# *Discussion*

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This paper studies recent trends in global inflation, with the broad aim of assessing the relative influences of phenomena associated with globalisation on European inflation. The authors' approach is very broad, inviting the reader to look at many characteristics of inflation through a variety of windows. These windows provide glimpses on the conflicting pressures on prices that Europeans face. From one vantage point we see downward pressure on prices arising from an increase in the supply of imported goods manufactured in low-cost countries, but from another we see upward pressure on prices arising from increased worldwide demand for oil and commodities. Further, although we see increases in the marginal product of labour and hence in real wages, we also see downward pressure on wages arising from increases in the global supply of labour. Surprisingly, overall inflation has changed very little in recent years, despite the many relative price changes that have followed globalisation. This overall stability might be due to counteracting forces, but the authors also put forward the view that inflationary expectations are well-anchored, and that this has contributed towards stability in global inflation.

The broadness of the authors' approach is appealing, because it allows the reader to consider many possible determinants of inflation separately. However, this broadness also imposes a heavy burden on the reader, who needs to focus on different aspects of inflation at different points in the analysis, yet draw a coherent set of conclusions. At first pass, the study is quite *ad hoc*, using different definitions of inflation at different points in the paper, and studying inflation in different sets of countries over horizons that are sometimes short-run, sometimes medium-run and sometimes long-run. The paper also includes many different forms of data analysis, each of which uses or implies different definitions of trend and concepts of persistence. The different sections of the paper are quite loosely linked, perhaps leaving it up to the reader to formulate his/her own set of 'take home' messages. My discussion below focuses on various problems that this sort of piece-wise analysis can entail, but it also tries to offer a second pass that might help to build up and sell some of the paper's main messages.

Each of the trends in global inflation noted above are supported by empirical evidence, with techniques used for data analysis ranging from simple time-series figures, to the estimation of Phillips curves and the presentation of generalised impulse response functions (GIRFs) derived from global vector autoregressions (GVARs). The figures are mainly used to illustrate some historical trends, while the empirical Phillips curves are used to show that in addition to a decline in the persistence of inflation, the effects of output gaps and labour costs on inflation have declined over time, whereas import prices have had an increasing influence. The GIRFs predict that (global) oil price shocks will have little effect on either US or European inflation. In my view, the Phillips curves offer the most potential for

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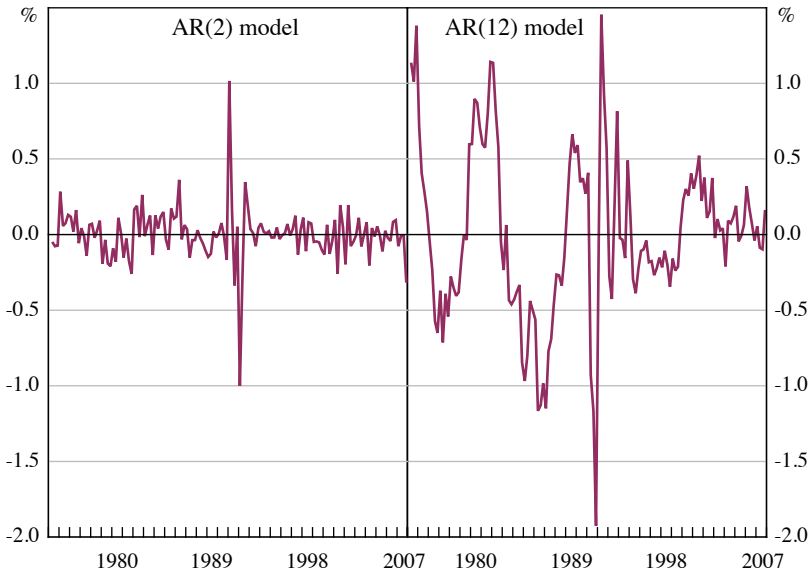
learning about the evolution of inflation, although as detailed below, I have some issues with the specification of these (and the GVAR) models.

My sensitivity to the different definitions of inflation has its basis in the sensitivity of the data to different definitions of trends and cycles. A simple example of the sensitivity of Beveridge-Nelson (1981; BN) cycles to lag structure is illustrated in Figure 1 below, and although this example might not seem relevant here, it is, because the authors have imposed a (short) lag structure on their GVAR, even though a longer structure would have been better aligned with economists' views on cyclical behaviour in inflation. In a multivariate setting, the lag and cointegration structure in a GVAR (or in any vector error correction model) implicitly define the BN trends (the 'integrated of order 1' factors) and the cycles (stationary components), and these, in turn, influence the properties of the GIRFs. Of particular importance is the modelling of the forcing variable – in this case, the world oil price. Given these considerations, and the paper's focus on trends in inflation, I feel that the authors' 'black-box' treatment of their GVAR may have led to results that are not particularly informative, especially since empirical results are rarely robust to modelling choices. Extra details about the modelling choices, or some provision of caveats about the reliability of the results might have better informed the debate about how oil shocks influence inflation.

**Figure 1: Beveridge-Nelson Cycles of Euro Area Inflation Based on AR Models**




Sources: Anderson *et al* (2007); Eurostat; author's calculations

The findings based on the estimated Phillips curves are more compelling, because the modelling process is more transparent. There are difficulties aligning these findings with those from the GVAR, because the set-up with respect to modelling

trends and thinking about persistence is now quite different, but the results themselves appear to be reproducible, as well as relatively robust to the mode of estimation. The individual country graphs suggest that care should be taken in modelling seasonality in inflation, and I note that the authors have taken steps to deal with this. The imposition of common coefficients across the panel may have introduced some bias (which is addressed only in the paper's Table 2), and the full sample estimates indicate that inflation is positively related to the output gap, unit labour costs and import prices, as standard economic considerations would suggest.

Separate sub-sample analysis suggests that the effects of output gaps and labour costs on inflation have declined over time, whereas import prices have had an increasing influence. Further, the persistence in inflation seems to have declined. The latter finding is attributed to more effective monetary policy in an environment in which inflationary expectations are quite stable, while the lower output gap effect is attributed to a declining influence on domestic prices of pressures in the domestic economy, given that global developments might now be a relatively more important determinant of domestic demand. The increasing effect of import prices is attributed to greater penetration of imports into the countries under study, while the authors are somewhat silent about the declining influence of labour costs. The latter results might be due to lower labour shares in (domestic) production.

One could tie some of the loose ends of the paper together by considering how the effects of increasing prices for oil and other commodities might affect inflation, conditional on other variables (such as import and labour prices) remaining constant, and an obvious way to do this would be to include oil (or energy) prices in the Phillips curves in Section 3.3. Perhaps the authors did not do this because their GVAR indicated that oil prices have little effect on inflation, but it would have been nice to see if this result held up in a setting that explicitly tried to account for changes in relevant structural factors. Given the observed changes in import shares, it is not clear that the GVAR provides an appropriate tool for studying the joint effects of commodity prices and changes in structural factors on inflation (unless the trade-based weighting matrices are varied to account for increased import penetration), so the suggested alternative of augmenting the Phillips curve with oil prices and then testing for structural change seems preferable. Regardless of whether one wants to develop the Phillips curves or the GVAR further to tease out some joint effects, it might also be useful to study some of the individual country results, because these can potentially highlight issues that may be hidden in the aggregate analysis.

## References

Anderson HM, M Dungey, DR Osborn and F Vahid (2007), 'Constructing Historical Euro Area Data', CAMA Working Paper No 18/2007.

Beveridge S and CR Nelson (1981), 'A New Approach to Decomposition of Economic Time Series into Permanent and Transitory Components with Particular Attention to Measurement of the "Business Cycle"', *Journal of Monetary Economics*, 7(2), pp 151–174.

## 2. General Discussion

Much of the discussion centred on questions of policy. To start, one participant asked what an inflation-targeting central bank should do in response to an expected decline in the prices of manufactured goods associated with the emergence of China and other developing economies. Should policy-makers: (i) allow the aggregate price level to shift, that is, have inflation fall below the target temporarily if they are careful to ensure that inflation expectations remain anchored and that there will be no second-round effects; (ii) attempt to hit the target, allowing other prices to increase to offset the lower manufactured goods prices; or (iii) recognise that lower manufactured goods prices are likely to be matched also by rising commodity prices, thereby requiring little if any policy response? In response, Robert Anderton thought that it was important for policy to maintain the target and to focus decisions around the forecast for aggregate inflation. On this same theme, another participant remarked that strong output growth from 2003 to 2007 was not accompanied by inflation, and that this was possibly attributable to the expansion of supply out of China. It was suggested that focusing on standard exclusion-based measures of core inflation may have provided a false sense of comfort, given that these often exclude rapidly rising prices of energy and food. Robert Anderton replied by noting the difficulty in formulating policy in the context of sharp changes in relative prices.

On the Phillips curve analysis in the paper, it was suggested that instead of comparing different sub-samples, there may be a better way to account directly for the rising share of manufactured imports from low-cost countries. It was also suggested that it would help to perform various tests of the robustness of the Phillips curve results, including use of instrumental variables. Robert Anderton said that this would be something he would like to include in future research.

There was considerable discussion of the GVAR model used in the paper and the results of that model. There was concern that the impulse response results needed to be clarified. In particular, the results suggested that a shock to the nominal price of oil is eroded over time by a rise in the inflation rate such that the real price of oil eventually falls, which was puzzling in light of the sustained decline in industrial production. Arising out of the general discussion of this point, one idea was that the result might reflect the modelling peculiarities of the GVAR system. On these impulse responses, a comment was made that they were statistically insignificant, leading to questions regarding the reliability of interpretation of the results. It was suggested that the paper implement a range of statistical techniques to check the robustness of the results. Another participant suggested that the model assumes a small open economy framework, which may be inappropriate for the euro area and US economies, and that an assumption of exogeneity of the domestic and foreign variables is incorrect, given the expected interactions between those variables.