

Decent exposure

An overview of how Britain's exposure to trade has changed

Sophie Hale

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Summary

When most people think about who is most exposed to international trade in the UK, it is manufacturing workers that come to mind. These were the workers most visibly harmed by the surge in imports from China into developed countries in the early 2000s. This period made the consequences of unleashing international trade obvious and prompted a backlash against globalisation in many rich countries.

But as a consequence of the 'China shock', the UK's exposure to this type of trade shock has receded. And such an antiquated, manufacturing-centric view of how trade affects the economy fails to account for how the more open British economy that we have today has changed the nature of our jobs and what we spend our money on.

So, we need to refresh how we think about Britain's trade exposure. In this briefing note we assess how the exposure to international trade has changed. First, we consider the role that declining manufacturing employment has played on how exposed workers at different pay levels have become. Second, we explore how we have become more reliant on international trade through our everyday consumption of goods and services.

Because openness has increased, the exposure of jobs to trade has not declined alongside manufacturing

Although the focus of global trade risks has remained on manufacturing jobs, British workers' exposure to manufacturing job losses or wage penalties has fallen. The share of employment in manufacturing sectors fell from 18 per cent to 11 per cent between 2000 and 2009. But the overall trade exposure of jobs has not declined with manufacturing. In fact, the weighted-average trade intensity of sectors – a key measure of workers' exposure to trade – has not fallen. So, workers are no less exposed to global trade than in the past. This comes with some key advantages: higher trade exposure is a sign of increased specialisation in our economy and means greater access to cheaper imports and higher demand from overseas for what we produce.

The absence of a fall in exposure of workers to trade after the China shock might seem surprising, but it's a consequence of the economy as a whole becoming more open. Despite stories of slowing global trade and Brexit raising barriers to trade in recent years, the UK today is substantially more open to international trade than it was 20 years ago. Total trade has increased from 53 per cent of GDP in 2000 to 65 per cent in 2023.

As international trade has grown, the exposure of the UK's workers and consumers has changed. Although fewer workers now sit in traditionally highly-tradable, manufacturing sectors, the impact of this has been almost entirely offset by increases in the average tradability of other sectors, including other high-paying sectors. Despite the fact that

higher-paid workers experienced larger shifts out of manufacturing employment, substantial increases in the trade intensity of the sectors they've moved into has actually left them more exposed. The average worker in the 90th pay decile was 18 per cent more exposed to international trade in 2019 than in 2000.

While manufacturing became more import intensive, other parts of the economy became more exposed to exports

Across the pay distribution, workers have seen their jobs become more exposed to exports. This is because while declining manufacturing sectors became more import intensive, it was the UK's growing professional services sectors that were becoming more export oriented. Three-quarters of the overall increase in trade exposure of the highest-paid workers can be attributed to higher export exposure, while for workers in the pay deciles around the 25th, 50th and 75th percentiles the higher export exposure was offset by falls in their import exposure.

The number of sectors that had high export exposure (exports as a share of total supply exceeded 25 per cent) increased from 15 to 22 industries (out of 105) between 2000 and 2019, and many of these were professional services sectors. In 2000, 17 per cent of workers worked in these high export intensity sectors; by 2019, this was 20 per cent. And so, overall the exposure of UK jobs to international trade has become less concentrated in pockets of the ('physical stuff-producing') economy – and with it the exposure of workers to trade shocks has broadened.

British consumers have become more reliant on imported consumption

But it is not just through our jobs that we need to think about the changes to households' exposure to changing international trade. Here, another measure of exposure to trade – the import intensity of household consumption – has also increased. As Britain becomes more open and the average import intensity of our goods and services sectors has increased, consumers have been presented with more imported products to consume. In 2005, a quarter of the value of goods and services consumed in the UK came from abroad. But, by 2019, this had grown to almost a third. This change would have been 1.4 percentage points bigger if consumption patterns had remained fixed, rather than shifting over this period from more to less import-intensive goods and services.

This means consumers are more exposed to trends in global trade, in particular shocks to import prices caused by wars, extreme weather and even policy changes (such as export bans or sanctions). But exposure is not a bad thing per se, with risks changing rather than increasing – for example, while extreme weather is now more likely to affect our imported food, our risk is diversified and we are less exposed to domestic crop failure.

The higher import exposure of our consumption is telling us that people now have more choice and often cheaper varieties available than before – the lowest decile of prices for highly imported goods rose just 34 per cent, compared to 56 per cent for less import-intensive goods. The influx of imported clothing imports from new markets, for example, has contributed to the lower half of the price distribution not increasing at all since 2002 for clothing garments – generating substantial living standards gains for lower-income consumers.

Those on higher incomes tend to have a higher exposure to imports, and this gap has been increasing. Between 2005 and 2019 the gap between the import share of higher- and lower-income consumers grew further, as the import share of consumption rose by 5.2 percentage points for the poorest consumers, but by 7.8 percentage points for the richest. The difference in exposure can be traced back to the escalating housing costs facing lower-income households over this period, specifically the rising share of consumption dedicated to paying rent. When rent payments are stripped out, there is remarkably little difference in the levels of import intensity and the changes over time between income groups.

The consumption of lower-income households is more exposed to import-price volatility

This is not the end of the story, however. Although lower-income households' imported share of consumption is below average, they have higher exposure to import price volatility for two reasons. First, their imported consumption is more heavily weighted to volatile essentials (fuel and food). And second, they consume cheaper varieties of products and their prices are more sensitive to trade shocks.

Since the pandemic, we have experienced the consequences of living through a substantial terms-of-trade shock which has hit lower-income households hardest. This reflects the fact that the consumption of this group was more exposed to the fuel price shock. Global fuel prices have been particularly volatile, accounting for many of the largest terms-of-trade shocks in recent years. This has fed through to the prices of another essential consumption category, food. Overall, food and fuels account for over a third of the poorest households' imported consumption, compared to a quarter of the richest fifths. So, not only do these products account for a larger share of lower-income households' expenditure, as they are essential consumption, they are much harder to substitute away from to mitigate higher prices. And so, although lower-income households are less exposed to imported consumption overall, they have higher exposure to more volatile import prices.

But lower-income consumers are also more exposed to import-price volatility, because

terms-of-trade shocks tend to reduce the dispersion of prices for import-intensive goods at the bottom end of the distribution – in effect, cheaper varieties change in price by more than average, or expensive, varieties. This could be either because imports are more concentrated in the lower half of the price distribution, or because higher-priced imports absorb cost changes in their margins. Either way, as lower-income households are likely to be more exposed to these cheaper varieties' prices (for example, as they are more likely to buy the own-brand baked beans than branded alternatives), they are more exposed to more price-sensitive imports.

As trade exposure has changed, so too has the nature of the shocks we are exposed to

Manufacturing workers have remained the focal point of perceived international trade risks – with fears of a second 'China-style' import competition shock arising. But as the employment share of manufacturing has declined, particularly in lower-value-added manufacturing sectors that were outcompeted by the initial China shock, the exposure of UK workers to this type of shock has fallen. The impact of a surge in imports in these sectors again would increasingly fall on foreign workers, who produce the imported goods already entering the UK. That is not to say import shocks do not remain a risk to UK workers, and these could materialise in other, high-employment sectors in future.

However, far less attention has been given to the risks posed to workers by global demand shocks. The increased export exposure of professional services sectors has left the workers in these sectors significantly more vulnerable to fluctuations in demand for goods coming from abroad. The collapse in global demand that accompanied the pandemic disproportionately affected services trade, particularly services sectors which were highly reliant on physical travel, such as tourism-related services. As these services sectors disproportionately employed lower-paid workers, it was workers in lower-paid sectors that saw the trade intensity of their jobs affected most. Yet, once again, the nature of future global-demand shocks could vary significantly – and if global demand fell instead for professional services, as it did in the global financial crisis, it could be the UK's newly-exposed higher-paid workers who would face the consequences.

As the UK has become increasingly open, we've seen Britons become more exposed to international trade. Jobs are, on average, just as exposed as before, but we now consume far more imported goods and services. This highlights the need to think about the types of trade shocks we might face in future, rather than getting stuck with the fears of the past.

Moving forward, a domestic policy focus on higher resilience leaves the direction of travel for UK trade uncertain: will we pursue a strategy of less trade (home shoring) or more

trade (diversifying)? The reality is that our exposure to international trade is here to stay. So, we need an honest conversation about what higher levels of exposure mean for the country and for individuals. While we may feel more exposed to shocks from the rest of the world, the truth is that we now have more diversified risks that support good jobs in fast-growing sectors. But a greater exposure to demand shocks, and particularly terms-of-trade shocks, makes the politics of trade messier. Insulating people from such shocks can't be done by redistributing between those who gain and those who lose – not least because those who gain might be in other countries, as was largely the case following the recent sharp rise in energy prices. This means we need a different discourse around trade – one that is honest about what higher levels of exposure imply for individuals and the country as a whole.

Introduction

Most discussions about the risks associated with the UK becoming more exposed to international trade have been dominated by concerns for those workers who have been most visibly harmed in the past by trade – specifically, manufacturing workers who were hit by the huge rise in imports from China during the early 2000s.¹ Falls in manufacturing employment across developed countries underscored the potential ramifications of unfettered international trade, and fuelled the backlash against globalisation that can be observed today. The evidence from the US was particularly strong, showing that manufacturing workers faced job losses and depressed wages.²

But as employment in our manufacturing sectors has shrunk, this type of trade exposure represents a smaller economic risk to British workers. Put simply, having happened once, this shock can't happen to anything like the same extent again. What's more, as imports now make up a much larger share of final demand, the risk from further import competition has shifted away from our domestic producers and jobs towards our existing import markets. For example, fast-expanding manufacturing industries overseas may present more of a threat to China itself today, where the share of employment in manufacturing is three times the UK's and is highly dependent on its foreign markets.³

This dated perspective on trade exposure, centring on the dangers of import competition for manufacturing workers, is inadequate. It neglects how changes to UK openness has transformed the exposure for both workers and consumers and overlooks risks for

¹ P Levell, [Shifting trade patterns and inequality in rich countries](#), Institute for Fiscal Studies, November 2021.

² D Autor, D Dorn & G Hanson, [The China Shock: Learning from Labor Market Adjustment to Large Changes in Trade](#), National Bureau of Economic Research, January 2016.

³ The Economist, [These countries could lure manufacturing away from China](#), March 2023.

those exposed to exports – where restraining globalisation could do more damage than unleashing it. This means we need to refresh how we think about Britain's exposure to international trade.

That is the contribution of this briefing note, which focuses on how trade exposure has changed, by considering the trade intensity of jobs and consumption in the UK. It explores how both the import and export intensity of the sectors workers are in today has changed as manufacturing employment has declined, and then discusses what this changing exposure means for risks facing Britons from international trade.

Workers' exposure to trade has not fallen with manufacturing employment

When we think about the jobs that are most exposed to international trade in the UK, it is often manufacturing that comes to mind. Manufacturing jobs are clearly exposed to international trade. UK manufacturing activity is imbedded in international supply chains and relies on international inputs from all over the world. Many of our largest manufacturing plants are reliant on foreign demand to achieve the economies of scale they need to remain internationally competitive. In 2000, trade accounted for 47 per cent of total demand for manufacturing in the UK, which was more than double the exposure of professional services industries.

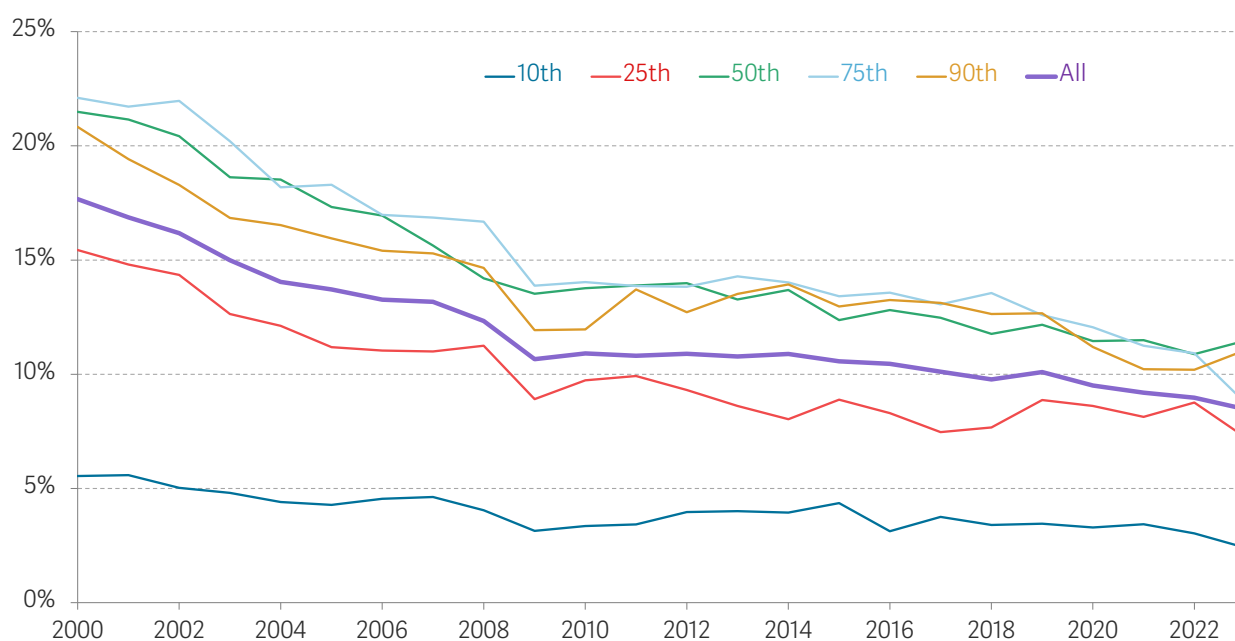
But in the past two decades there has been a sharp decline in the share of workers in manufacturing employment in the UK. This declined fastest between 2000 and 2009, when the share of workers in manufacturing fell from 18 per cent to 11 per cent. However, the manufacturing share of employment continued to decline after this, reaching just 9 per cent in 2022. Figure 1 shows that workers paid at and above the national average saw the biggest changes in their employment shares. The share of median-pay jobs in manufacturing fell by more than a third between 2000 and 2009, and had halved by 2022 – falling from 21 per cent to 11 per cent of workers.

This was, in part, a response to the influx of imports from China, with the most-exposed sectors facing the sharpest declines. Research has shown that employment growth was lower for the manufacturing plants operating in industries that saw higher Chinese import competition.⁴ For example, employment in the 'manufacture of leather and wearing apparel' fell by 90 and 80 per cent respectively, and these were the industries that saw the sharpest increase in import exposure from China.

⁴ J De Lyon & J Paulo Pessoa, *Worker and firm responses to trade shocks: The UK-China case*, LSE Centre for Economic Performance, January 2021.

FIGURE 1: Manufacturing employment has fallen

Proportion of employment in manufacturing sectors, by percentile of the weekly pay distribution: UK



NOTES: Manufacturing jobs include all within Section C, Manufacturing SIC 2 digit 10 – 33. Includes the deciles around 10th, 25th, 50th, 75th and 90th pay percentiles.

SOURCE: ONS, Labour Force Survey.

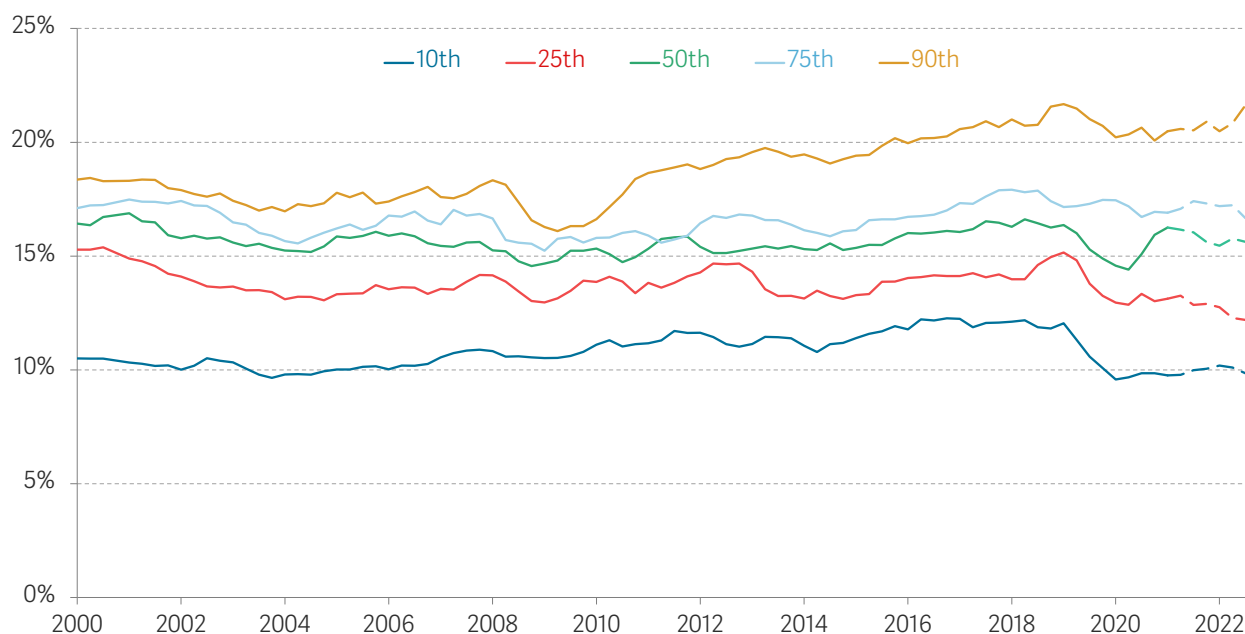
But while our exposure to trade through manufacturing jobs has clearly declined, our overall exposure through our jobs has not. As shown in Figure 2, the trade exposure of British workers has remained remarkably flat. The exposure of jobs to international trade here is measured as the weighted average trade intensity of the sectors in which workers are employed over time, with trade intensity measured as total trade divided by total output.⁵ Given the initially higher concentration and subsequent larger decline in manufacturing jobs among higher-paid workers, as shown in Figure 1, we might expect to see them also experiencing a larger decline in the average trade exposure of their jobs. However, Figure 2 shows that the average trade exposure of workers has changed relatively little across the distribution, except for among the highest-paid workers, who have seen their exposure to trade increase, not decline, since 2000. Workers in the pay decile around the 90th percentile were 18 per cent more exposed to international trade in 2019 than in 2000. This fell to 12 per cent more exposed in 2021, which is the latest trade intensity data available, but this was still heavily affected by disruption from the Covid-19 pandemic. The dotted lines (which hold 2021 trade intensity levels of industries constant) shows that the shifts in sectoral employment post-pandemic have likely pushed up the

⁵ There are limitations to this measure of exposure. Specifically, if certain sectors were importing goods and services for re-export this could boost the trade intensity of the sector on this measure without significantly changing the value of activity that is reliant on international trade. However, this measure does provide insights into trends and allows for meaningful comparisons of trade intensity over time.

trade exposure of the highest-paid jobs (while pushing down on the exposure of those in the 25th percentile of pay).

FIGURE 2: Only the highest-income workers have seen the trade exposure of jobs change significantly

Weighted average trade intensity of the industries of workers by weekly pay deciles: UK



NOTES: The dashed lines post-2021 use the sector tradability indices for 2021 to give index scores for 2022 and 2023, as post-pandemic trade intensity data is not available. Includes deciles around 10th, 25th, 50th, 75th and 90th percentile. Excludes SIC 46 (Wholesale trade services, except of motor vehicles and motorcycles) which has very high volatility (but accounts for only 3 per cent of employment). Takes four-quarter averages to smooth quarter-to-quarter fluctuations.

SOURCE: RF analysis of ONS, Labour Force Survey; ONS, Supply and Use Tables.

So, overall, the level of exposure of workers to international trade has changed little, except for the highest paid. We will return to the risks that maintaining this level of trade exposure presents later. But for now, it's important to emphasise that exposure to international trade is inextricably linked with economic specialisation, and so leads to economic gains. In addition, a higher import intensity enables access to more affordable imports, while higher export intensity translates to increased demand, revenue, and consequently more jobs.

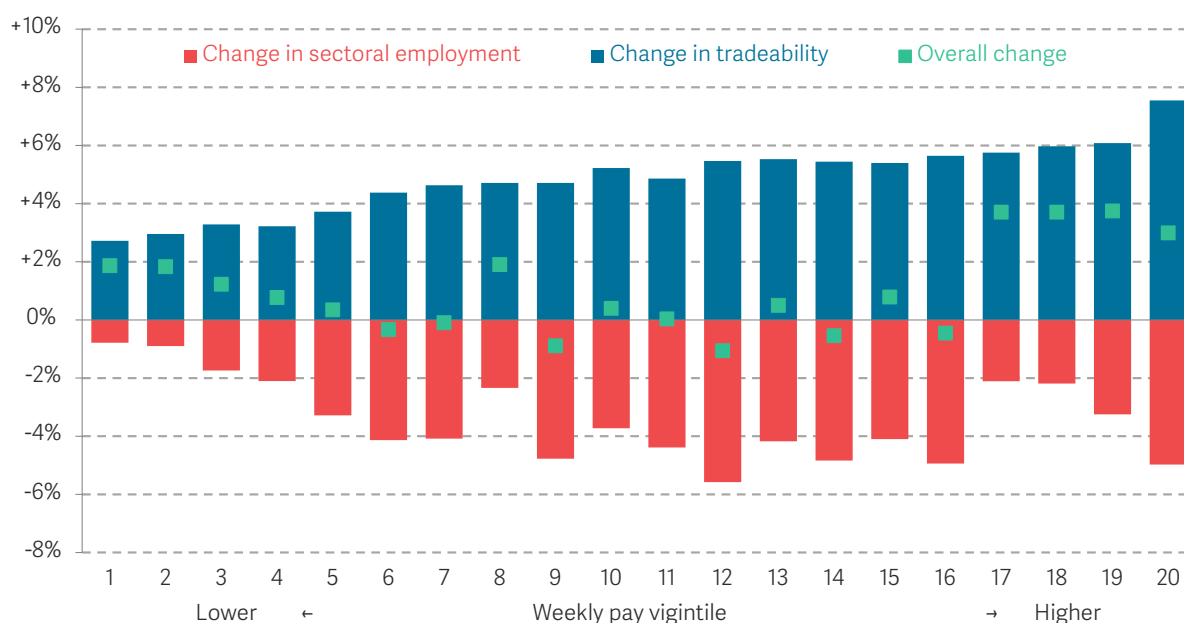
So why has trade exposure held up as trade-intensive manufacturing sectors' employment has declined? Figure 3 shows that the changes in sectoral employment – employment moving from traditionally more-exposed manufacturing to less-exposed service sector jobs – has been pushing down on the average tradability of jobs across the distribution, as we might expect. Consistent with Figure 1, the smallest impact was for lower-paid workers, who were less concentrated in manufacturing jobs initially. However, this impact has been almost entirely offset by increases in the average tradability of

sectors for most workers, and, in the case of the highest-paid workers, more than offset. This means trade accounts for an additional 3p of every £1 of demand on average in the sectors that higher-paid workers are employed in.

This has occurred because over the last 20 years, the UK economy has become increasingly open to trade. This has taken place despite Brexit raising trade barriers with many of the UK's largest trading partners and a slowdown in global trade following the financial crisis.⁶ UK openness not only increased during the fast-paced globalisation pre-financial crisis, where UK openness (total trade as a share of GDP) increased from 53 per cent in 2000 to 57 per cent in 2008, but it continued to rise after this, reaching 65 per cent in 2023.⁷

FIGURE 3: The increase in trade exposure of higher pay workers is the result of the higher tradability of sectors

Change in weighted average tradability index between 2000 and 2019, by weekly pay vigintile: UK



NOTES: Shows the impact on tradability if sectors' employment shares are held constant at 2000 levels and the impact if tradability scores were held constant at 2000 levels.

SOURCE: RF analysis of ONS, Labour Force Survey; ONS, Supply and Use Tables.

While manufacturing became more import-intensive, professional services sectors became more export-oriented

The UK's rising openness has been the result of increases in both the import and the export intensity of the economy on average. But Figure 4 shows that workers' exposure

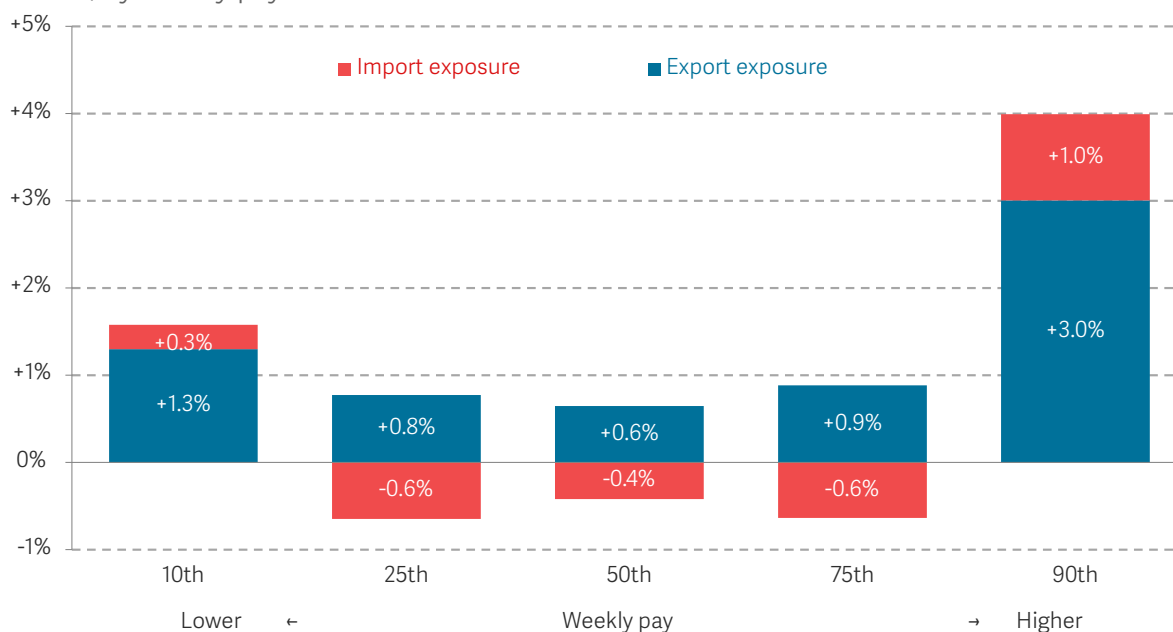
⁶ Annual average global trade growth was 6 per cent between 2000 and 2008 and just 2 per cent between 2008 and 2022. World Trade Organization, *Evolution of trade under the WTO: handy statistics*, accessed 16 February 2024.

⁷ R Baldwin, *The peak globalisation myth: Part 4 – Services trade did not peak*, CEPR, September 2022.

to exports has been rising across the pay distribution between 2000 and 2019, while only the lowest- and highest-paid workers experienced an increase in their average import exposure. For workers in the pay deciles around the 25th, 50th and 75th percentile, any higher export exposure was almost entirely offset by falls in their import exposure. For the higher-paid workers that experienced an increase in trade exposure over this period, three-quarters of the overall increase can be attributed to higher export exposure of their jobs, which rose by 3 percentage points.

FIGURE 4: The export exposure of workers has increased across the pay distribution, but by the most for the highest-paid workers

Change in weighted average export and import exposure of workers between 2000 and 2019, by weekly pay decile: UK



NOTES: Include deciles around 10th, 25th, 50th, 75th and 90th percentile.

SOURCE: RF analysis of ONS, Labour Force Survey; ONS, Supply and Use Tables.

Comparing this with 2021 trade intensity, the trends were generally similar except the average import exposure fell for all workers with the fall for the lowest-paid workers more than offsetting the rise in export intensity (and so overall trade exposure fell between 2000 and 2021). This suggests that the disruption from the pandemic hit the import intensity of jobs more than the export intensity.

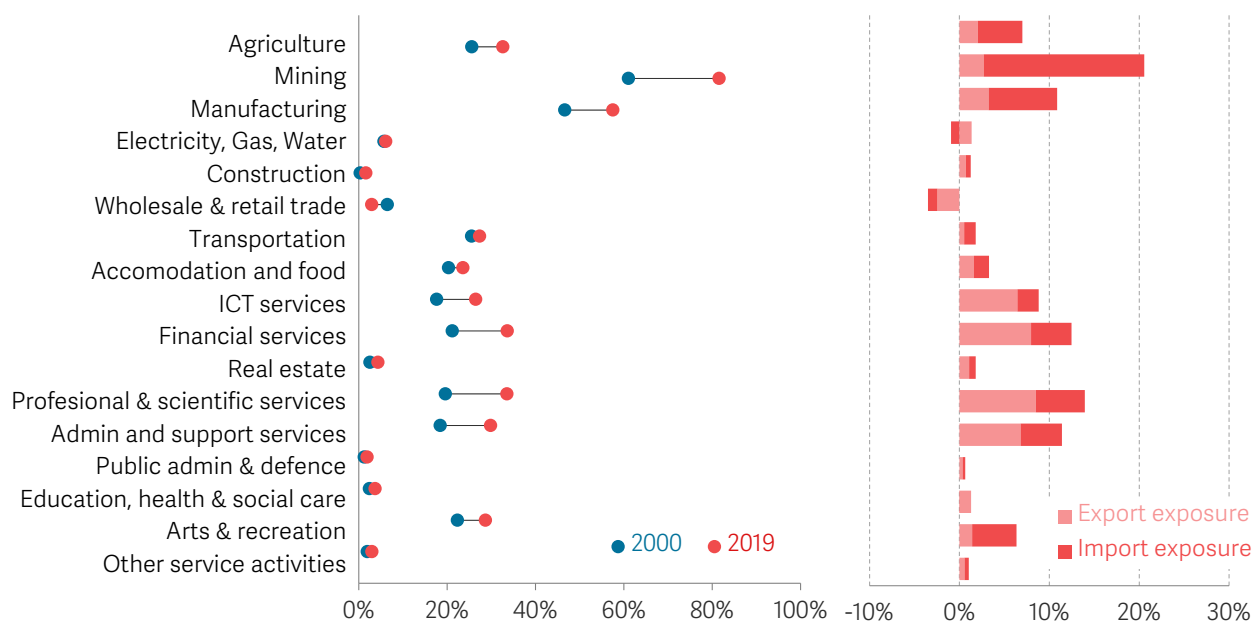
So, what was driving up workers' export exposure? Figure 5 shows that while manufacturing sectors were becoming more import-intensive (as import competition increased), the UK's growing professional services sectors were becoming more export-oriented.

The inflow of manufacturing imports has boosted the trade intensity of manufacturing, with mining and agriculture also seeing a sharp rise in import exposure. But the impact of this on the overall import exposure of workers was mitigated by employment in all these sectors shrinking (except in support activities for mining).

On the other hand, employment in, and the trade intensity of, many professional services sectors have been growing hand in hand. Unlike in manufacturing, where the UK runs a trade deficit, the UK actually exports more services than it imports and so growth in employment in these sectors pushes up export exposure. But as shown in Figure 5, several high value-added service sectors, including financial, professional and scientific and ICT services, also saw their trade intensity increase, driven predominantly by a rise in the export, not import, exposure of these sectors.

FIGURE 5: Services sectors have become more exposed to trade, but particularly to exports

Average tradability of industries (exports and imports divided by total supply) in 2000 and 2019 (left panel) and the breakdown of the change between export and import exposure (right panel): UK



SOURCE: ONS, Supply and Use Tables.

As shown in Figure 5, manufacturing (and mining) remains the most trade-intensive part of the economy. However, in line with global services trade growth outstripping goods, by 2019 several services sectors in the UK had started to close the export intensity gap with manufacturing.⁸ In 2000, manufacturing was almost 50 per cent more export-intensive than professional services and almost double as export-intensive as ICT services. But by

⁸ See, for example, Figure 16 showing global services trade growth has outpaced goods in: S Bhalotia et al., [Trading Up: The role of the post-Brexit trade approach in the UK's economic strategy](#), Resolution Foundation, June 2023.

2019, this had fallen to just 6 per cent and 39 per cent more export-intensive respectively. And in 2019, the UK's financial services industry was a more export-intensive sector than manufacturing on this measure.

Overall, the number of industries that had high export exposure (exports over total supply exceeded 25 per cent) increased, rising from 15 to 22 (out of 105) between 2000 and 2019.⁹ And so too did the share of workers in these high-export intensity industries – which increased from 17 per cent to 20 per cent between 2000 and 2019. As a result, the exposure of UK jobs to international trade has become less concentrated in pockets of the ('physical stuff-producing') economy.

The regional variation of workers' trade exposure has fallen

The overall trade exposure of workers has changed little in the past 20 years, yet the exposure of various sectors has changed. Figure 6 shows how this has impacted the trade exposure of workers across different regions. As more sectors have become exposed to trade, the variation in regional exposure has generally fallen. But the West Midlands now stands out among regions as having the highest trade exposure for median-pay workers, illustrative of its above average manufacturing employment share. Inner London saw the biggest increase in tradability across both lower- and higher-paid workers between 2000 and 2019, driven by the increased tradability of professional services sectors.¹⁰

This assessment assumes that the trade intensity of sectors in different regions is the same. But it is worth noting that the recent experience has been that London has dominated UK services trade, and so this may underestimate the growth in trade exposure of London-based workers since 2000.¹¹

So, despite the fall in the risks associated with manufacturing workers' trade exposure, UK workers remain as exposed to international trade overall as they were at the start of the century. This is because the move of workers away from more-tradable manufacturing sectors has been more than offset by globalisation over this period, driving up the trade intensity of the sectors where workers are now employed, in particular the rise of the export intensity of professional services.

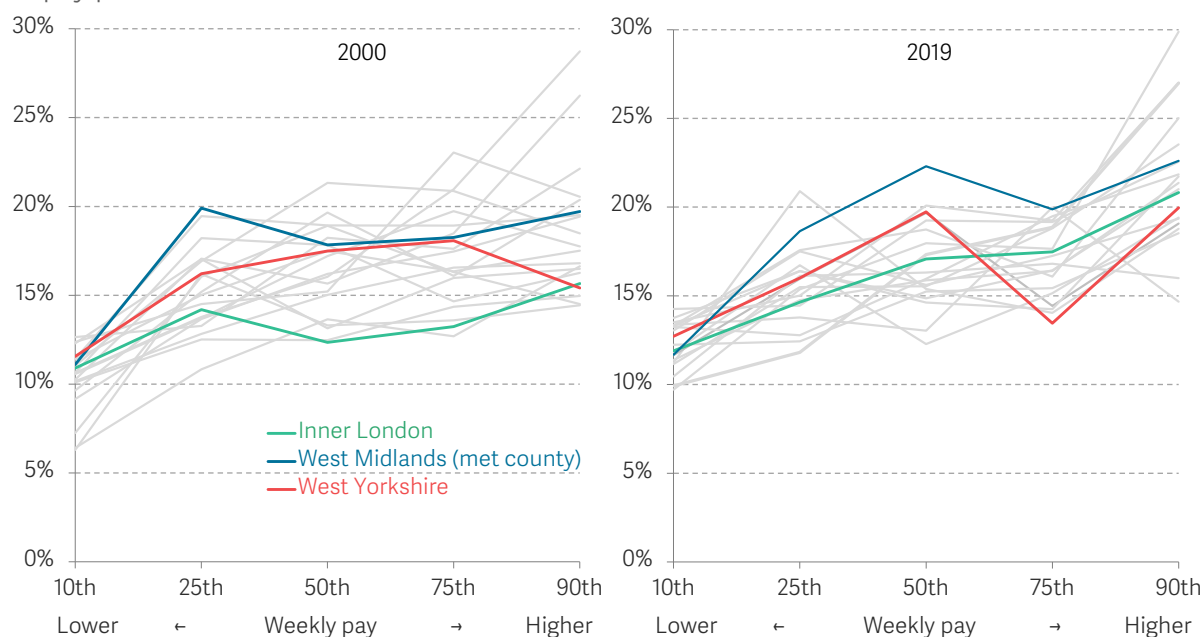
⁹ Analysis based on supply use table industries categorisation (mainly at the SIC two-digit level), with 105 total categories.

¹⁰ E Fry & W Barlow, [Local roots of trade routes: The UK's regional services trade over time](#), Resolution Foundation, January 2024.

¹¹ E Fry & W Barlow, [Local roots of trade routes: The UK's regional services trade over time](#), Resolution Foundation, January 2024.

FIGURE 6: Regional dispersion has generally fallen, with the West Midlands now an outlier for median earners

Average trade exposure of workers living in different regions in 2000 and 2019, by weekly pay percentile: UK



NOTES: Include deciles around 10, 25, 50, 75 and 90th percentile. Assumes sectors' trade exposure (total trade as a proportion of total demand) is the same in all regions.

SOURCE: RF analysis of ONS, Labour Force Survey; ONS, Supply and Use Tables.

British families now spend much more on imports than in the past

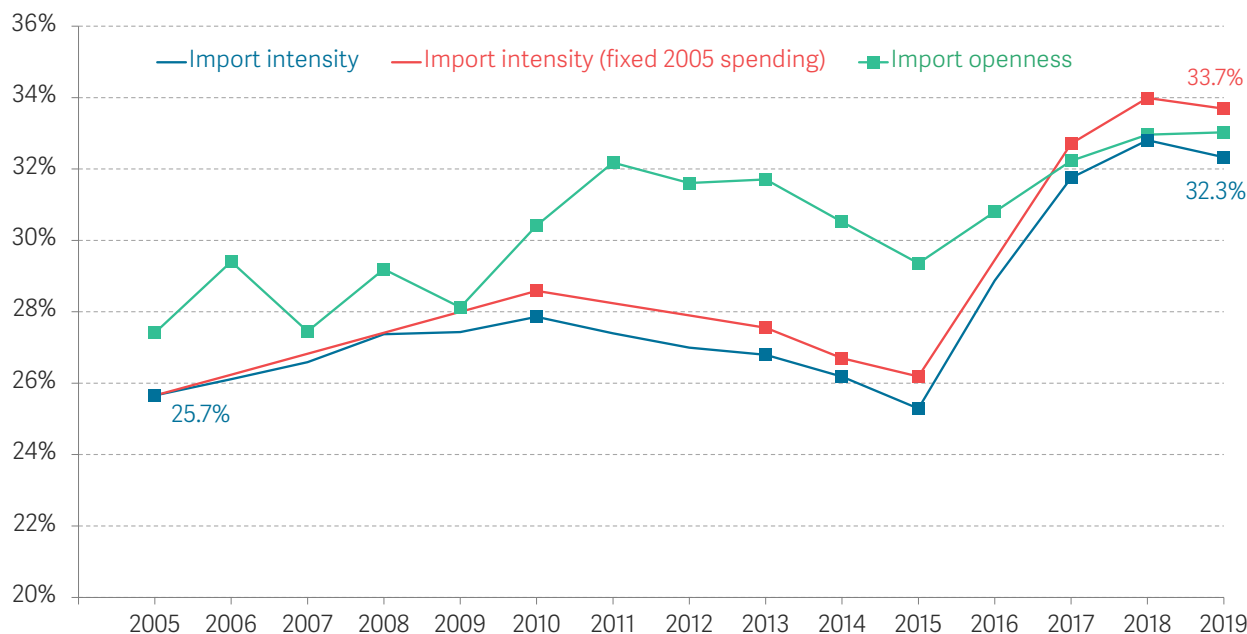
It is not just through their jobs that Britons' lives are impacted by international trade – it also plays a vital role in what we spend our money on. As the import intensity of the economy has increased, so too has people's consumption baskets, as shown in Figure 7. In 2005, just over a quarter (25.7 per cent) of the value of goods and services consumed in the UK came from abroad. By 2019, this had grown by 6.6 percentage points to around a third (32.3 per cent).¹²

As with jobs, there are offsetting impacts at play. While the average import intensity of goods and services was increasing in line with Britain becoming more open, consumers were changing their consumption patterns. Specifically, they were shifting their consumption from higher- to lower-import intensity goods and services. Figure 13 shows that if consumption patterns had remained constant, the import intensity of the economy would have increased another 1.4 percentage points to 33.7 per cent.

¹² Analysis replicates the approach taken by the ONS here to calculate indirect import intensity by sector. ONS, [Economic review: January 2018](#), January 2018.

FIGURE 7: The import intensity of consumption has grown, but it has been partially offset by changing spending patterns

Import intensity of consumption with changing spending patterns and fixed 2005 spending and openness to imports (imports of goods and services as a share of GDP): UK



NOTES: Data points show years where input output tables are available to calculate import intensity of household consumption. In the years between these points, import intensity is extrapolated. Excludes consumption of package holidays as no conversion from CPA to COICOP is available.
SOURCE: RF analysis of ONS, Input output tables and supply use tables and The Living Costs and Food Survey (LCFS), World Bank Open Data (openness).

A rise in the import intensity of consumption ultimately means that consumers will be more exposed to global shocks. There are a number of shocks that can impact global trade and import prices, ranging from conflicts (as we've seen recently following Russia's invasion of Ukraine) to extreme weather events (for example, droughts or floods that destroy a country or regions harvest), and policy changes (such as the implementation of export bans, as seen during the pandemic, or sanctions).

While exposure to these shocks may negatively impact consumers when they materialise, higher exposure to imports per se is not bad news for consumers. The risks facing consumers have changed, rather than increased, and the reduced exposure to domestic shocks could even reduce overall volatility faced by consumers.¹³ For example, while extreme weather overseas that affects our imported food affects us more than before, as consumers we are less exposed to shocks resulting in domestic crop failure.

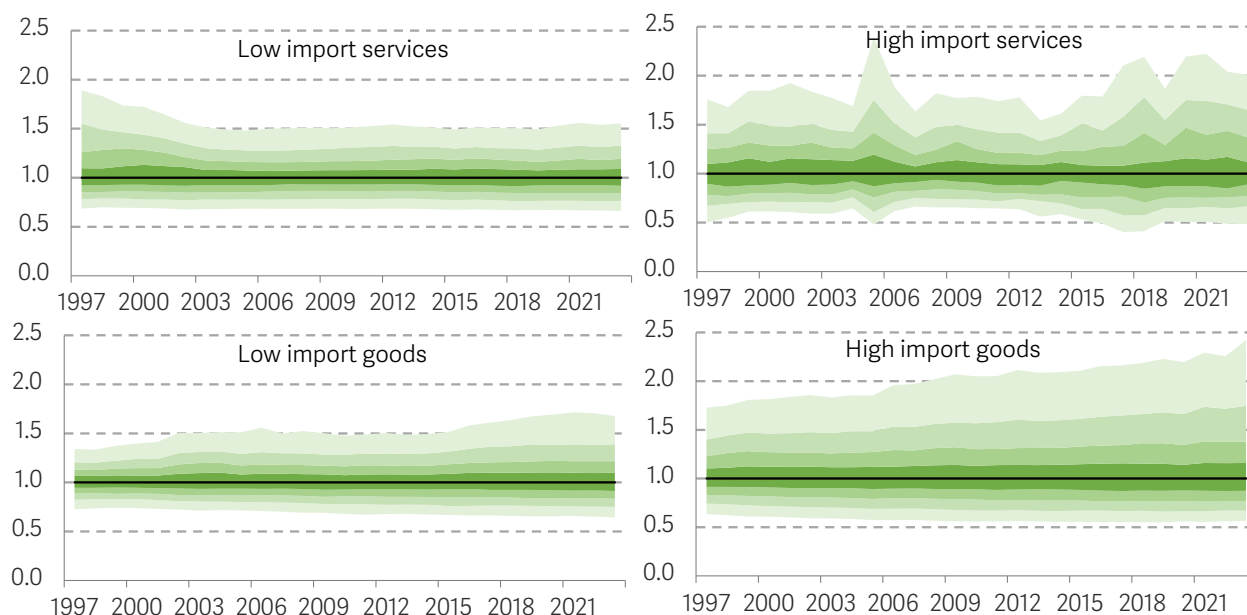
The higher import intensity of consumption suggests that consumers are now presented with more choice and cheaper varieties than in the past. Figure 8 shows that import intensive goods and services products do have larger price dispersions on average,

¹³ F Caselli et al., *Diversification through Trade*, CEPR Discussion Paper No. DP10775, August 2015.

suggesting imports are providing more variety within products. In the past couple of decades price dispersion has increased more at the top end for import intensive goods (more choice for higher-income consumers) and at the bottom for services (cheaper-imported varieties for lower-income consumers).

FIGURE 8: High import intensive products offer more choice to consumers

Price variation (showing deciles) around normalised price (median price = 1) of goods and services in the CPI basket: Q1 1988 to Q3 2023, UK



NOTES: We are grateful to Richard Davies, LSE, for providing cleaned data by decile.

SOURCE: RF analysis of ONS, CPI micro data.

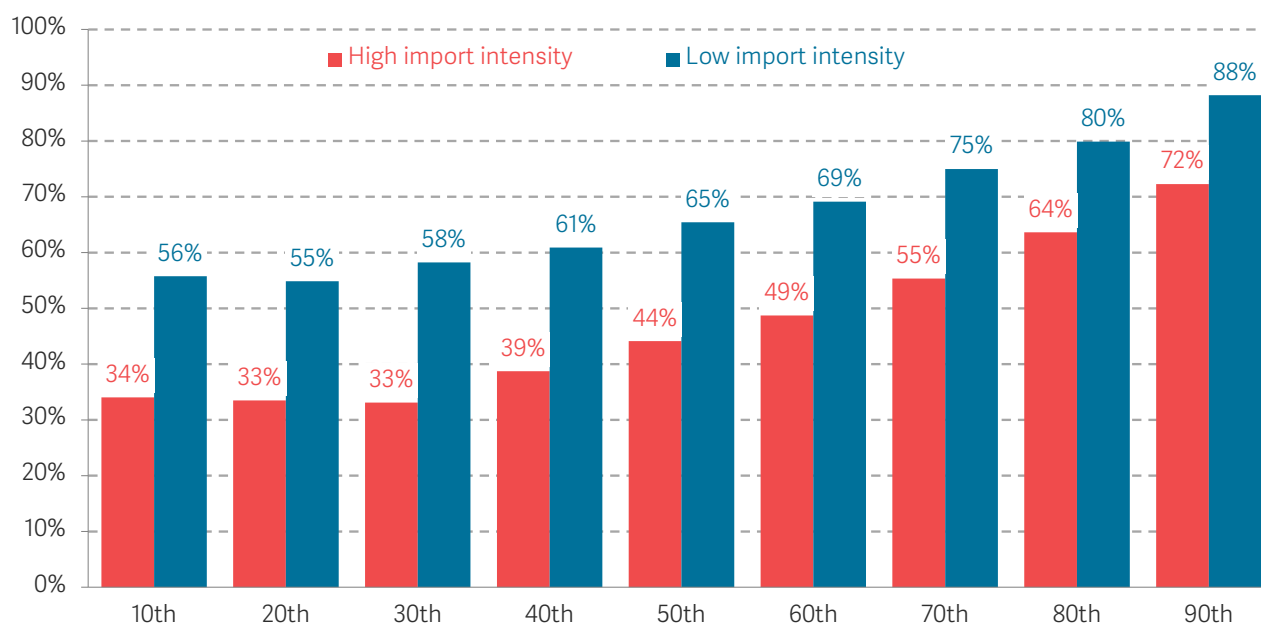
Figure 9 provides further evidence that the higher-import exposure of consumption has in fact brought considerable benefits to consumers, particularly lower-income consumers. The median price of highly-import-intensive goods rose just 44 per cent compared with 65 per cent on average for less-import-intensive goods over the last two decades (between 2002 and 2022).¹⁴ Yet this gap was even larger at the lower end of the price distribution, where the lowest decile of prices for highly-import-intensive goods rose just 34 per cent, compared with 56 per cent for less import intensive goods.¹⁵ The increasing price dispersion and resulting lower inflation of highly imported consumer products will have generated substantial living-standards gains for lower income consumers. For example, the influx of imported clothing imports over the past 20 years (for example from China) has contributed to prices in the lower half of the distribution for clothing not increasing at all since 2002.

¹⁴ Highly-import-intensive goods are defined as goods with an import intensity of above 25% based on ONS weighted import intensities for 2010, lower import intensive goods have an import intensity of 25% or below.

¹⁵ This tends to hold across different thresholds of high import intensity. Higher-import-intensive goods experienced lower inflation than lower import intensive goods, particularly at the lower end of the price distribution.

FIGURE 9: Imports have kept prices down for lower income households

Average price increase of goods at each price decile between 2002 and 2022: UK



NOTES: We are grateful to Richard Davies, LSE, for providing cleaned data by decile.

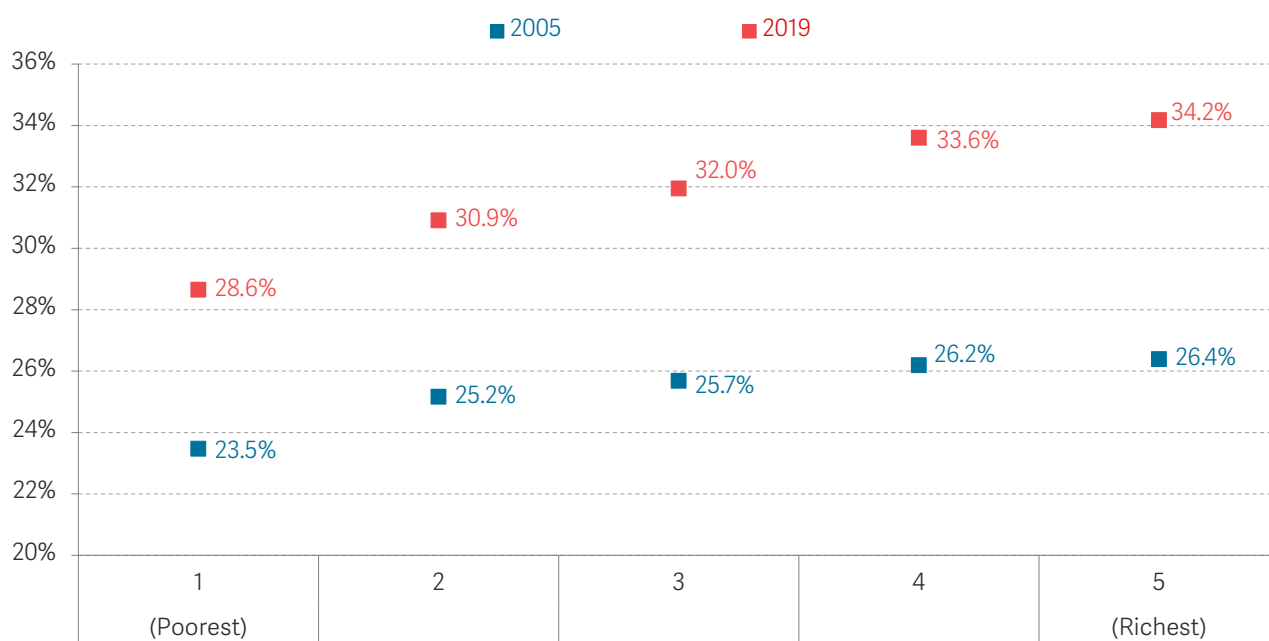
SOURCE: RF analysis of ONS, CPI micro data.

Lower-income households have seen their import share of consumption increase by less because of rising housing costs

The increase in the exposure to trade through imported consumption was experienced by people across the income distribution. However, Figure 10 shows that lower-income households had lower initial exposure to imported consumption. In 2005, 23.5 per cent of the poorest fifth of households' consumption was imported, compared to 26.4 per cent for the richest fifth. And, since 2005, this gap has increased, as lower-income households experienced smaller increases in the import intensity of their consumption. Between 2005 and 2019 the poorest fifth of households saw their import share rise to 28.6 per cent, a rise of 5.2 percentage points, but the richest households import share rose by 7.8 percentage points, to 34.2 per cent.

FIGURE 10: Consumption has become more import intensive across income quintiles

Import share of consumption by income quintile in 2005 and 2019: UK



NOTES: Excludes consumption of package holidays as no conversion from CPA to COICOP is available.
 SOURCE: RF analysis of ONS, Input output tables and supply use tables and ONS, The Living Costs and Food Survey (LCFS).

The growing gap between low- and high-income consumers is being driven by changes in consumption patterns across the distribution (rather than bigger increases in the import intensity of products consumed to a greater extent by higher income consumers).

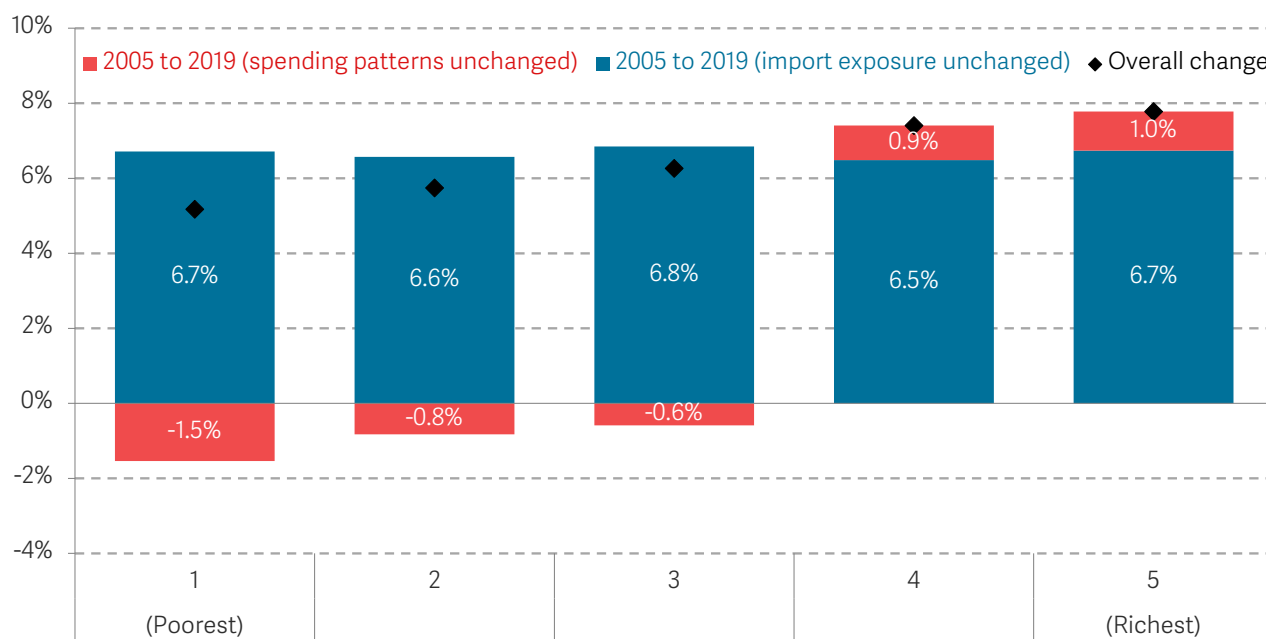
Figure 11 shows that, if spending patterns were held constant at 2005 levels, then there would be very little difference in the change in import intensity across income levels, with all rising between 6.5 and 8.8 percentage points.

The changing consumption patterns, and growing gap in import exposure, can be attributed to a single cause: rising housing costs for lower income households. As the number of households in the social rented sector has fallen, and rental prices have increased, rent has increased as a share of consumption for lower-income households.¹⁶ Between 2005 and 2019, rent increased from 12 per cent to 18 per cent of consumption for lower-income households (in the bottom fifth), but increased by less than 1 percentage point for the richest-fifth of households.

¹⁶ F Odamtten & D Tomlinson, *Housing Outlook Q3 2022*, Resolution Foundation, September 2022.

FIGURE 11: Import intensity of consumption has grown, but this was partially offset by the changing spending patterns of lower income households

Change in import share of consumption by income quintile between 2005 and 2019: UK



NOTES: Shows the change in the import share of consumption between 2005 and 2019, actual vs if spending patterns or import exposure had remained unchanged between 2005 and 2019. Excludes consumption of package holidays as no conversion from CPA to COICOP is available.

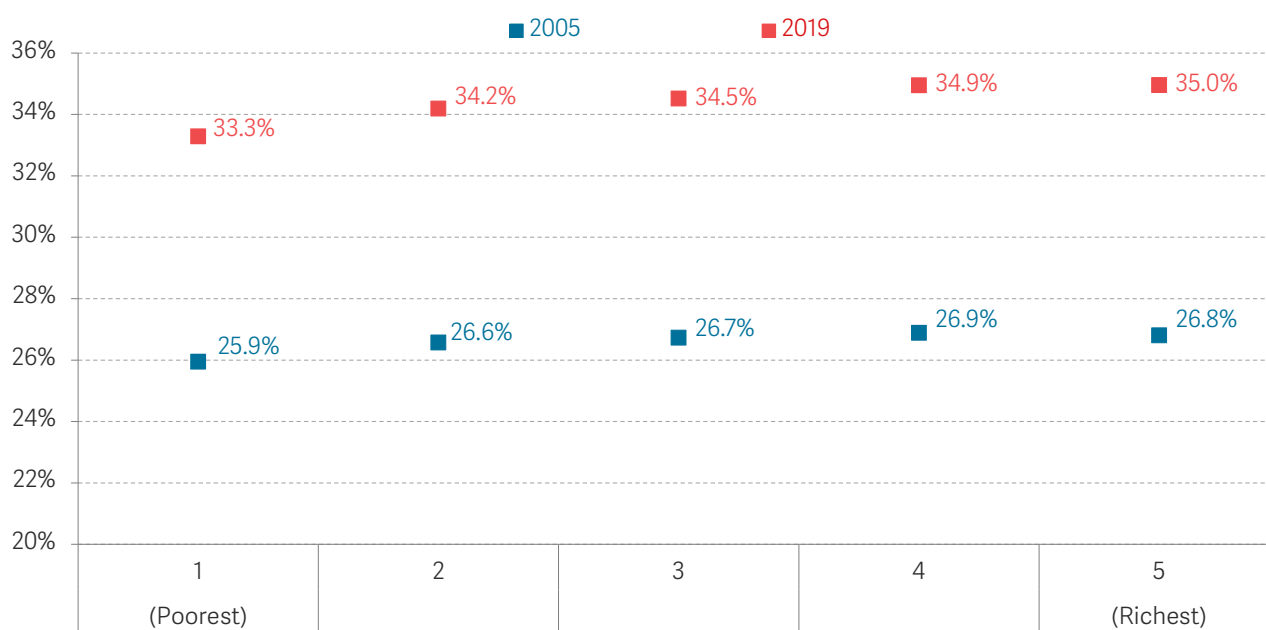
SOURCE: RF analysis of ONS, Input output tables and supply use tables and ONS, The Living Costs and Food Survey (LCFS).

As rent is predominantly domestic rather than imported consumption, the larger and rising share of rent in lower-income households' consumption baskets reduces the import intensity of their consumption. If you remove rent, there are very little differences in the import exposure of consumption across households and in the change in import intensity over time, as shown by Figure 12. Excluding rent, the import intensity of consumption rose by 7.3 percentage points for the lowest-income households and by 8.1 percentage points for the highest income consumers.

So, overall, globalisation and the rise in the openness of the UK to imports, has pushed up the exposure of households to trade through their imported consumption. But preferences and domestic prices have shifted, most notably the rising price of housing, which has pushed in the other direction, making consumption less import intensive than it would otherwise have been. The increased openness (within effects) has outweighed the impact of changing consumption (between effects) for all income levels. As lower income households experienced a much larger increase in housing costs, they had the biggest offsetting effect on their total import intensity of consumption.

FIGURE 12: Import intensity of non-rent consumption is similar across consumers

Import share of consumption, excluding rents, by income quintile in 2005 and 2019: UK



NOTES: Estimates import intensity of all consumption excluding actual rents paid by tenants (COICOP 04.1.1). Excludes consumption of package holidays as no conversion from CPA to COICOP is available.

SOURCE: ONS, Input output tables and supply use tables and The Living Costs and Food Survey (LCFS).

Despite the apparent lower import share of consumption for those on lower incomes, families in this group may be more exposed to import-price volatility

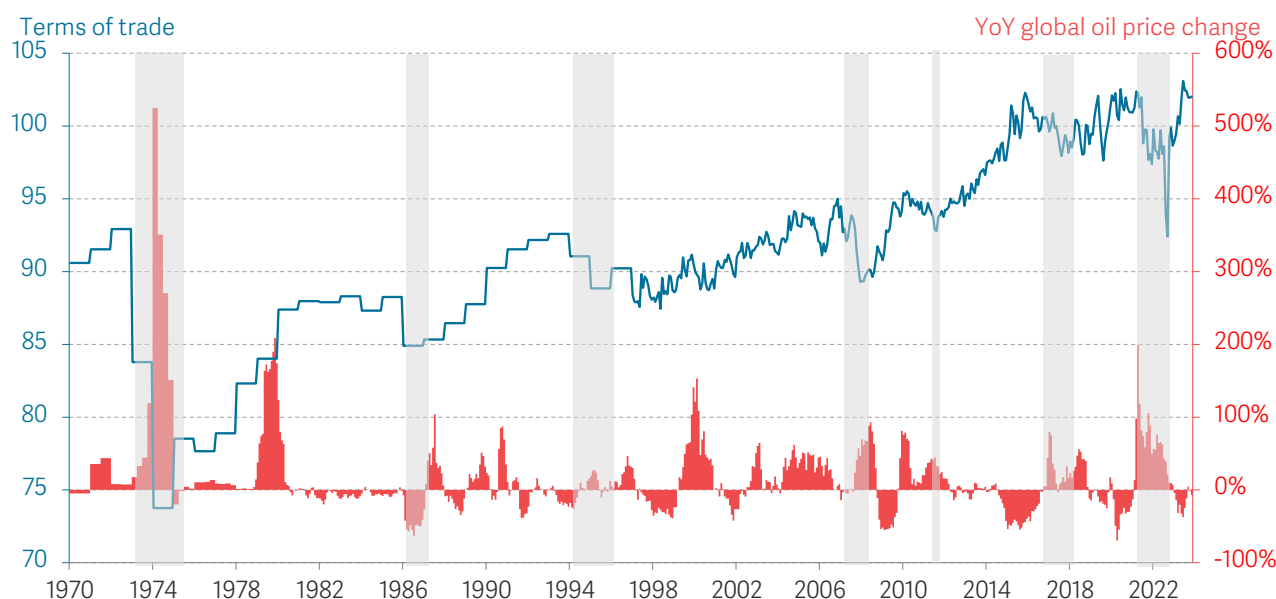
The higher import share of consumption of higher-income families might lead one to believe that such consumers are more exposed to international trade. But such a conclusion misses two, key aspects of spending. First, the imported consumption of those on lower incomes is more heavily weighted to volatile, essential spending categories (particularly food and fuel). And second, families in this group consume cheaper varieties of products, the prices of which are more sensitive to trade shocks.

The first of these reasons can help to explain our recent experience of living through a substantial terms-of-trade shock and finding that it was lower-income households hit hardest. Terms of trade shocks are not new. As shown by Figure 13, oil prices shocks have accounted for many, although not all, of the largest terms of trade shocks the UK has faced in the past half a century. These include the oil price shocks in the 1970's, the late 1980's (when the UK was net exporter and so experienced a positive terms-of-trade shock), and the most recent episode (which saw energy prices spike in 2022).¹⁷

¹⁷ There have also been several terms of trade adjustments which were not linked to oil price shocks over this period, specifically in the 1990's (following Black Wednesday), in 2008 as a result of the Global Financial Crisis, in 2011 linked to the Euro debt crisis and finally in 2016 after the Brexit referendum.

FIGURE 13: Many (but not all) of the UK's recent terms of trade shock have been related to global oil price fluctuations

Terms of trade and global crude oil price: UK



NOTES: Uses Crude oil, average prices.

SOURCE: World Bank Commodity Price Data, ONS monthly trade data (January 1997 – November 2023), OECD annual terms of trade data (1970-1996).

This indicates that global fuel prices are particularly volatile, which is further supported by the finding that fuel related consumption accounts for many of the products in the CPI basket with the highest price volatility.¹⁸ As there is also a high correlation between food and fuel prices, exposure to both of these categories of essential consumption will increase exposure to volatile import prices.¹⁹ Figure 14 shows that these essential consumption categories account for a substantially larger share of consumption for lower-income households, with food and fuels accounting for just over a third (36 per cent) of poorest households imported consumption compared to just under a quarter (24 per cent) for the richest fifth in 2019. This more volatile but essential imported consumption accounts for 12 per cent of non-housing consumption for the poorest fifth and 8 per cent for richest fifth on consumers.²⁰ As this consumption is 'essential' it is also much harder for households to substitute away from when prices rise. So, although lower-income households' consumption is less import intensive, they are more exposed to the import prices which are most volatile.²¹

¹⁸ ONS, *Volatile components and their role in the Consumer Prices Index*, July 2019.

¹⁹ C Revoredo-Giha, F Akaichi & M Costa-Font, *Producer price inflation for food and drink: the role of fuel hikes and the war in Ukraine*, LSE, April 2022.

²⁰ Non-housing consumption excludes consumption of rent.

²¹ The transition to net zero could change this picture substantially, reducing consumers exposure to volatile oil prices and dependency on a handful of concentrated energy producers. The UK aims to become a net exporter of energy and the transition will also likely change the consumption patterns across income groups, for example the transition to electric cars would reduce the share of consumption on energy for higher income households. HM Government, *Powering Up Britain – Energy Security Plan*, March 2023.

FIGURE 14: Oil and food consumption account for a larger share of lower income households' consumption spending

Share of imported consumption by category of spending: 2019, UK



NOTES: Fuels for personal transport are included under fuel and heating, not under transport to better show direct exposure to global oil price shocks. Uses 2019 spending to avoid inflated spending affected by the 2022 energy price shock and pandemic.

SOURCE: ONS, Input output tables and supply use tables and ONS, The Living Costs and Food Survey (LCFS).

When terms-of-trade shocks hit the UK, they tend to reduce the dispersion of prices for import-intensive goods at the bottom end of the distribution, but not at the top. In effect, cheaper varieties change in price by more than average or expensive varieties. This gives rise to the second reason for believing that lower-income consumers may be more exposed to import-price volatility. As we expect lower-income consumers to be disproportionately consuming products from the lower end of the price distribution, they will be more exposed to this additional source of import price volatility.²² This can be seen in Figure 15 which shows the cumulative, estimated response of the p20:p50 price dispersion (the percentage difference between the 20th percentile price and the median price) in the 18 months following a 2 per cent year-on-year decline in the terms of trade (equivalent to the peak of euro-area debt crisis or post-referendum shocks).²³ There was no significant impact of a terms-of-trade shock on the lower end of the price distribution

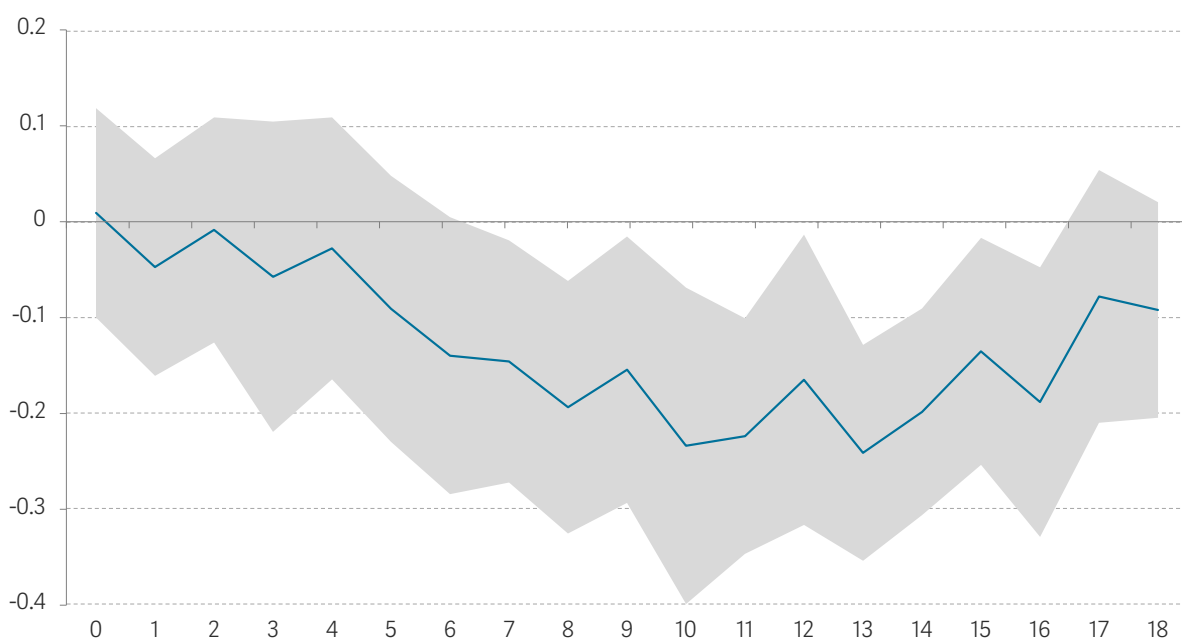
²² This cannot be directly assessed using the CPI microdata as details of the end consumer of different varieties are not available. There is evidence of lower income household spending longer 'shopping around' indicative this is true. It is also consistent with observed behaviour in terms of substitution between different products which can be measured. F Steen, S Ulsaker & T Aursland, *Unemployment Shocks, Cyclical Prices and Shopping Behavior*, NHH Dept. of Economics Discussion Paper No. 03/2021, January 2021.

²³ The result is based on a panel regression of the CPI micro data (using the cleaned price deciles data set from Richard Davies available on his [website](#)). The panel regression computed the cumulative impulse response function of the annual change in the terms of trade on price variation (the percentage differences between the 20th and 80th price decile and the median price) of high import intensive goods (goods with import intensity above 25 per cent based on the ONS, 2010 import intensity estimates). The regression included one-year lags of the price variation and terms of trade shock variables. Results were not significant on the price dispersion of services consumption.

for low import intensity goods, nor on the upper end of the price distribution (p50:p80 price dispersion ratio). The scale of this would be reducing the price variation by up to 70 per cent at its peak impact (13 months after the shock).²⁴

FIGURE 15: Dispersion at the lower end of the price distribution condenses following terms of trade shocks

Cumulative response function of the p20:p50 price ratio (lower price dispersion measure) for high import intensive products to a 2 per cent fall in the terms of trade, by months since the shock: UK, 1997-2023



NOTES: Chart shows the cumulative impulse response function, where the impulse is a terms of trade shock and the response is the month-on-month change in the p20:p50 price ratio for high import intensive goods. High import intensive products are defined as those with import intensity in 2010 of greater than 25 per cent (based on ONS import intensity).

SOURCE: RF analysis of CPI micro data, deciles data cleaned by Richard Davies, LSE, ONS monthly trade data (January 1997 to November 2023), OECD annual terms of trade data (1970-1996).

This impact on import-intensive goods' prices can be explained in two ways. First, it could be because imports are more concentrated in the lower half of the price distribution. By necessity our earlier assessment of the imported share of consumption assumes the imported share of consumption of a specific product is the same for all households. But Figure 9, above, showed that the biggest difference in inflation rates for low- and high-import-intensive products was at the bottom end of the distribution, suggesting cheaper varieties could be more import intensive. Alternatively, it could be that higher-priced imports are more able to absorb cost changes in their margins. Whether one, or both, explanations are true, lower-income households are still more likely be exposed to the cheaper-imported varieties' prices (for example as they are more likely to buy the 'own-

²⁴ These results are sensitive to the specification of the model used and some alternative specifications of the model do not give the same significant results, in particular, using the monthly terms of trade shocks and a panel var specification did not give a significant result.

brand' baked beans, rather than branded versions) that are more exposed to more price sensitive imports.

As trade exposure has changed, the nature of our exposure to trade shocks has also changed

With an improved understanding of how trade exposure has evolved, we are better equipped to think through how trade risks could impact different groups in the UK. The current focal point has been manufacturing workers and the risks to their jobs from further import competition shocks – essentially a second China shock (or 'China 2.0'). But such concerns don't consider the risks facing consumers, who have become considerably more exposed to trade over this period. It also misses that even the shocks facing workers have changed, with global demand shocks, for example as seen during the Covid-19 pandemic, affecting workers across a wider range of sectors.

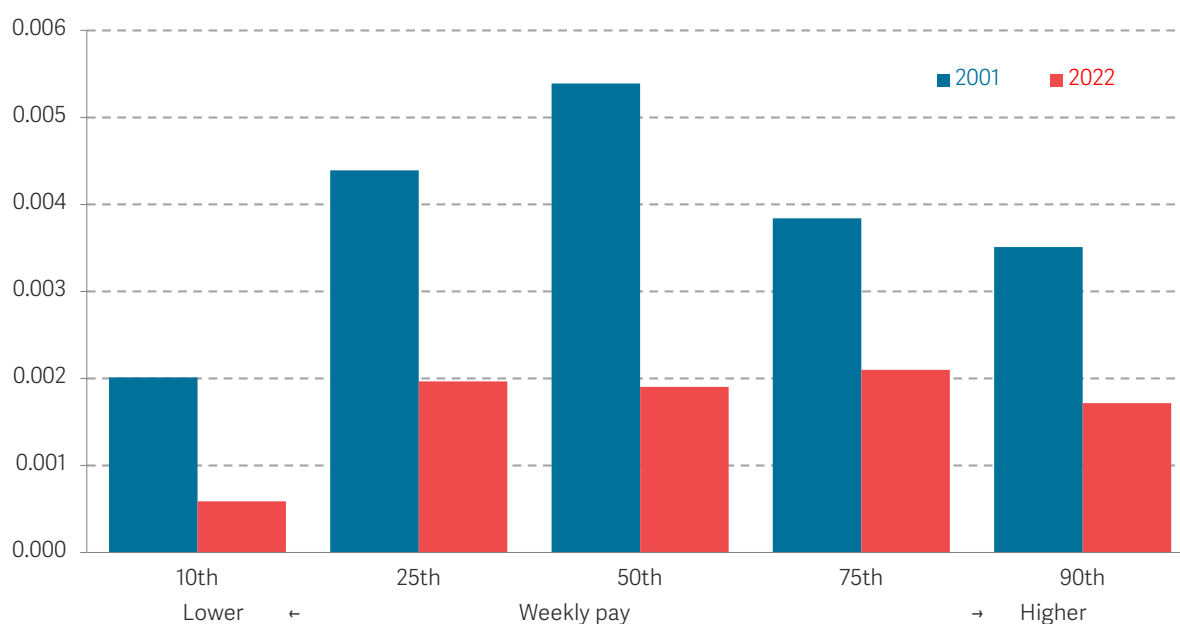
UK workers are less exposed to a 'China-style' shock but import competition could hit different sectors in future

The China shock of the early 2000s was characterised by a surge in Chinese imports across a number of manufacturing sectors, particularly into lower-value-added manufacturing sectors, which contributed to the reduction in manufacturing employment discussed above. This experience has left some concerned that a second shock of this kind (for example, if another major economy rapidly expanded its manufacturing capacity) could wipe out more manufacturing jobs in the UK.

However, Figure 16 shows the average import exposure to such a shock, given the change to the sectors where workers are employed, would be considerably lower, with the biggest reduction in exposure among lower and median pay workers. The average exposure has fallen as there are fewer manufacturing workers that would be affected at all, with those that remain more concentrated in higher value-added manufacturing sectors which faced a smaller import shock. For example, import exposure was more than 10 times the size in wearing apparel as it was for high value-added sectors, such as chemicals and motor vehicles. A surge in these lower value-added manufacturing sectors are increasingly likely to hurt workers that produce the goods currently imported into the UK, over domestic producers. Likewise, increased competition for our exports in other markets would also have a much smaller negative impact as the UK's exports has already lost its market share.

FIGURE 16: Exposure to China style shock is lower for all income groups and has become more weighted to higher income groups

Weighted average exposure of workers in each pay percentile to 'China shock' in 2001 and 2022, UK



NOTES: Uses a measure of import exposure from the China shock (change in imports over expenditure in each sector) to estimate exposure to the trade shock in 2001 (start of the 'China shock') compared to 2022, weighted by workers employment shares in affected and unaffected sectors.

SOURCE: ONS, LFS and J De Lyon & J Paulo Pessoa, Worker and firm responses to trade shocks: The UK-China case, LSE Centre for Economic Performance, January 2021.

But import competition shocks could look very different from the China shock in future – and do still remain a risk to workers. The sectors that have seen the import share increasing fastest in the five years between 2014 and 2019 include metal manufacturing sectors and certain transport manufacturing sectors, so this could represent the sectors where workers face the largest current trade risks. But, of course, it would be future shocks that materialise in high-employment and/ or highly export-oriented sectors that would hurt British workers most – which increasingly today is professional services sectors.

The diversified exposure across sectors means more systemic risk from global demand shocks

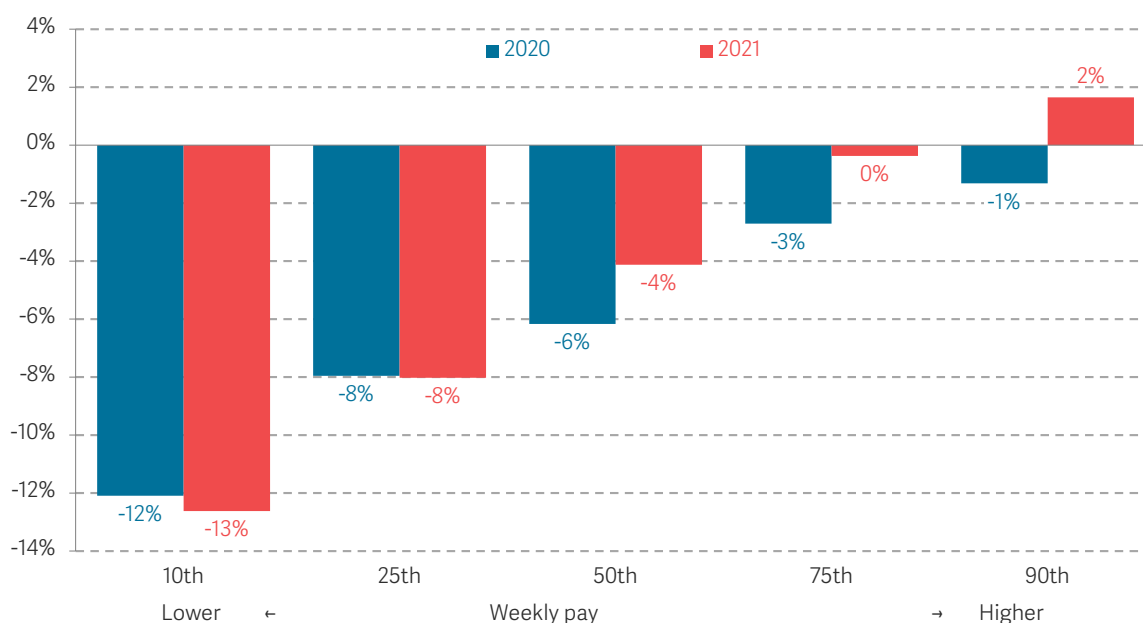
The risks to workers associated with global-demand shocks have received significantly less attention. But the increased export exposure of workers in professional services sectors has left workers in many sectors of the economy far more exposed to this type of shock today. The Covid-19 pandemic showed that global demand can rapidly decline and, importantly given the UK's specialisation in exporting services, unlike the China shock,

the pandemic hit global demand for services harder than goods sectors: services exports from OECD countries fell by twice as much as the value of goods exports (16.7 per cent compared to 8.2 per cent).

The Covid-19 demand shock hit service trade particularly hard, but particularly those services which were dependent on physical travel, such as tourism related services. These sectors disproportionately employ lower-paid workers, and, as such, it was lower-paid workers that felt the largest effects of the demand shock. The average export intensity of the jobs that employed low pay workers in 2018 fell by 12 and 13 per cent between 2018 and 2020 and 2021 respectively, with a much smaller average export exposure shocks to higher pay workers.

FIGURE 17: The pandemic shock hit tourism and so impacted lower pay sectors more

Percentage change in export intensity between 2019 and 2020 and 2021 of workers in each pay percentile (based on 2019 sectoral employment): UK



NOTES: Measures the change in the export intensity of the sectors employing workers in 2019 in different pay percentiles. Pay categories include the deciles around 10th, 25th, 50th, 75th and 90th percentiles.
SOURCE: ONS, LFS and Supply and Use Tables, 1997-2021.

Again, the nature of global demand shocks can vary. If a future global-demand shock fell instead predominantly on professional services, as was the case following the financial crisis, it could be the UK's (relatively) newly-exposed, higher-paid workers who would face the largest negative consequences. Between 2008 and 2010, financial-services' export exposure fell by 14 per cent. This shock to what was one of the UK's most export-intensive

professional services sectors, hit the exposure of higher income workers harder, and the overall export exposure of workers in the 90th pay decile experienced a 7 per cent decline between 2008 and 2010, compared to an average decline of just 1 per cent.

The public discourse on trade should recognise the risks we face now, not those from two decades ago

Overall, then, while the experience of falls in manufacturing jobs in the early 2000s has created angst about the impact of increased openness, the truth is that, the average Briton's exposure to international trade has increased, not fallen, since then. For workers, it is particularly striking that the exposure of workers has remained relatively unchanged even as manufacturing employment fell. In addition, families now consume a significantly higher share of imported goods and services. This comes with benefits but increases our exposure to terms-of-trade shocks as the cost of living crisis has made clear. This underscores the importance of reassessing how exposure to various trade shocks has evolved, to anticipate where the costs of trade adjustments may lie in the future, rather than dwelling on past anxieties about the exposure of workers in one important, but declining, industry – manufacturing.

The direction of travel for trade from here is uncertain. 'Ensuring economic security and supply chain resilience' has become prominent in the current Government's trade policy agenda. But the solutions put forward have opposite conclusions: home shoring (i.e. less trade), or diversifying into new markets (more trade).²⁵ The reality is that our exposure to international trade is most likely here to stay – attempts to retreat to a less open economy in future will come at the cost of good jobs in service sectors and lower productivity overall. This means we need a different conversation about what higher levels of exposure imply for individuals and the country as a whole. That means recognising that while we may feel more exposed to shocks from the rest of the world, the truth is that those risks have changed in nature and are more diversified than in the past. This may look like more, but less painful shocks. And, for policy makers, our increased openness means that it will not always be easy to compensate those affected by trade shocks. This is because redistributing between the winners and losers will not always be possible, not least because those who gain might be in other countries, as was largely the case after the sharp rise in energy prices following Russia's invasion of Ukraine.

²⁵ Department of Business and Trade, [Supply chain resilience](#), November 2022.

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For more information on this report, contact:

Sophie Hale

Principal Economist

sophie.hale@resolutionfoundation.org

A diagonal aerial photograph of a busy port, showing numerous colorful shipping containers stacked in rows, several large cargo ships docked at the pier, and various port infrastructure like cranes and roads. The image is partially obscured by a white diagonal line.

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2 Queen Anne's Gate

London SW1H 9AA

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