

Oil price pass-through into core inflation

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Executive summary

Quantifying the magnitude and establishing the timing of the pass-through of oil price changes to consumer prices is crucial, particularly so because oil prices tend to undergo wide fluctuations. Consider the recent plunge of oil prices from July 2014 to February 2016, from about \$100 per barrel to \$30. What is the effect of such a large swing in oil prices on core inflation? And how long will this effect last? Different answers to this question have very different implications for inflation forecasting, and hence for the stance of monetary policy.

Despite extensive evidence in the literature that changes in the oil price contribute to macroeconomic fluctuations, various authors have shown that the pass-through of oil price changes to core prices has declined since the mid-eighties up to the point that it is very limited if not zero.

In this paper we use a different methodological approach to estimate the oil price pass-through into core consumer prices. Our method is based on Dynamic Factor models and VAR analysis and it allows us to disentangle the direct effect that an oil price change might have on each disaggregate price, from the common effect that an oil price change has on all prices. In practice, we first estimate a dynamic factor model on a panel of disaggregate prices, which allows us to disentangle common changes in disaggregate prices due to macroeconomic fluctuations from idiosyncratic changes due to sector specific characteristics. We next use VAR techniques to estimate the oil price pass-through via the two components, common and idiosyncratic.

We show that an oil price change passes-through core PCE prices only via its effect on the whole economy, while the direct effect via the cost channel is null. As a result, oil price fluctuations have a limited but long lasting effect on core inflation. According to our estimates, the recent plunge of oil prices from July 2014 to February 2016 shaved-off just a couple of tenths of a percentage point from core inflation in both the US and the euro area. Moreover, our analysis mostly confirms the result in the literature whereby the oil price pass-through into core inflation has decreased over time. However, in contrast with part of this literature we always find a significant pass-through.

Our results are different from those available in the literature, because it turns out that common and idiosyncratic dynamics in disaggregate prices have different statistical properties: common

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dynamics are slow moving, idiosyncratic dynamics fast moving and volatile. Therefore, disentangling these two components, which is the novel feature of this paper, is crucial, as in the way the noisy idiosyncratic component does not affect estimation results.

Keywords: Core inflation, oil price, dynamic factor model, pass-through, disaggregate consumer prices.

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