Commentary

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Michael Bruno and William Easterly's fine article reviews and interprets recent research on inflation and growth. It draws together two literatures that seem not to cross paths as frequently as perhaps they should: the literature on inflation and growth, which typically performs cross-section or panel regressions using many countries,[1] and the literature on stabilization of high inflations, which typically studies one or a few countries.[2] The first literature sometimes has difficulty finding a robust relationship between inflation and growth, whereas the second typically finds that inflation stabilization leads to output booms.

A FRAGILE RELATIONSHIP

Relying for the most part on a 1961-92 data set of more than 100 countries, Bruno and Easterly conclude that:

(1) The simplest cross-section regression of inflation on growth is sensitive to both sample period and exclusion of certain high-inflation outliers; once these outliers are omitted, there does not appear to be a correlation between inflation and growth.

(2) When inflation is more than 40 percent for two or more years (an inflation crisis), growth is low.

(3) In a handful of countries with a reasonably long time-series on controls such as investment and population growth, regressions suggest that postcrisis growth is sufficiently rapid that it makes up for the fall in output during the crisis.

Bruno and Easterly conjecture that conclusion (3) reconciles conclusions (2) and (1): Despite post-stabilization booms in growth, no correlation is found in the cross-section because such booms, on average, merely offset the fall during the crisis.

The authors make a good case that the inflation-growth relationship is fragile. They make an even better case that growth is low during inflation crises. Indeed, the numbers reported in Table 3 in Bruno and Easterly (1995) indicate that crisis growth is lower than precrisis and postcrisis growth not only on average (as reported in their article in this issue) but also in virtually every episode in every country.

AN AVERAGING OUT

It is not as clear to me, however, that, in general, collapse and recovery average out. In the time-honored tradition of discussants everywhere, let me use a disproportionate share of my space to elaborate on this area of disagreement.

A minor criticism of the evidence underlying conclusion (3) is that the Bruno and Easterly exercise by definition excludes countries that are still in crisis (because a postcrisis period is needed to perform the calculation). Because such excluded crises will presumably tend to be longer lasting, there probably is a bias in favor of finding that output losses during crises eventually are recovered. Second, if I use the data in Table 3 in Bruno and Easterly (1995) to extrapolate growth rates without controlling for, say, investment, I find that in about half the episodes that are rich enough to include both precrisis and postcrisis growth, the precrisis rate is higher than the postcrisis rate. Of course, the calculation reported in Bruno and Easterly's article in this issue controls for the usual suspects. But as noted in Bruno and Easterly (1995), for simple or sophis-

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[1] See, for example, Fischer (1993).

[2] See, for example, Rebelo and Vegh (1995).

ticated calculations, it probably is necessary to have much longer time series than are available to reliably estimate trend rates of growth.

Finally, even if we take as given that postcrisis growth makes up for the growth shortfall during crises, it does not follow that a roughly zero correlation should be expected in the cross-section. As a logical matter, a cross-sectional scatterplot of growth vs. inflation can display any shape—upward sloping, downward sloping, or no slope—and still be consistent with any time-series pattern of growth rates for individual countries. Suppose we extend Bruno and Easterly's example in the section on high inflation crises and growth to include a third country, Country C, a low inflation country whose inflation experience is identical to that of Country B. If Country C's growth rate is g_1 (the growth rate of Country A and Country B), then in cross-section there will be zero correlation between growth and inflation, as in the authors' example. But if Country C's growth is higher (lower), there will be a negative (positive) cross-section relationship.

Similarly, it is possible to construct examples in which zero (or positive or negative) correlation obtains in the cross-section, even if postcrisis growth fails to make up for the growth lost during crises.

FUTURE RESEARCH

Of course such logical examples may or may not be theoretically or empirically plausible. Bruno and Easterly's fine article documents a robust time-series pattern for output growth in countries with inflation crises and makes us think about the link between the time-series and cross-section evidence on inflation and growth. To build on these results and to make a persuasive case for how the time-series and cross-section evidence relate to one another, I think it would be profitable to estimate structural models that allow one to tell economic stories about the patterns that we seem to see. I hope that the authors will consider such an approach in their future research on this interesting topic.

REFERENCES

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