

# Comments on “What drives inflation in advanced and emerging market economies?”

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The paper by Kamber, Mohanty and Morley (KMM hereafter) is a carefully executed empirical investigation of the determinants of inflation in a broad sample of advanced and emerging market economies.

A number of recent multi-country empirical studies of inflation dynamics have used estimated Phillips curve relationships to highlight changes in parameters following the Great Financial Crisis (GFC).

KMM challenge previous findings based on panel regression methods, arguing that it is critically important to account for heterogeneity across economies and over time in assessing the importance of each determinant of inflation. They suggest that key findings in the literature using panel regression estimates are not robust. The reason is heterogeneity across economies and, to some extent, the use, in previous studies, of a single breakpoint in 2007.

The principal question underlying the empirical work is whether the inflation process has changed since the GFC. Answers are provided by estimates of the coefficients in a relatively conventional Phillips curve model of the inflation process:

$$\pi_{it} = \beta_{0i} + \beta_{1i} \pi_{it-1} + \beta_{2i} \pi_{it}^e + \beta_{3i} \tilde{y}_{it} + \beta_{4i} \tilde{y}_{it}^* + \beta_{5i} \Delta_4 e_{it} + \beta_{6i} \Delta_4 p_{it}^{oil} + \varepsilon_{it}.$$

A number of time dummies interacted with the independent variables are added to investigate possible changes in the value of the  $\beta$  coefficients. The  $i$  subscripts indicate that coefficients may be different across countries.

The specific questions addressed in the paper relate to the stability of the coefficients (the  $\beta$ :s) over time; the relative importance of forward-looking (expected) relative to backward-looking inflation, ie  $\pi_{it}^e$  vs  $\pi_{it-1}$  ( $\beta_{1i}$  vs  $\beta_{2i}$ ); the relative importance of the domestic versus the foreign output gap, ie  $\tilde{y}_{it}$  vs  $\tilde{y}_{it}^*$  ( $\beta_{3i}$  vs  $\beta_{4i}$ ); the size of the exchange rate pass-through ( $\beta_{5i}$ ); and the homogeneity of the  $\beta$  coefficients across countries and country groupings.

Instead of repeating the summary of the results, in the remainder of these comments I will discuss three issues that may have a bearing on the interpretation of the findings.

## 1. The importance of forward-looking expectations

The terms  $\beta_{1i} \pi_{it-1} + \beta_{2i} \pi_{it}^e$  are meant to capture that those who set prices do so in part by looking backwards at the last period's inflation ( $\pi_{it-1}$ ) and in part by forecasting how fast prices in general will increase in the future ( $\pi_{it}^e$ ). If the econometrician finds a high value of  $\beta_{2i}$  relative to  $\beta_{1i}$  it is interpreted to mean that

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forward-looking behaviour is more important than backward-looking behaviour in price setting. This would be a reasonable interpretation if the econometrician could be certain that the variable used to measure  $\pi_{it}^e$  captures only forward-looking elements. In the paper, the expected inflation variable,  $\pi_{it}^e$ , is measured by consensus forecasts. This is not uncommon in empirical work, but does it necessarily measure only forward-looking elements?

Consensus forecasts are combinations of forecasts of independent professional forecasters. They would presumably construct their forecasts on the basis of how price setters behave and their assessment of the future values of the driving variables of the inflation process.

It follows that professional forecasters will incorporate a backward-looking element into their forecasts in addition to purely forward-looking elements ( $x_t^e$ ):

$$\pi_{it}^{cf} = \delta_0 + \delta_1 \pi_{t-1} + \delta_2 x_t^e.$$

On this interpretation, the coefficient on the consensus forecast will be a combination of both purely forward-looking elements and backward-looking ones.

## 2. Measurement of output gaps

In the paper, output gaps are calculated using HP and BN filters. These, as well as other, filters have the property that the gap (at time  $t$ ) calculated with data up to time  $t$  will in general differ from the gap (at time  $t$ ) calculated with data up to time  $T > t$ . Does this matter for the interpretation of the results?

The answer would be yes if economic agents (forecasters and price setters) use “real time” estimates based on these filters, whereas the econometrician uses the full-sample estimates.

On the other hand, the distinction may not matter if economic agents rely on other indicators in real time that effectively produce gap measures that are consistent with the full-sample estimates the econometrician typically uses ex post.

In general, both measures may be informative in empirical applications, and it would be interesting to try both.

## 3. Measurement of pass-through coefficients

KMM use nominal effective exchange rates to estimate pass-through coefficients and in general they find that these coefficients are relatively small (albeit not very different from those in Forbes (2019)). A reason for this may be linked to the fact that much of international trade is priced in US dollars (see Boz et al (2017), for example). The relevant exchange rate measure may therefore be the bilateral US dollar exchange rate rather than the effective exchange rate. It would be interesting to investigate whether this is indeed the case.

An additional, possibly minor, issue related to the pass-through estimation is that the exchange rate variable should in principle also include variations in foreign prices in addition to the exchange rate itself: ie  $\Delta_4 p_{it}^* e_{it}$  and not just  $\Delta_4 e_{it}$ .

## References

Boz, E, G Gopinath and M Plagborg-Møller (2017): "Global trade and the dollar", *NBER Working Paper Series*, no 23988, November.

Forbes, K (2019): "Has globalization changed the inflation process?", *BIS Working Papers*, no 791, July.