

The Effect of Commodity Price Shocks on Underlying Inflation: The Role of Central Bank Credibility

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Summary

This paper seeks to document and explain the effect of a commodity price shock on underlying core inflation. Why, in many countries, did transitory commodity price shocks used to have such a large and persistent effect on core inflation but have such a small effect now? This paper will show that the reason is that changes in monetary policy, namely the widespread adoption of inflation targeting, has served to better "anchor" long-term inflation expectations.

When setting prices and wages that will remain fixed for some time, firms and workers need to not only factor in prices and costs today, but the expectation of those prices and costs in the future. A transitory increase in commodity prices, like that resulting from a temporary supply shock, may lead to an increase in prices and costs today, but if people know that the increase in prices is temporary, then it will not affect their long-term inflation expectations, and thus will not have much of an effect on price setting decisions. If however people believe that some of the increase in prices may actually be permanent, then they will update their long-term inflation expectations and this new, higher expectation will be incorporated into price and wage setting decisions, leading to higher prices and thus higher underlying core inflation.

In this paper, impulse responses derived from a structural VAR model show that across many countries there was a break in the response of core inflation to a commodity price shock. In an earlier period, a shock to commodity prices would lead to a large and significant increase in core inflation, but in later periods, the effect was insignificant. For the countries in the sample, the break coincides with the adoption of inflation targeting by the central bank.

Inflation targeting is the stated commitment by the central bank to achieve a certain well-defined goal for inflation over the medium- to long-term. Regardless of what happens to inflation today, if the central bank announces an inflation target of $x\%$ and the public believes them, then long-term inflation expectations shouldn't deviate from $x\%$. Thus an announced inflation target should keep long-term inflation expectations from increasing following a temporary increase in commodity prices. An inflation target should anchor inflation expectations.

We construct a large-scale DSGE model with both headline and core inflation, and most significantly, a mechanism whereby fluctuations in inflation caused by purely transitory shocks can become incorporated into long-term inflation expectations. Inflation has a trend and a cyclical component. Wage and price setters cannot distinguish between the two, so a cyclical fluctuation in inflation may be confused for a shift in the trend component. Bayesian estimation reveals that there was a change between the earlier and the later periods in the parameter that governs the anchoring of expectations. Impulse responses derived from simulations of the model show that the observed change in the effect of commodity prices on core inflation is entirely driven by the change in the anchoring of inflation expectations.