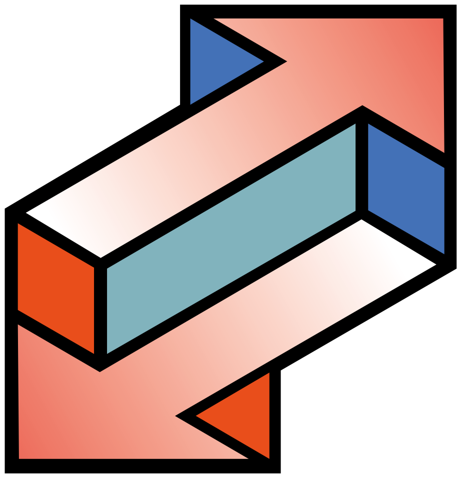
The full economic consequences of the UK's vote to leave the European Union will not be realised for many years. But as **Thomas Sampson** makes clear, two years after the referendum, we can already detect how Brexit is starting to affect the UK economy.

The price of Brexit



Brexit is yet to happen, but the economic effects of voting to leave are already being felt. How can the vote have an economic impact while the UK is still part of the European Union (EU)? Economic behaviour depends not only on what is happening now, but what people and businesses expect to happen in the future. And the referendum changed expectations about the future of the UK's economic relations with the EU and the rest of the world.

The shift in expectations has two components. First, uncertainty has increased. Even now, it remains unclear what exactly the UK's relationship with the EU will look like after Brexit and how policy-making in the UK will change. This uncertainty makes businesses less willing to invest in risky new projects, leading to lower output growth.

Second, the referendum led to a decline in the expected future openness of the UK to trade, investment and immigration with the EU. This has made the UK a less attractive destination for foreign investment and reduced the incentives for firms to invest in expanding UK-EU trade.

Even before Brexit happens, the UK is paying a price for voting to leave the EU

The most immediate impact of the Brexit vote was on financial markets. The day after the referendum, the FTSE 100 stock market index fell by 3.8% and the pound depreciated sharply.

Davies and Studnicka (2017) study movements of share prices in the days following the referendum and find that companies with greater exposure to the UK and EU markets suffered larger share price falls than businesses with a more global focus. This implies that investors expected the consequences of the leave vote to be particularly severe for firms whose operations straddle the UK-EU border.

The stock market downturn was short-lived with investors benefitting after the Bank of England responded to the vote by loosening monetary policy in August 2016 through a 25 basis point cut in interest rates and renewed quantitative easing. But the fall in the value of sterling was more persistent.

Between 23 and 27 June 2016, sterling depreciated by 11% against the US dollar and 8% against the euro – and it has remained around 10% below its pre-referendum value ever since. The depreciation of sterling suggests that financial markets have lowered their expectations of future UK economic growth.

A fall in the pound increases the cost of imports into the UK and makes UK exports to other countries cheaper. More expensive imports drive up the cost of living. Indeed, Consumer Price Index (CPI) inflation rose dramatically after the referendum: from 0.4% in June 2016 to 3% in January 2018.

It would be a mistake to attribute this entire increase to Brexit. Inflation has also increased in the United States and the euro area over the same period, so we need to distinguish the impact of the Brexit vote from other factors that affect inflation, such as oil price movements and cost increases resulting from faster growth in the global economy.

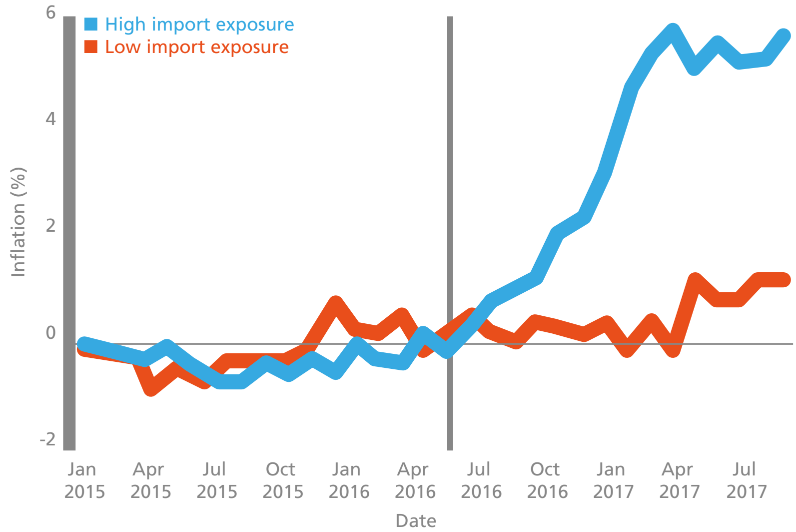
In Breinlich et al (2017), we study how product-level inflation since the referendum depends on the share of imports in consumer expenditure. For example, tradable goods such as fruit, wine and clothing have high import shares, while services like restaurants and hotels depend less on imports.

If the Brexit-induced decline in the pound is responsible for higher inflation, we would expect products with larger import shares to experience bigger price rises. And this is exactly what the data show.

Figure 1 plots inflation before and after the referendum for two groups of products that differ in terms of their import shares. Following the referendum, there is a rapid increase in inflation for the high import exposure group, while the rise in inflation is slower and more muted for the low exposure group. This demonstrates that the depreciation of sterling did indeed lead to higher inflation.

After disentangling the effect of higher import costs from other factors that affect prices, we estimate that the Brexit vote increased inflation by

Figure 1:
Import shares and inflation, 2015-17



Source: Breinlich et al, 2017.

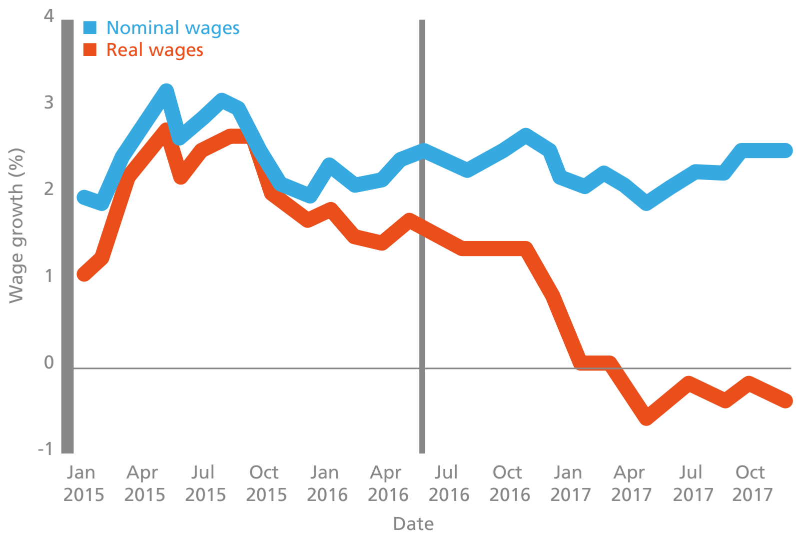
1.7 percentage points in the year following the referendum. Statistical estimates always come with a margin of error, so it would be wise to view the precise magnitude of this effect with some caution. But there is no doubt that the rise has been substantial.

An increase in inflation does not necessarily make consumers worse-off if it is accompanied by higher incomes. But as Figure 2 shows, nominal wage growth has not risen since the referendum. Consequently, higher inflation has led to a decline in real wages and a fall in living standards. Our estimates imply that by June 2017, the vote to leave the EU was costing the average UK household £404 per year.

Has the depreciation of sterling had any positive economic effects to offset the costs of higher inflation? By making UK exports cheaper, the fall in the pound gives UK firms a competitive advantage in foreign markets, which could lead to higher exports.

Higher inflation resulting from the depreciation of sterling has led to a decline in real wages and a fall in living standards

Figure 2:
Nominal and real wage growth, 2015-17



Notes: Wage growth is the percentage change year on year in the three-month average of Average Weekly Earnings – Total Pay. Series KAC3 for nominal wages, A3WW for real wages.
Source: EARN01 February 2018, Office for National Statistics.

At the same time, the likelihood of future increases in trade barriers between the UK and the EU may make firms reluctant to invest in increasing their export capacity. And for firms with global supply chains, the fall in sterling also raises import costs, mitigating the competitive advantage of the depreciation.

When sterling declines, the value of the UK's imports and exports measured in pounds automatically rises. But this does not mean the volume of trade has increased and, so far, there is no evidence that it has. Trade flows are usually slow to adjust to exchange rate movements, so it will probably be another year or two before we know whether the fall in sterling has boosted exports.

We can also look at the impact of the referendum on GDP growth. Figure 3 shows GDP growth in the UK compared with the six other members of the G7 group of advanced economies. In the year prior to the vote, UK growth was 0.6 percentage points higher than the average for other G7 members, while in 2017 it was 0.9 percentage points lower. This is a crude comparison but it does suggest that the referendum result reduced UK growth.

A more sophisticated version of this same approach has been undertaken by Born et al (2017). They construct a control group of countries whose average growth exactly matches UK growth prior to the Brexit vote and then compare GDP growth in the UK and the control group following the referendum.

They conclude that by the third quarter of 2017, UK GDP was 1.3 percentage points lower than it would have been if the UK had not voted for Brexit. This implies a decrease in output of approximately £500 million per week during the quarter.

Prior to the referendum, there was a broad consensus among economists that leaving the EU would, in the long run, reduce UK living standards. It is too soon to evaluate the accuracy of these forecasts and as time passes, we will learn much more about how the Brexit vote has affected the UK economy. But even before Brexit happens, the evidence on inflation, wages and output already shows that the UK is paying a price for voting to leave the EU.

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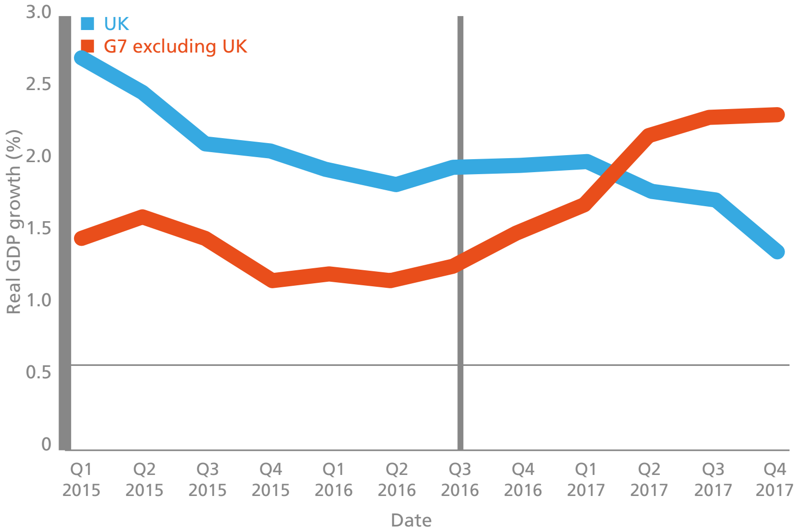
Further reading

Benjamin Born, Gernot Muller, Moritz Schularick and Petr Sedlacek (2017) 'The Economic Consequences of the Brexit Vote', Centre for Macroeconomics Discussion Paper No. 38 (http://www.centreformacroeconomics.ac.uk/Discussion-Papers/2017/CFMDP2017-38-Paper.pdf).

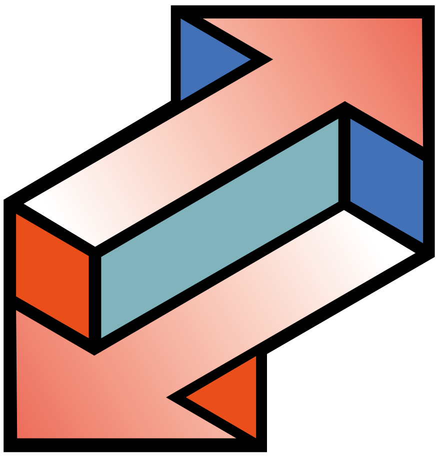
Holger Breinlich, Elsa Leromain, Dennis Novy and Thomas Sampson (2017) 'The Brexit Vote, Inflation and UK Living Standards', CEP Brexit Analysis No. 11 (http://cep.lse.ac.uk/pubs/download/brexit11.pdf).

Ronald B Davies and Zuzanna Studnicka (2017) 'The Heterogeneous Impact of Brexit: Early Indications from the FTSE', CESIfo Working Paper No. 6478.

Figure 3:
Real GDP growth, 2015-17



Notes: Growth rate of real GDP (expenditure-based) compared to same quarter of previous year, seasonally adjusted. G7 – excluding the UK – comprises Canada, France, Germany, Italy, Japan and the United States.
Source: Quarterly National Accounts, OECD and Statistics Canada.



UK economic growth has slowed relative to other G7 countries