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PRESS RELEASE

Optimal monetary policy response to endogenous oil price fluctuations

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The recent bout of oil price declines has fuelled policy-makers' renewed interest in understanding the macroeconomic effects of oil price fluctuations; a topic that has received more and more attention since the huge oil price spikes observed in the years leading up to the great recession. One important finding in recent research on the transmission channels of oil price shocks is that different origins of oil price changes, which include both the demand and supply sides, trigger distinct macroeconomic effects (e.g. Kilian, AER-2009). This has important implications for monetary policy-makers, as it suggests that distinguishing between the causes of oil price shocks may be important in determining the appropriate policy responses to address them. However, until now, the extent to which the design of optimal monetary policy should depend on the different origins of oil price fluctuations has been unclear, primarily because academic research has not yet provided much constructive advice on this topic. Indeed, existing normative contributions on optimal policy behaviour typically ascribe all variations in oil prices to a unique supply shock and hence do not account for the deeper sources of these fluctuations.

This paper addresses this shortcoming in the literature by deriving the optimal Ramsey-type monetary policy for an oil-dependent economy that operates within an environment of endogenous oil price fluctuations. More specifically, within a calibrated new-Keynesian model of oil-importing and oil-producing countries, the paper analyses the dynamic effects of different types of oil shocks and assesses differences in the optimal monetary policy response to these shocks.

As a key finding from the analysis, the paper demonstrates that the types of shock that are identified in the literature as the main drivers of oil price fluctuations (i.e. oil supply and oil-specific demand shocks) call for similar policy responses once we acknowledge that oil is difficult to substitute in production and that international asset markets are incomplete. This approach suggests that monetary policy that fails to identify the causes of oil price fluctuations is not significantly misguided. Intuitively, in a case with low substitutability of oil and incomplete markets, oil-specific demand and supply shocks induce similar welfare effects that call for similar policy responses. More specifically, if oil is a gross complement of domestic factors of production, then real marginal costs are a convex function of the real oil price. Regardless of their underlying cause, oil price hikes induce a negative wedge between the natural and efficient levels of output. By aiming to close this gap, the Ramsey policy aligns the recessionary consequences of the various oil supply and oil-specific demand shocks. If, additionally, international financial markets are incomplete, then both unfavourable oil supply and oil-specific demand shocks induce a shift in wealth from oil-importing to oil-producing countries. To curb this wealth-shifting effect, optimal policy calls for a large but short-lived increase in the real interest rate, as this would reduce oil demand and mitigate the oil price rise.