

Study shows that fluctuating income uncertainty can lead to a downturn

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Prof. Dr. Christian Bayer from the Institute of Macroeconomics and Econometrics and the Hausdorff Center for Mathematics at the University of Bonn. Credit: Barbara Frommann/Uni Bonn

How quickly the economy recovers after an economic shock also depends on the behavior of private households. Using a complex theoretical model, economist Prof. Dr. Christian Bayer from the University of Bonn and his team demonstrated that growing income uncertainty among private households can lead to an economic downturn. The model can also be used to identify the government's options for action and calculate their consequences for the economy: Government investments can stabilize the economy in a similar way to interest rate cuts, but with more favorable distributional effects. The study has now been published in the journal "Econometrica".

Compared to [large corporations](#) and banks with turnovers in the billions, private households may seem like the economic David to a Goliath, but their economic influence should not be underestimated. "If the majority of households make similar economic decisions, this can very well have an impact on the [economy](#) of a country or even worldwide," says Prof. Dr. Christian Bayer from the Institute for Macroeconomics and Econometrics at the University of Bonn. Together with a team of doctoral students, the scientist developed a complex [economic model](#) over many years of persistent research with which he investigated how fluctuations in the [income](#) uncertainty of private households influence the economy. The team of scientists used publicly available economic data from the USA from the 1980s to 2015.

These data illustrate a dynamic development. "The risks of private households fluctuate considerably over time," says Bayer. "We show in our calculations that an increase in income uncertainty can lead to an [economic downturn](#)." On the basis of the data, the researchers demonstrate that rising income uncertainty, for example due to the threat of unemployment or structural change, results in households putting more money aside for a rainy day. If this "precautionary saving" leads to money being piled up at banks and not reinvested, the demand for goods and services is consequently significantly lower. This in turn has a

negative impact on the economy as a whole, because a lack of demand leads to an economic downturn.

Precautionary saving is typical of households with lower incomes. "In contrast, top earners can even benefit from high income uncertainty," says Bayer. This is because the consequence of an economic downturn and the associated decline in demand is often a fall in the prices of houses and apartments. Households that already have a high income and large assets are usually much better protected against income risks, can grab the opportunity when it presents itself and acquire cheap properties that will yield a return in economically better times.

A key question for researchers is how governments can best respond to fluctuating income risks in private households, in order to prevent economic slumps caused by a lack of demand. The scientists calculated various scenarios with their model. The aim of stabilization policy is to avoid private households hoarding money in their accounts and thus stalling demand. "Precautionary saving can be prevented by making it unattractive due to low interest rates," says Bayer. Another possibility is that the state creates investment opportunities for private households that save. "The decisive factor, however, is that the money saved is reinvested to create demand," explains the economist at the University of Bonn. The state then invests on behalf of the money-hoarding savers.

Hypothesis: Build a bridge, then blow it up immediately

In their model, the scientists compared the effects of the two scenarios. If the state puts money into projects such as new roads and bridges, then not only the companies involved have more money in their pockets. The better infrastructure has additional positive effects, such as potential new industrial estates. "However, such additional effects of an investment are

very difficult to assess," explains Bayer. The researchers therefore stayed on the very safe side in their calculations and completely ignored such additional effects. They only considered the direct effect of the investment, as if a bridge were being built and then immediately blown up again.

Surprising result: "The calculations show that such government investments have the same positive impact on the economy as interest rate cuts, but have better distributional effects," reports Bayer. The reason for this is that such economic jump starts by the government keep interest rates high and precautionary saving pays off. This benefits particularly poorer households which, if they save at all, tend to use savings books or standard deposit accounts. At the same time, demand is being boosted by public investment. This means that private households can create a financial cushion by saving, without this damaging the economy.

The European Research Council (ERC) funded the study with a Starting Grant. The work pursues innovative approaches: "We first had to develop suitable mathematical methods to break down the very complex economic relationships into a manageable yet realistic basis," says Bayer, who also works on such sophisticated instruments at the Hausdorff Center for Mathematics (HCM), a Cluster of Excellence at the University of Bonn.

More information: Christian Bayer et al. Precautionary Savings, Illiquid Assets, and the Aggregate Consequences of Shocks to Household Income Risk, *Econometrica* (2019). [DOI: 10.3982/ECTA13601](https://doi.org/10.3982/ECTA13601)

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