economies in global markets. Understanding well the factors affecting growth and jobs is pre-requisite

to informing policy choices, and the reality is that there is no single factor.

In this respect, more attention can usefully focus on the slowdown in the growth of productivity, globally. *The Future of Productivity*⁶ shows this slowdown to be at least partially attributable to a slowdown in the diffusion of global frontier innovations, from the innovating core of leading firms to all other firms. The gap in productivity growth between global leaders and other businesses has grown over time, especially in services sectors – which represent the largest share of new jobs in all G20 economies.

The *OECD Economic Outlook 2018*⁷ identifies comprehensive structural reforms as key to sustaining growth into the medium and longer term – and this process has stalled across many economies. While integration into global markets has contributed strongly to growth and job opportunities, it has also increased countries' risk of exposure to shocks. Building economies with strong policies that support a dynamic and innovative business sector and (both public and private) investment, notably in education, skills, and needed physical infrastructure, can help mitigate risks and support widespread and sustainable growth.

This second scenario highlights the considerable costs from winding back trade liberalisation, even if only addressing a subset of goods and G20 economies. Other significant restrictions on trade also warrant attention. Inefficient customs and border procedures, for example, impose unnecessary costs on traders, as documented in OECD's *Trade Facilitation in the Global Economy 2018*.⁸ Even more importantly, perhaps, there are a range of behind-the-border measures, including regulations governing services sectors that can potentially restrict trade unnecessarily. In the coming months, the OECD will publish findings from scenarios on the impact of reducing these “behind the border” regulatory measures.

Endnotes

- 1 See, for example, OECD (2017), *Making Trade Work for All* https://www.oecd-ilibrary.org/employment/making-trade-work-for-all_6e27effd-en
- 2 For more information on the OECD METRO model see <http://oe.cd/metro-model>
- 3 Intra-EU tariffs are not changed. Canadian tariffs on meat for final consumption, currently at 28% also remain unchanged.
- 4 See OECD (2018), *Market opening, Growth and Employment*, especially page 27-28, <https://doi.org/10.1787/18166873>
- 5 http://dx.doi.org/10.1787/empl_outlook-2017-en
- 6 https://www.oecd-ilibrary.org/economics/the-future-of-productivity_9789264248533-en
- 7 https://www.oecd-ilibrary.org/economics/oecd-economic-outlook_16097408
- 8 <http://www.oecd.org/publications/trade-facilitation-and-the-global-economy-9789264277571-en.htm>

Figure 1. Changes in Trade Flows by country

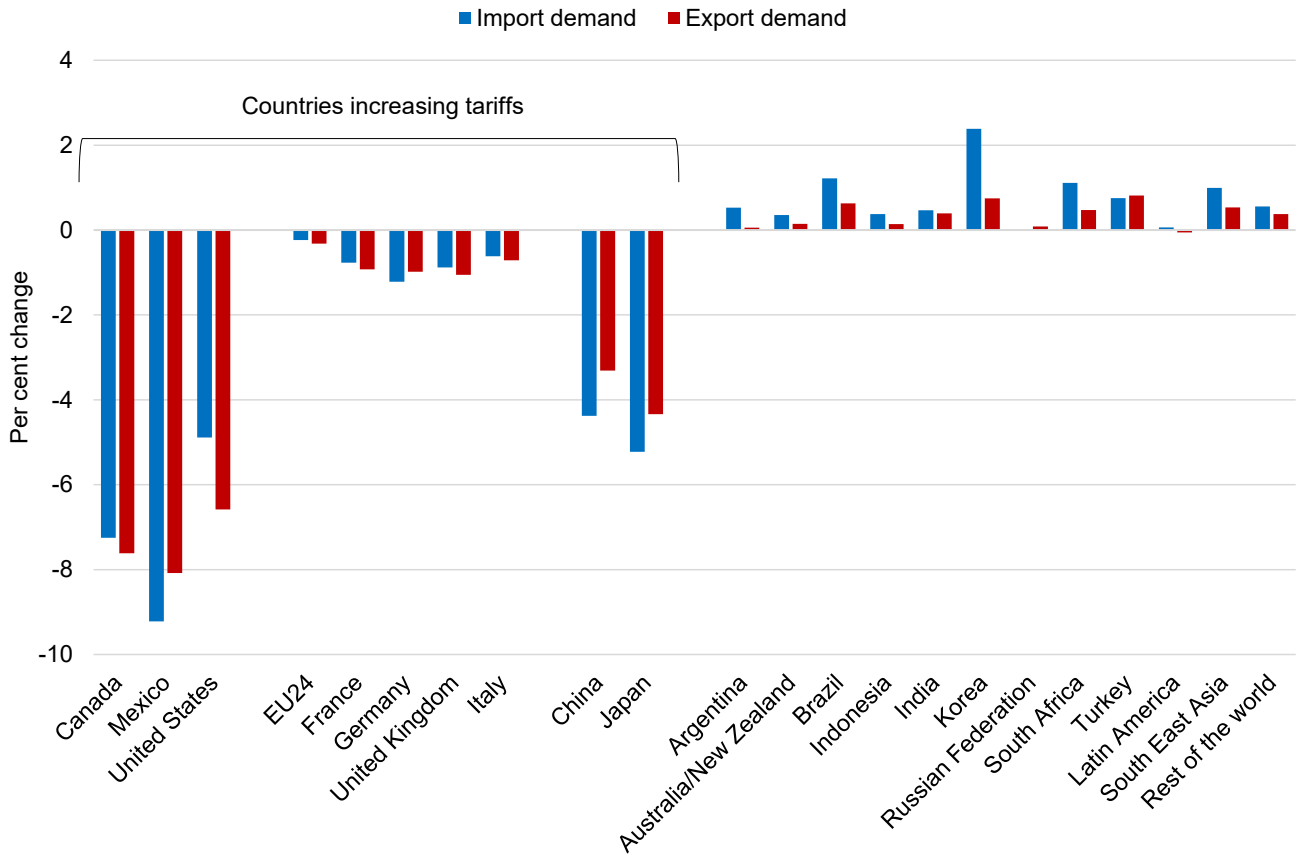


Figure 2. Global Changes in Sector trade and output (percent change from base)

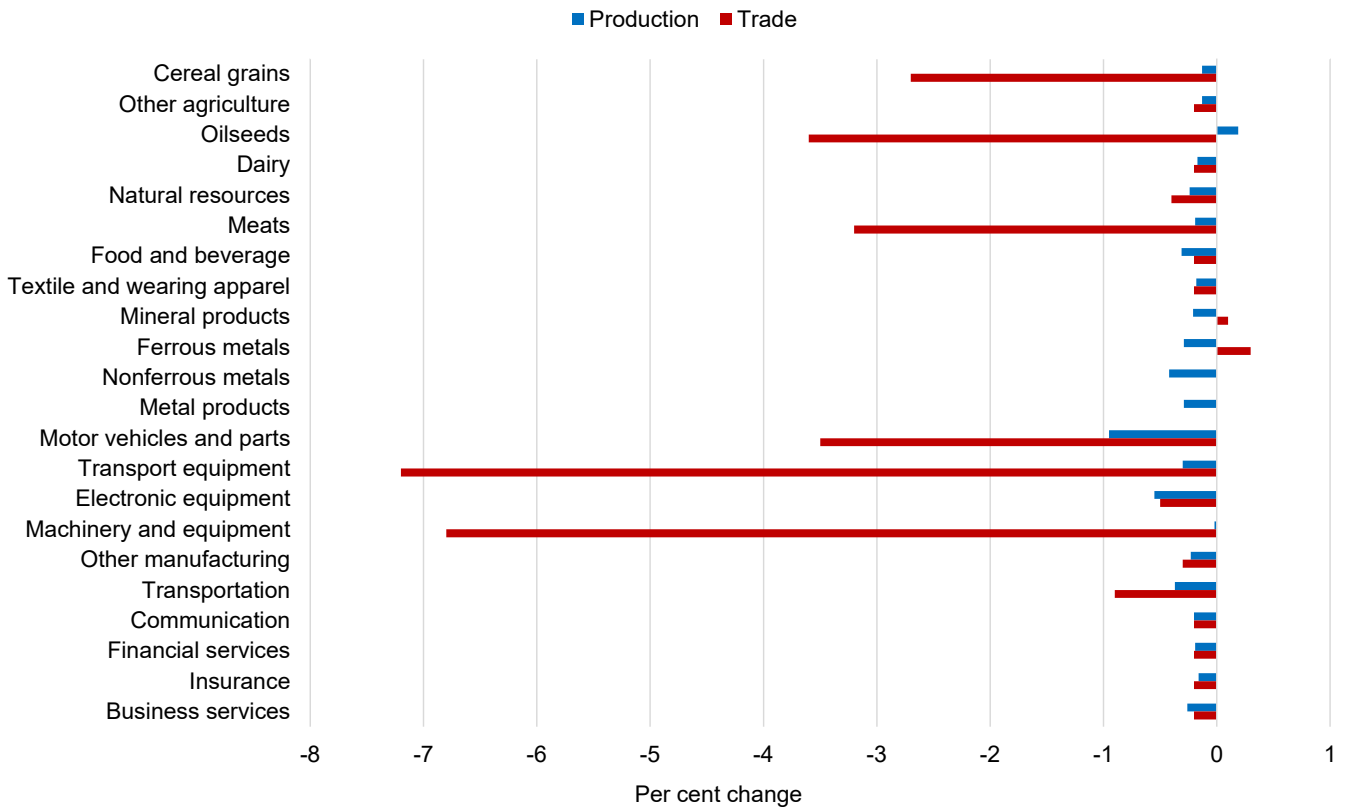


Figure 3. Role of traded intermediates in each sector

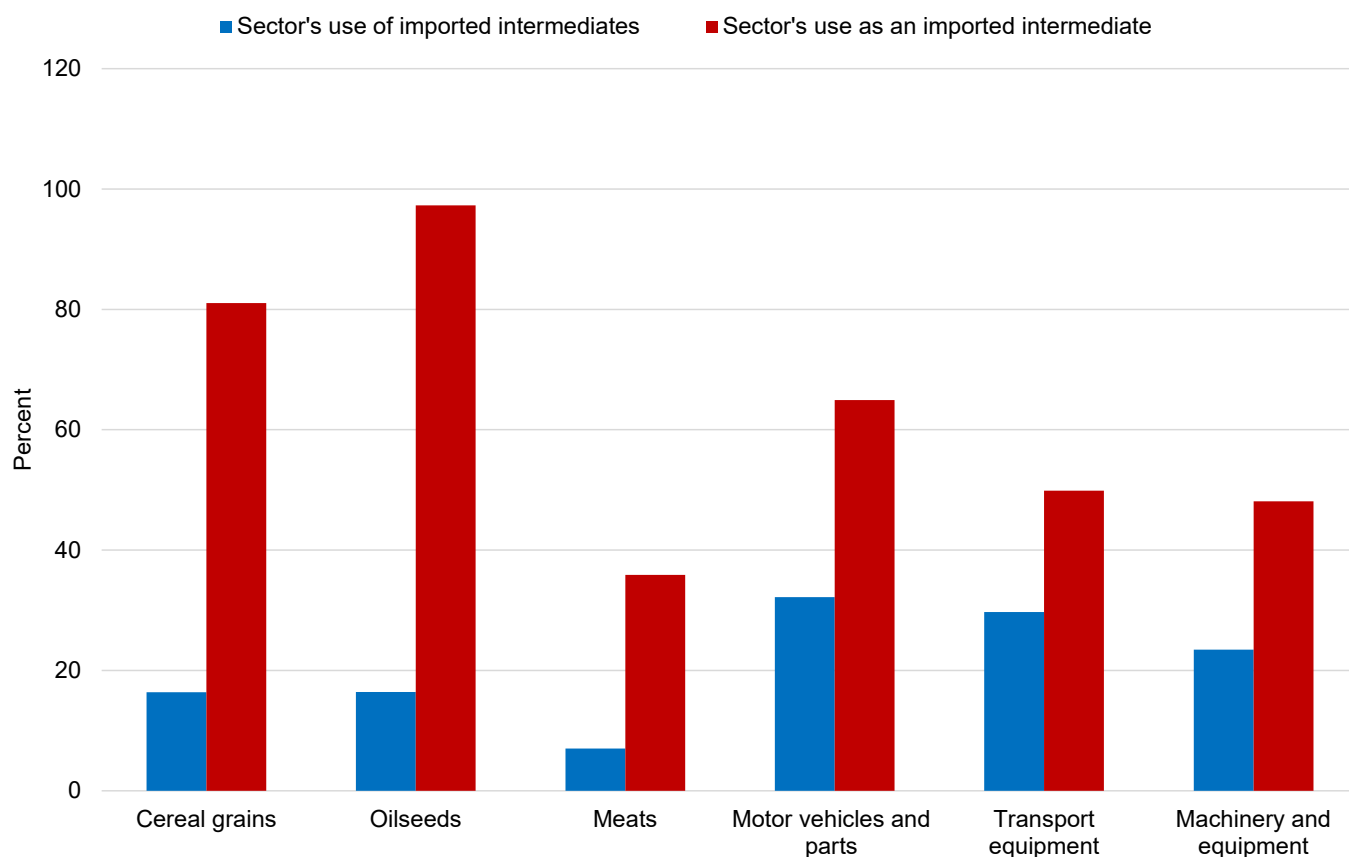


Figure 4. Share of Intermediate Inputs Imported (percent and change)

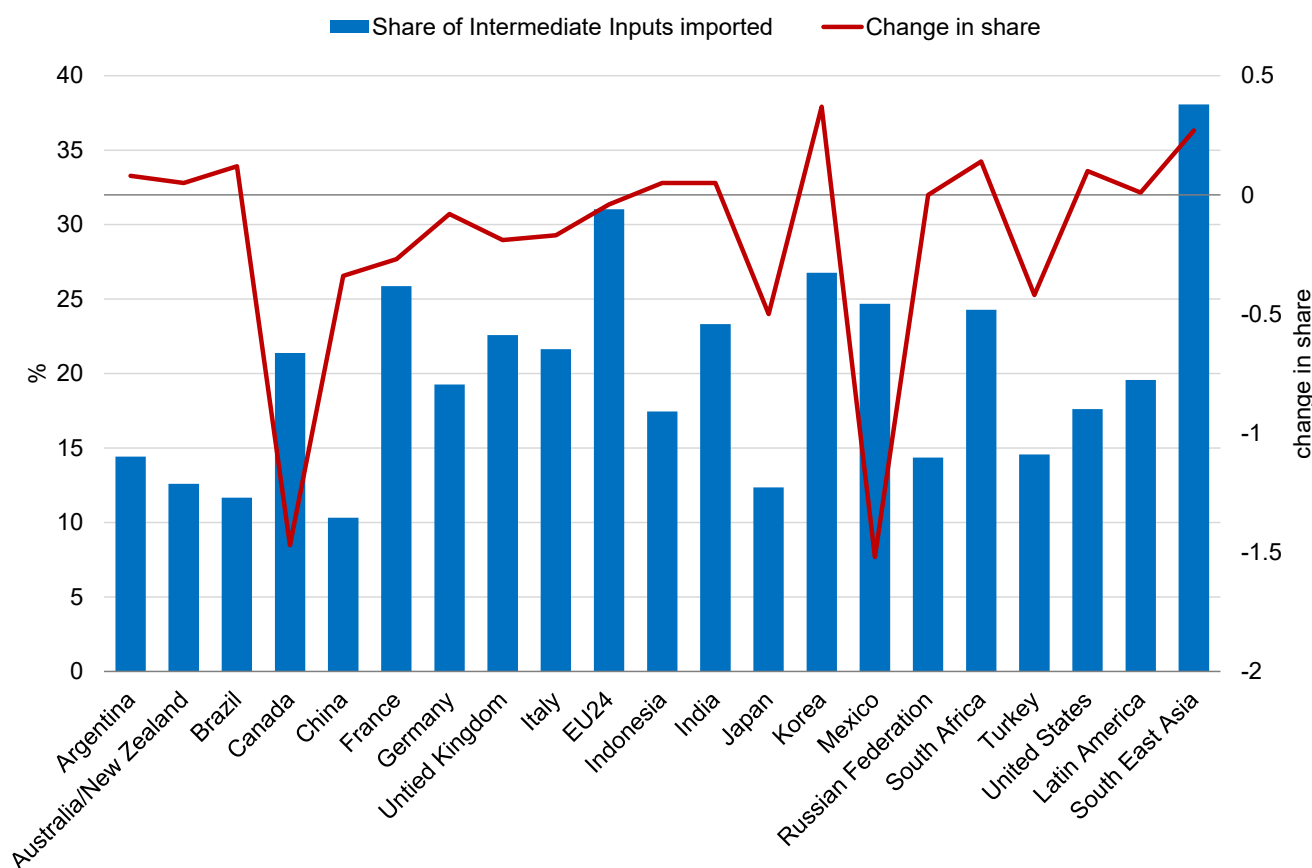
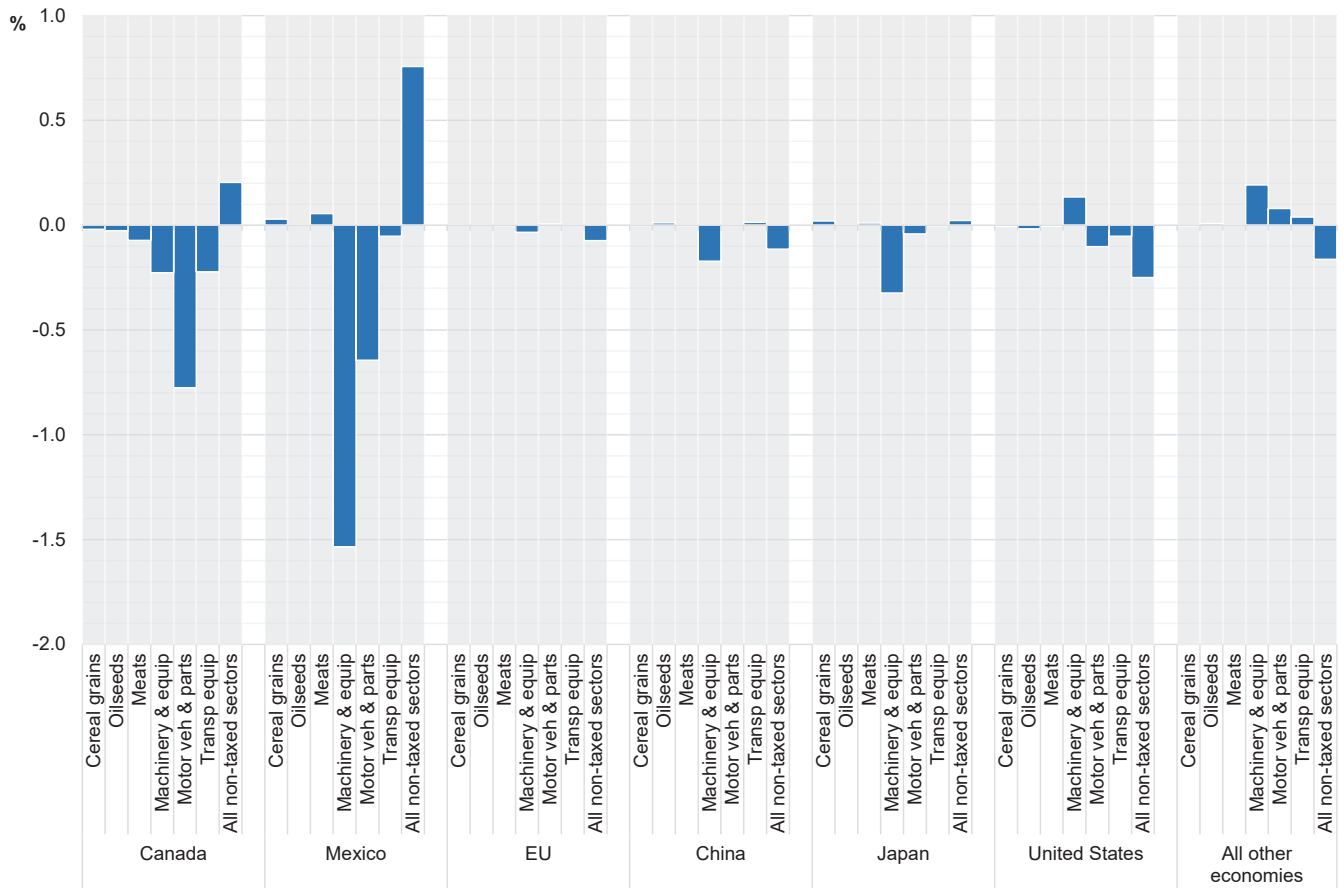
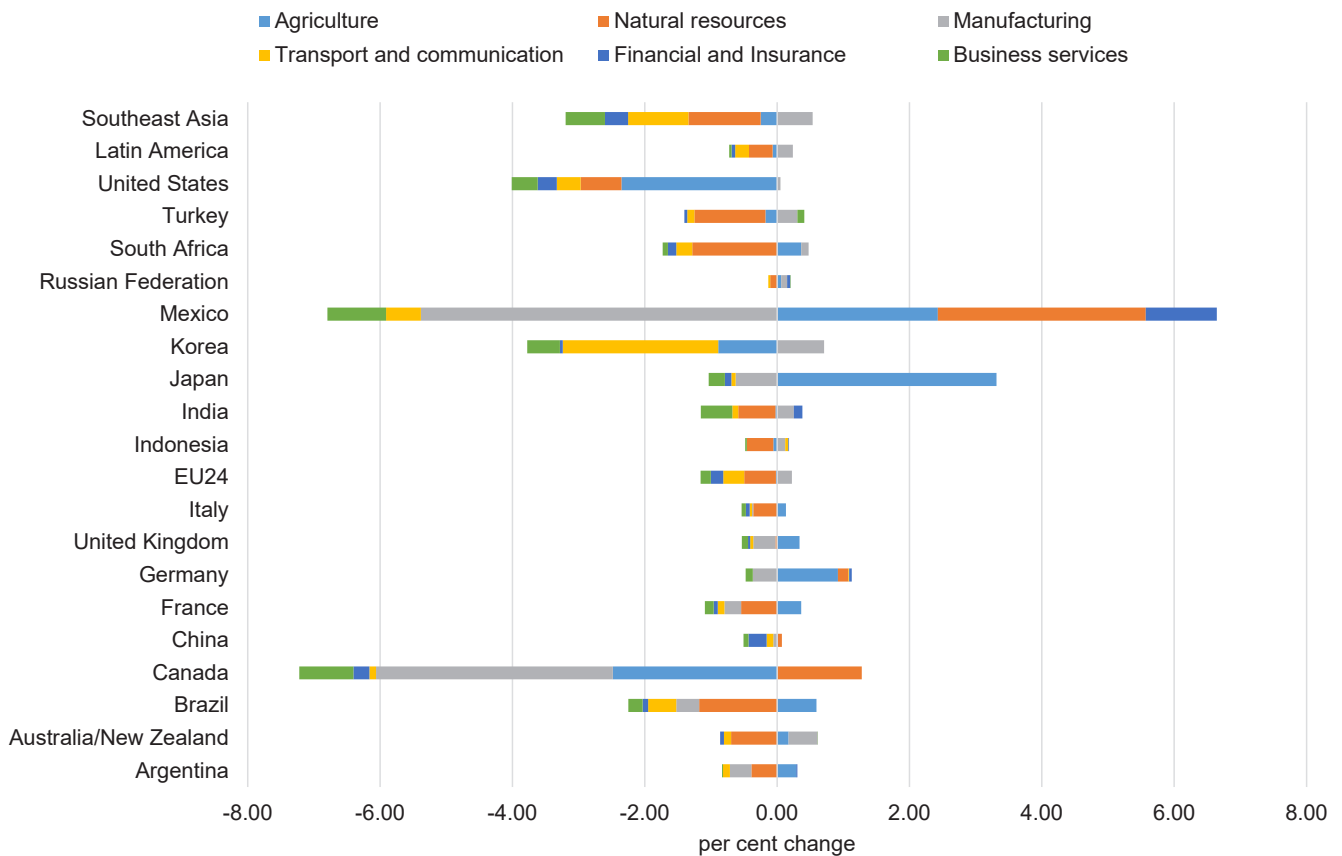


Figure 5. Changes in Sector output, per cent



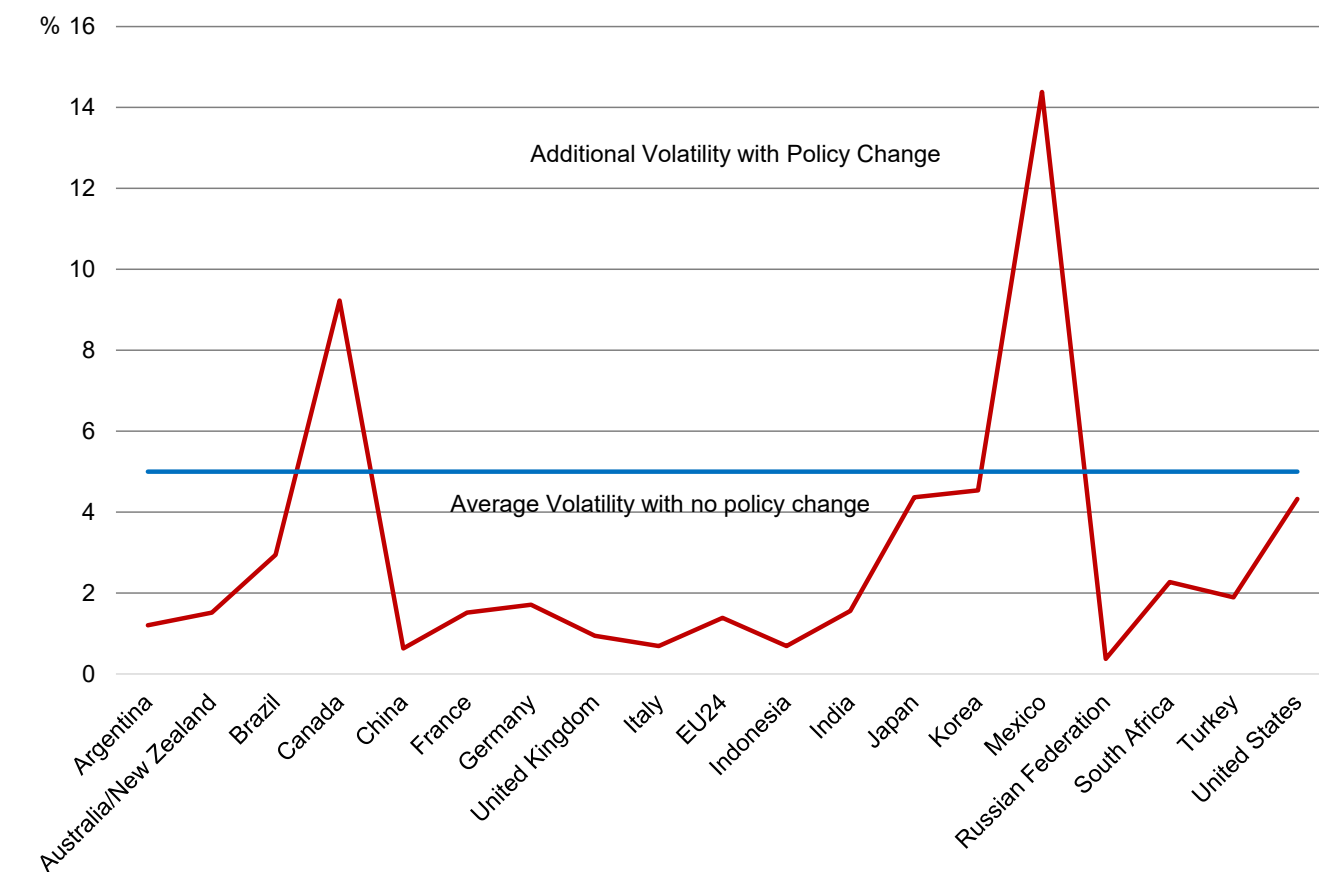
Note: Sector level changes are weighed by their relative contribution to overall economic activity

Figure 6. Changes in labour demand by sector (% change)



Note: For Korea and Japan, the natural resources sector has a low base of employment so percent change is disproportionality large and not reported in this figure.

Figure 7. Additional volatility in labour movement due to trade policy change



Note: G20 economies except Saudi Arabia.

Figure 8. Sectoral composition of the change in female labour employment

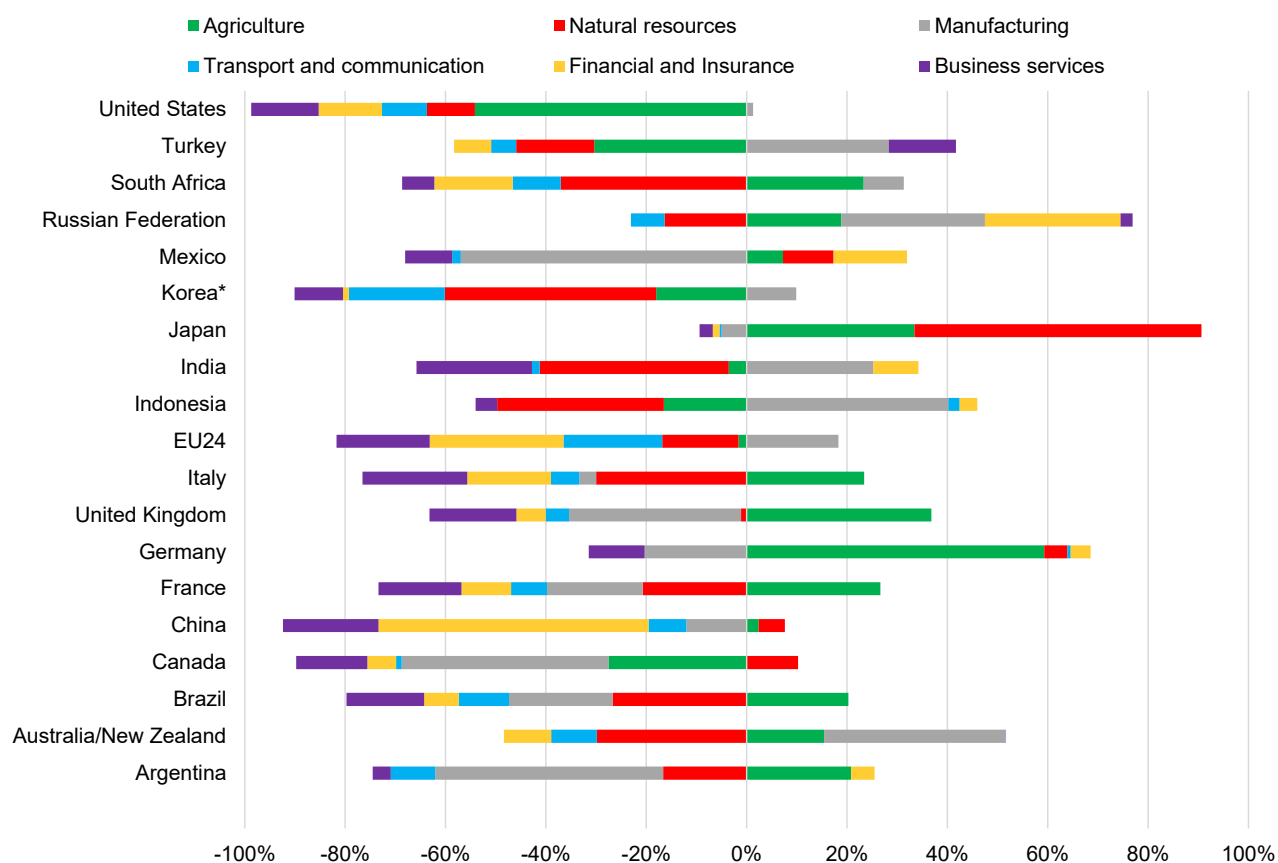


Figure 9. Changes in income per worker (USD)

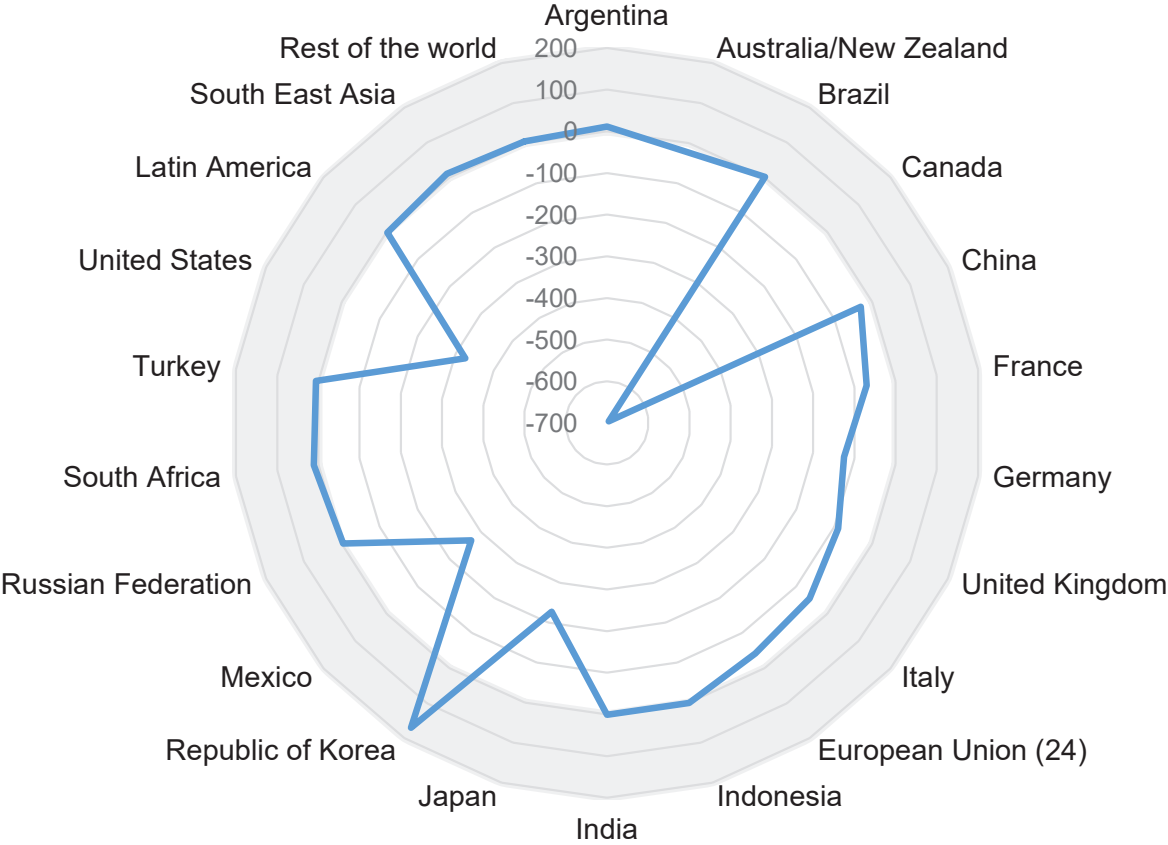
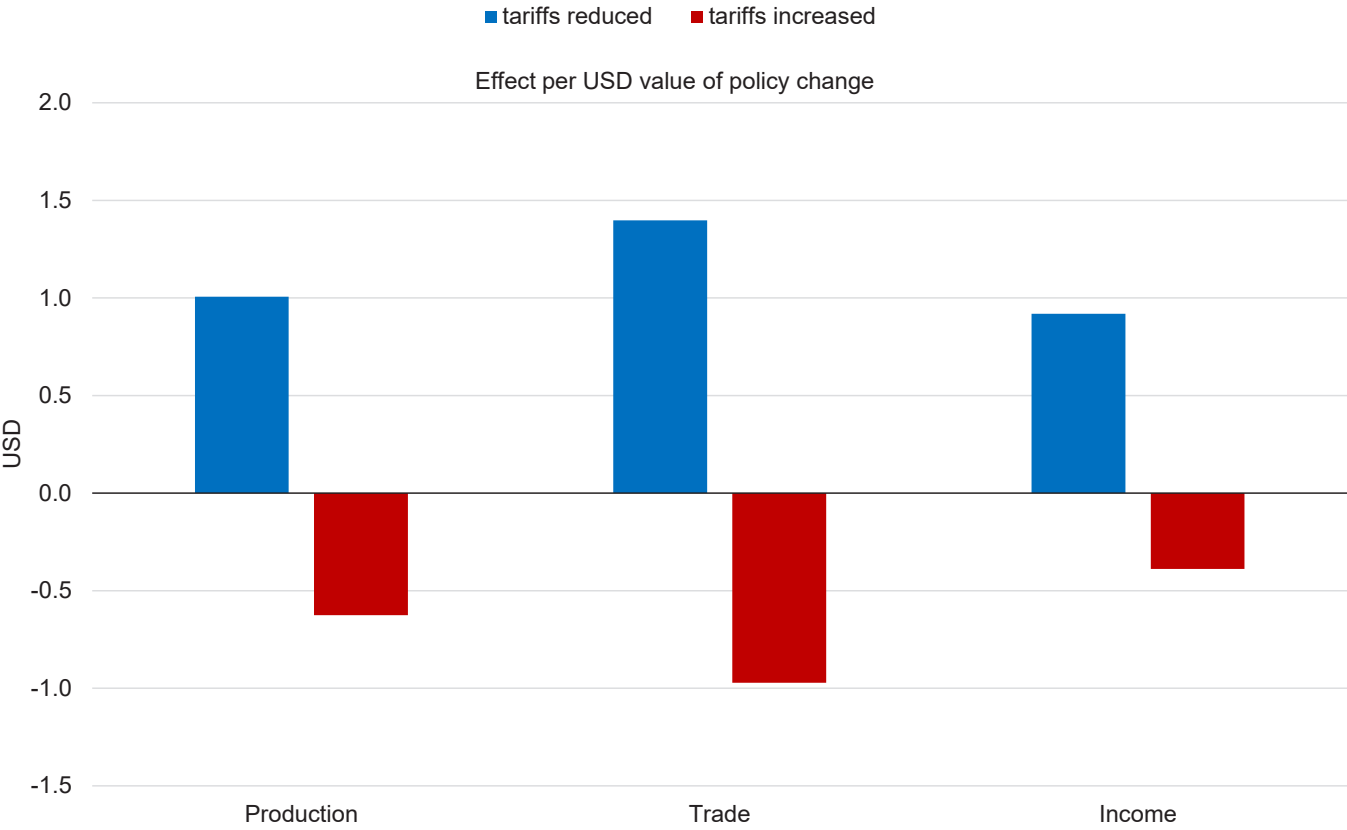


Figure 10. Effect per USD value of policy change



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The publication of this work has been authorised by Ken Ash, Director of the Trade and Agriculture Directorate. Any comments should be sent to tad.contact@oecd.org.

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In today's uncertain trade policy environment, it is arguably more important than ever to retain an objective, evidence-based approach when assessing alternative actions to open or to close markets for trade. The OECD is developing four 'illustrative' scenarios that are analysed in order to highlight the likely consequences of possible future developments in critical trade policy areas. The scenarios are designed to address both long standing and newly emerged issues in the trade community, and will be examined using the OECD METRO Model.

The overall aim of this examination of a wide range of plausible international market scenarios is to provide a robust base of evidence and policy insights that can inform government consideration of alternative trade policy measures, while avoiding engaging in the day-to-day rhetoric that often surrounds specific trade policy announcements by one or more governments.

For more information, visit
www.oecd.org/trade