

[When Creativity Strikes: News Shocks and Business Cycle Fluctuations](#)

CFM-DP2018-23

Silvia Mirana-Agrippino^{1,2}, Sinem Hacıoğlu Hoke^{1,3} and Kristina Bluwstein¹

¹Bank of England, ² Centre for Macroeconomics, ³ Data Analytics for Finance and Macro (KCL)

The idea that changes in agents' beliefs about the future may be an important driver of economic fluctuations has fascinated many scholars over the years. While the application to technology news is relatively recent, and has been revived following the seminal contributions of Beaudry and Portier (2004, 2006), the insight that changes in agents' expectations about future fundamentals could be a dominant source of economic fluctuations is a long-standing one in Economics (see e.g. Pigou, 1927). The news-driven business cycle hypothesis posits that business cycle fluctuations can arise because of changes in agents' expectations about future economic fundamentals, and absent any actual change in the fundamental themselves. If the arrival of favorable news about future productivity can originate an economic boom, lower than expected realized productivity can set off a bust without any need for a change in productivity having effectively occurred. The plausibility of belief-driven business cycles is however still a hotly debated issue in the literature.

In this paper, we set to answer a slightly different, but related question: 'How does the aggregate economy react to a shock that raises expectations about future productivity growth?' We provide an empirical answer to this question in a rich-information quarterly VAR that incorporates many of the relevant aggregates, such as output, consumption, investment and labor inputs, as well as forward looking variables such as asset prices, interest rates, and consumer expectations. The novelty in our approach resides in the identification of technology news shocks: we construct an external instrument for identification by using the unforecastable component of all monthly utility patent applications filed at the U.S. Patents and Trademark Office (USPTO) over the past thirty years.

Our results show that the pattern of the responses does lend credit to the 'news-view', as arrival of news about future technological improvements triggers a sustained, albeit delayed, economic expansion: output, consumption, investment, hours worked and capacity utilization all rise to peak at the two-year horizon. However, the shock that we recover, is not the main driver of economic fluctuations. At business cycle frequencies, only about a

tenth (on average) of aggregate fluctuations is accounted for by the estimated news shock; importantly, we also find that it only accounts for at most 40% of the variation of TFP in the very long run. The pattern of responses that we recover is consistent with the predictions of New Keynesian models with nominal rigidities, particularly those where such frictions arise due to imperfect common knowledge.