LATIN AMERICA

Inflation persistence: a problem to keep in mind in some Latin American countries

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Inflation persistence will be a problem mainly in Argentina, but also in Brazil, Colombia and Uruguay, at least if there is no change in the conduct of monetary policy or in indexation mechanisms. In Chile, Mexico and Peru, persistence will likely play a less relevant role in the future dynamics of inflation.

When will inflation in Brazil, Chile, Colombia, Peru and Uruguay return to the target range? At what rate will inflation in Argentina slow down after the recent economic measures that have been adopted? How long will inflation stay below the 3% target in Mexico?

To address that particular issue and, more generally, to analyse the domestic price dynamic, we need to understand just how persistent inflation is in a specific economy.

With this in mind, we have estimated an auto-regression model AR (1), in which current inflation depends solely on the level of inflation for the immediately preceding period. We have analysed monthly data from January 2004 to March 2016 for Argentina, Brazil, Chile, Colombia, Mexico, Peru and Uruguay. As a measure of inflation, we have taken monthly inflation which we have then deseasonalised and annualised1.

The estimated value of the parameter that relates current inflation to that from the preceding month can be taken as a measure of persistence. The higher it is, the greater the impact of past inflation on current levels, suggesting greater persistence.

Figure 1 shows that the persistence of inflation based on the AR (1) is greater in Argentina, Brazil and Colombia and less in Chile, Mexico, Peru and Uruguay2.

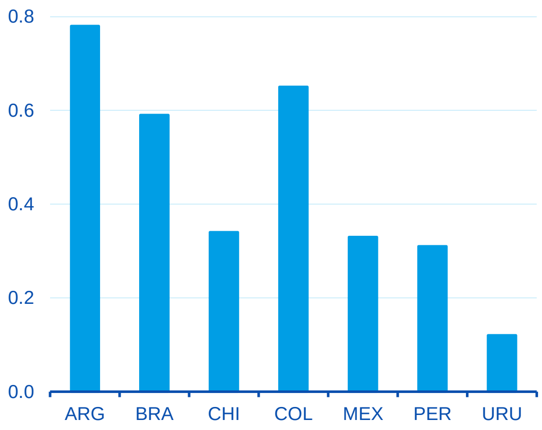
This initial measurement is in part determined by factors such as economic activity, the exchange rate and external inflation, among others. In order to exclude such extrinsic effects and have a measure of persistence that actually reflects the impact of intrinsically inertial factors on inflationary forces, related to the existence of price index mechanisms, we use the generalized method of moments (GMM) to estimate a Phillips curve for each economy, in which current inflation depends on the product gap, past inflation, inflation expectations, the exchange rate and the price of raw materials on global markets3.

In this case, the parameter that relates current to past inflation is an indicator of intrinsic persistence, free from the effect of the other variables included in the estimate.

Despite the fact that in this case the level of persistence has changed – in general it has fallen in comparison to previous analysis – due to the exclusion of extrinsic factors, the results once again show that persistence is higher, around 0.5, in Argentina, Brazil and Colombia, and lower in the other cases (Figure 2)4.

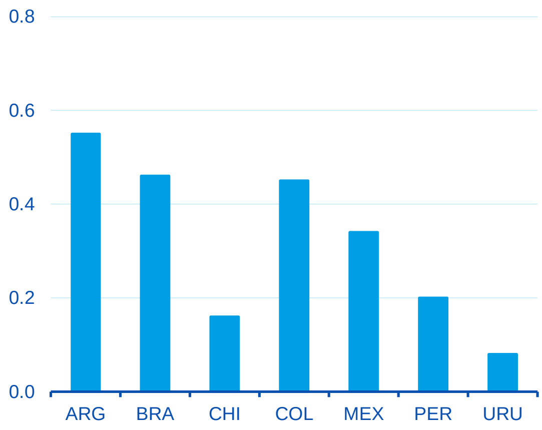
1: In none of the countries the inflation series exhibit a unit root, according to standard tests. In all cases, therefore, these are stationary series.
2: In the period analysed, average inflation stood at 19.8% in Argentina, 6.0% in Brazil, 3.4% in Chile, 4.3% in Colombia, 4.0% in Mexico, 3.0% in Peru and 7.7% in Uruguay.
3: We took the same measure of inflation and the same reference period as used in the AR(1) estimate, with the exception of Argentina, where due to insufficient data, analysis began in August 2006. The independent variables enter with only one lag, apart from inflation expectations, which enter contemporaneously (and have to be instrumented for).
4: The introduction of further backwardness to the explicative variables does not notably change results, although in the case of Chile it means that the level of persistence is significant at 5% and somewhat higher (at around 0.25).

Figure 1
Persistence of headline inflation: based on the estimation of an AR(1) model (Jan/04-Mar/16)*



* Results are significant at 5% level, with the exception of Uruguay.
Source: BBVA Research

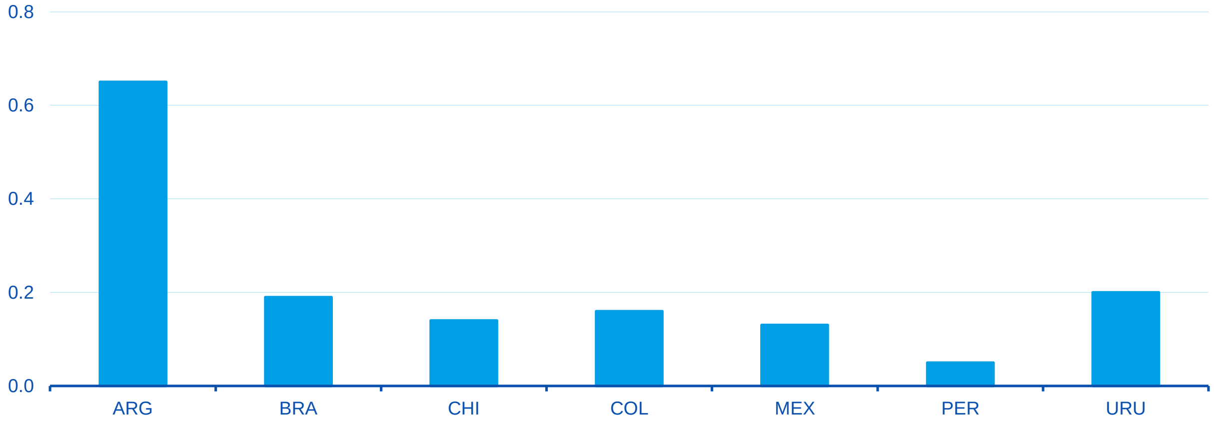
Figure 2
Persistence of headline inflation: based on the estimation of a Phillips curve (Jan/04-Mar/16)*



* Due to data issues, the sample for Argentina starts in August 2006. The results are significant at a 5% level for Argentina, Brazil, Colombia, Peru and Mexico and at 10% for Chile.
Source: BBVA Research

We re-estimate the previous Phillips curve model using core inflation, rather than headline inflation, as dependent variable as some items, such as food and regulated goods/services, show a price dynamic which differs sharply from the general. In this case, the level of estimate persistence is generally lower than with the headline inflation model, with the exception of Argentina and Uruguay, where, due to a lack of data issue, samples are not identical[5]. In this case, as in the previous exercises, persistence is lower in Chile, Peru and Mexico. However, it now shows that persistence is higher in Argentina, Uruguay and Brazil (Figure 3).

Figure 3
Persistence of core inflation: based on the estimation of a Phillips curve (Jan/04-Mar/16)*



* Due to data issues, the samples for Argentina and Uruguay start in April 2008 and January 2011, respectively. The results are significant at a 5% level for Argentina, Brazil, Colombia and Mexico and at a 10% level for Peru and Uruguay.
Source: BBVA Research

5: The comparison of the two models using identical periods of time shows that in both countries, persistence is higher in the core inflation model.

In general, results back up the idea that inflationary inertia is lower in countries where central banks have been less tolerant with regard to inflation and higher in countries where inflation has been usually higher[6].

Finally, in order to analyse how inflation persistence has changed over the last years, we have estimated both the Phillips curve with headline and core inflation for the past three years (April 2013 to March 2016) and for earlier periods of the same duration.

Despite the fact that the reduced size of the sub-samples reduces the robustness of the results, both models suggest that inflationary persistence has increased recently in Colombia, Peru and Uruguay. In other cases, results are not conclusive.

In general, our analysis suggests that persistence will likely play a more negative role in the processes of convergence of inflation within the targets over the coming months in some countries, mainly in Argentina, but also in Brazil, Colombia and Uruguay, at least if there is no change in the conduct of monetary policy or in indexation mechanisms. In Chile, Mexico and Peru, these factors will likely be of less relevance to future inflation.

6: The results do no change significantly with the inclusion of additional independent variables with more lags.

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