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Why is uncertainty so damaging for the economy?

The Covid-19 pandemic and policy responses have made life much more uncertain for everyone – individuals, organisations and governments. What impact does all this uncertainty have on the economy and how can policy-makers respond?

The Covid-19 pandemic and policy responses have led to a huge increase in economic uncertainty about the future. For how long will we have to continue with social distancing? What impact will social distancing have on our normally daily activities? Will a vaccine be discovered? Such questions create uncertainty for everyone:

- For individuals, there is uncertainty about their future work prospects, their incomes, the value of their savings and what they will be able to spend their money on.

Related Questions

- For firms, there is uncertainty about who will buy their products, whether they can source essential inputs and what changes they will have to make to their workplaces to accommodate social distancing requirements.
- For governments, there is a large increase in uncertainty about future revenue and spending requirements, as well as how people and firms will behave and what effects that will have on policy.

What impact does all this uncertainty have on the economy? There is a large body of research evidence showing that increasing uncertainty has negative effects on the economy. This suggests that the economic effects of Covid-19 could be bigger and more persistent than the immediate disruption. This research also indicates that anything that governments can do to reduce uncertainty – by making clear policy statements and by providing insurance – might help to mitigate these effects.

Why does uncertainty affect the economy?

Many economic decisions are made on the basis of expected outcomes. For example, firms make investments on the basis of expected demand for what they sell; individuals make the decision to move house on the basis of expected wellbeing; students invest in their education at least partly in the expectation of earning a higher wage when they get a job; and investors direct funds to research into new products on the basis of the expected gains from innovation.

In order to make these decisions, people have to form a view about what the future might look like. As the saying goes, 'Prediction is very difficult, especially about the future'. (The source of this quote is uncertain: it has been variously attributed to US baseball legend Yogi Berra, Danish physicist and Nobel laureate Danish Niels Bohr, and film producer Samuel Goldwyn).

There is always uncertainty about the future – but large increases in uncertainty of the kind that we are now experiencing are thought to confound the ability to form a confident view about the future. This means that it is harder to make these forward-looking decisions.

The main channel through which economists think that increased uncertainty affects the economy is often summarised as 'the option value of waiting' (Dixit and Pindyck (https://press.princeton.edu/books/hardcover/9780691034102/investment-under-uncertainty), 1994). In other words, faced with an increasingly uncertain future, it makes sense to wait until you have more certainty to make an important decision.

This means that firms wait to make an investment, delay research projects or defer hiring until the economy's likely future path is clearer. It might also slow down the reallocation of resources to more productive uses for similar reasons.

Households are also affected by uncertainty. Faced with uncertainty about future job security and income, households may save as a precautionary reaction (Giavazzi and McMahon (https://www.mitpressjournals.org/doi/abs/10.1162/REST_a_00158?journalCode=rest), 2012). This reduces their willingness to spend, as well as having a detrimental effect on wellbeing. Lower spending – or the possibility of it – makes firms less certain of the profitability of projects that rely on consumer spending (directly or indirectly).

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In addition, just as firms make investments in research, individuals invest in their own 'human capital', largely through education and training. If this is costly, uncertainty about the future payoffs will dampen individuals' incentives to make the investment.

There is also a financial channel that feeds back into these effects on firms and households. Greater uncertainty is associated with greater risk. This means that investors will now require higher compensation to lend to households or companies, and similarly for equity or other investments in companies. This means that the rise in uncertainty makes projects or spending more expensive, which is likely to reduce the amount of economic activity further (Christiano et al (https://www.aeaweb.org/articles?id=10.1257/aer.104.1.27), 2014).

There is a counter to this effect: for some types of projects, greater uncertainty may actually generate a race to invest in order to be ready to take advantage of potentially very high market prices in the future (Bar-Ilan and Strange (https://www.jstor.org/stable/pdf/2118214.pdf?seq=1), 1996).

For this to happen, some very specific conditions are required: there need to be long lags from investment to being ready to trade but with low costs of abandoning the project. Only then does it make sense to initiate the project and, as greater certainty about the future price develops, either continue to invest (likely high prices) or abandon (likely low prices).

A possible, and likely partial, counter effect is the potential for unintended 'positive spillovers' from being forced to try to innovate or develop new sources of income (Harford (http://timharford.com/books/adapt/), 2011). Such forced experimentation can give rise to new products, new approaches to work or even new industries.

What does evidence from economic research tell us?

There is considerable empirical evidence that the negative effects of uncertainty dominate. There is a body of research showing these effects using a range of different measures of uncertainty. These include stock market volatility (Bloom (https://onlinelibrary.wiley.com/doi/abs/10.3982/ECTA6248), 2009), perceived uncertainty measured using reports in the media (Baker et al (https://academic.oup.com/qje/article/131/4/1593/2468873), 2016), and forecaster uncertainty and disagreement (Jurado et al (https://www.aeaweb.org/articles?id=10.1257/aer.20131193), 2013).

Disentangling the precise channels is difficult because of the interaction between the effects. Nonetheless, the peer-reviewed evidence suggests that, on average, higher uncertainty:

- Reduces investment.
- Reduces firm hiring activity and total employment.
- Reduces firm-level and aggregate productivity.
- Slows the pass-through from patents.
- Increases financial costs such as borrowing costs.
- Raises stock market volatility.
- Increases household saving.

Some of these effects are particularly large in more vulnerable sectors, which depend on the source of the uncertainty. More recently, research has focused on how uncertainty about policy can have similar effects as other types of uncertainty (see below).

Technical note
: we use the lay definition of uncertainty, which combines what academics call risk (something that is not certain to happen but for which it is possible to assign probabilities to the possible outcomes – the 'known unknowns') and Knightian uncertainty (the 'unknown unknowns').

How reliable is the evidence?

One of the big challenges is that there is not a single type of uncertainty. Different events that raise overall uncertainty are concentrated in different sectors of the economy; and it is natural to think that the aggregate impact of different shocks will differ. The consistent finding of negative effects of uncertainty despite the use of many different measures of uncertainty goes some way to alleviating concerns that the results are shock- or measure-specific.

The other challenge in empirical analysis of uncertainty is that it typically rises during recessions. This means that when uncertainty increases, it tends to be at times when the expectation is likely to be negatively affected. As a result, researchers have to try to account for the possibility that the negative effects of uncertainty are actually the effect of the recession, which also causes uncertainty to increase. It is again comforting that different studies address these possible reverse causation ('endogeneity') problems in different ways and still find similar results.

The policy response to uncertainty

Policy-makers such as governments and central banks can use their policy tools, including targeted spending and tax adjustments, to try to alleviate the effects of uncertainty. But uncertainty about policy choices may also contribute

to uncertainty.

What's more, there is growing evidence that such policy uncertainty is detrimental to the economy in the same way as other forms of uncertainty. For example, temporary tax credits for research and development (R&D) in the United States had little impact until they were made permanent, indicating that firms were reluctant to undertake long-term investment projects while the incentives were possibly going to be short-term.

Given the unprecedented level of support currently being provided to the economy, it is inevitable that the government will reduce the extent of fiscal stimulus through combinations of reduced spending and/or higher taxation once the country is through the worst of the crisis. Uncertainty about the timing, scale and specific form that this adjustment may take could contribute to the unwillingness of companies and households to spend today.

Of course, uncertainty about policy is not the same as policy uncertainty. Most economic policies react to underlying economic conditions. As such, if we are uncertain about those underlying conditions, then it is impossible to be certain what precisely the policy will be. Pure policy uncertainty reflects the situation when there is uncertainty about how the policy would react even in a specific realisation of the state of the economy.

While it is impossible to remove all economic uncertainty, reducing policy uncertainty as much as possible could actually benefit the UK economy. In this respect, clear policy objectives, well-thought-out plans and specific guiding principles are important to guide how the policy would react to different states of the world. They can reduce much of the damage from policy uncertainty.

Even when the government cannot change the risks faced by businesses or people, it has an important role to play in reducing the impact of those risks on their behaviour.

For example, unemployment benefits provide a floor for how far income would fall if someone were suddenly made unemployed. Similarly, the NHS provides insurance against someone facing a large healthcare bill in the event of becoming ill. These forms of insurance reduce the need for all individuals to save for an eventuality that, thankfully, only affects a relatively small number of people at any one time.

What research is underway?

Covid-19 is associated with a huge increase in uncertainty about the future. It combines non-economic uncertainty, economic uncertainty and policy uncertainty.

The most immediate uncertainties are related to public health and control of the virus. The social distancing measures and lockdown are public health policies, and therefore uncertainty about when lockdown might end are related to progress on finding treatments, a vaccine and expanding health sector capacity to deal with further outbreaks.

But even when the health crisis subsides, economic uncertainty will remain elevated. Will people be allowed to travel? Even if so, will they be willing to resume normal activities, such as eating in restaurants? How will these effects differ across sectors? Are some sectors likely to be permanently reduced? How long will displaced workers remain unemployed?

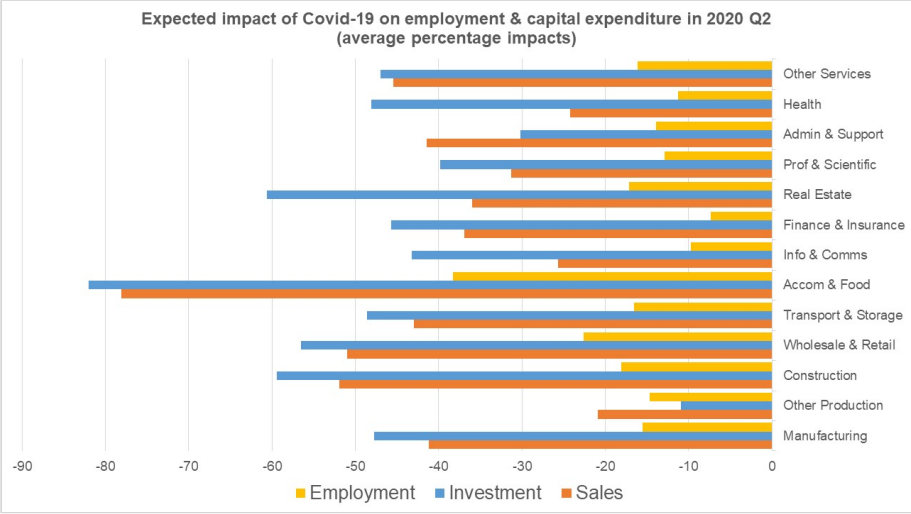
These uncertainties are also affected by policy uncertainties. How long will, or can, the government support affected sectors and workers? What form will any fiscal adjustment take after the health crisis? How much, if at all, will taxes be increased and which parts of society will bear the burden?

To get a measure of the current level of uncertainty, the Decision Maker Panel (https://decisionmakerpanel.co.uk/) (a representative survey of chief financial officers in UK companies) asked about the effect of Covid-19 in March and April 2020. The main findings are:

- In March 2020, Covid-19 was **the largest** source of uncertainty for 50.1% of respondents. This rose to 86.2% in April, and 99.9% felt it was **an** important source of uncertainty for their firm.
- In April, the average expected effect of Covid-19 in the second quarter of 2020 was a reduction of 44% in sales, 50% lower investment and an 18% decline in employment.
- 57% of respondents expect the Covid-19 uncertainty to remain unresolved by September 2020.

Figure 1 shows how the effects differ across sectors. Accommodation and Food industries, which largely rely on social interactions and proximity of people, expect to see the largest drops in sales, investment spending and employment. But the chart also highlights the role of the government's employment protection scheme; even in the industries that are hardest hit, the reduction in employment is a much smaller percentage decline than that of sales or investment expectations.

Figure 1: April 2020 Responses to the Decision Maker Panel Survey



Source: Decision Maker Panel Survey

The Decision Maker Panel will continue to monitor the evolution of firm-level uncertainty about Covid-19, as well as other sources of uncertainty such as Brexit, on a monthly basis.

What more can I read?

The economic impact of coronavirus on UK businesses (https://voxeu.org/article/economic-impact-coronavirus-uk-businesses): Early evidence from the Decision Maker Panel: Nicholas Bloom, Philip Bunn, Scarlet Chen, Paul Mizen and Pawel Smietanka report the views of chief financial officers from small, medium and large UK businesses.

Covid-induced economic uncertainty and its consequences (https://voxeu.org/article/covid-induced-economic-uncertainty-and-its-consequences): Scott Baker, Nicholas Bloom, Steven Davis and Stephen Terry seek to quantify the enormous increase in economic uncertainty over the past weeks.

News and uncertainty about the economic fallout of Covid-19 (https://voxeu.org/article/news-and-uncertainty-about-economic-fallout-covid-19): Survey evidence and implications for monetary policy: Alexander Dietrich, Keith Kuester, Gernot Müller and Raphael Schoenle use a survey of US households to show that the expected economic effect is negative, large and highly uncertain.

The Macroeconomics of Uncertainty (http://www.smf.co.uk/wp-content/uploads/2019/02/CAGE-Report-2019.pdf): Michael McMahon's chapter in a CAGE (https://warwick.ac.uk/fac/soc/economics/research/centres/cage)Policy Report notes that while it is impossible to remove all economic uncertainty, reducing the elements of policy uncertainty that are more subject to control by policy-makers can benefit the UK economy.

Who are experts on this issue?

- Nicholas Bloom (https://nbloom.people.stanford.edu/)
- Michael McMahon (https://www.economics.ox.ac.uk/faculty/michael-mcmahon)
- Paul Mizen (https://sites.google.com/site/pdmizen/)
- John Van Reenen (https://mitmgmtfaculty.mit.edu/jvanreenen/)
- Charles Manski (http://faculty.wcas.northwestern.edu/~cfm754/)

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