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## Commentary

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Since my task is to critically evaluate the authors' model, I will do so by asking, "If our objective is to understand the connection between price stability and economic growth, would exploration of the kind of model that Sangmok Choi, Bruce D. Smith, and John H. Boyd present in this article be a high priority? My answer is, probably not. In the comments that follow, I lay out reasons for my response.

### ABSENCE OF INFLATION UNCERTAINTY

As the article opens, the authors write that "A consensus among economists seems to be that high rates of inflation cause 'problems,' not just for some individuals, but for aggregate economic performance." This is a fair statement, but I would argue that uncertainty about inflation plays a key role in making high inflation a problem. Ample evidence suggests that the level and variability of inflation go hand in hand. In addition, it is not far-fetched to think that average inflation and the variability of unanticipated inflation might go hand in hand. If I were choosing to focus either on anticipated or unanticipated inflation, I would put higher priority on gathering evidence on unanticipated inflation and constructing models in which its variability played a key role.

However, I must admit that to construct coherent models that focus on unanticipated inflation is not easy. Issues about indexation (or lack thereof) of intertemporal contracts to changes in the inflation rate loom large and must be addressed. Still, the evidence clearly shows that high-inflation economies cannot easily move to indexed contracts and insulate their residents from problems of unanticipated

inflation at low cost. For instance, indexation is never comprehensive. During the '60s in Brazil, indexed contracts covered some wages, bank deposits, government bonds, rents, and some utilities. Conspicuously absent were contracts covering the purchase of intermediate and capital goods. Furthermore, indexation schemes are often imposed by a desperate government and are poorly conceived. Last but not least, indexation prevents efficient adaptation to supply shocks, a failing that researchers noted in the '70s.

### STRONG NON-SUPERNEUTRALITY

Inflation has real effects in Choi, Smith, and Boyd's model because it influences the real return on capital. In a monetary equilibrium, any change in the real return on currency leads to a corresponding one-for-one change in the real return on physical capital. I should emphasize that "threshold effects" do not apply to the connection between anticipated inflation and ex ante real interest rates in the model: Both low- and high-inflation countries should display this feature. I am troubled because I know of no evidence that supports such strong non-superneutrality with respect to ex ante real interest rates.

The authors provide regression results in which inflation affects real interest rates negatively and strongly. In these regressions, the real interest rate (the dependent variable) is the ex post real interest rate and the inflation rate is the actual inflation rate. With a substantial unexpected component to actual inflation, realized inflation will affect ex post real interest rates negatively and strongly. It is difficult to take these regressions as evidence that anticipated inflation has strong negative effects on ex ante real interest rate.

One way to modify these regressions is to replace the inflation variable on the right side with some measure of anticipated infla-

tion. Geweke (1986) did this for the United States by using low-frequency movements in inflation as a proxy for anticipated inflation. He found no evidence that anticipated inflation had any effect on output or ex post real interest rates. I believe he would have picked up some evidence of non-superneutrality if the authors' model was a reasonable abstraction of reality. I am unfamiliar with the evidence of Geweke-style regressions for other countries, but it troubles me that his findings do not support the model's prediction for the United States.

## UNSECURED LOANS

In his trailblazing paper on adverse selection, Akerlof (1970) noted that his work was an attempt to give structure to the statement, "Business in underdeveloped countries is difficult." Exploring the dynamic consequences of adverse selection in simple models of economic growth is certainly an important step toward giving additional structure to that statement.

Nevertheless, I am skeptical about the specific adverse selection story the authors tell. Recall that the reason adverse selection afflicts intertemporal trade is because lenders cannot distinguish between genuine borrowers who have access to the capital accumulation technology and fake borrowers who do not. However, if lenders insisted on securing their loans against tangible capital (collateral), only genuine borrowers would qualify because they are the only ones who can produce this capital and the equilibrium would revert to being Walrasian. The fact that the primitives of the model (preferences and technology) do not seem to jibe with the trading arrangement is troubling.

## EXOGENEITY OF MONETARY POLICY

Choi, Smith, and Boyd point out some nonlinearities and nonmonotonicities observed in the relationships between inflation and real activity. They cite these observations as reasons for constructing models in which inflation affects real ac-

tivity in complex and nonlinear ways. What is unclear to me is why I should not approach these observations from the opposite direction and think about constructing models in which poor economic performance leads to poor monetary policy. In other words, it is unclear to me which phenomenon is really to be explained.

Robert Lucas (1988) observed that it was difficult to look at the measured disparity in long-run growth rates across countries "without seeing them as representing possibilities." I am struck by the fact that when confronted with similar disparities in inflation and monetary growth rates across countries, economists construe the important scientific problem to be one of understanding the consequences of different rates of sustained inflation, rather than one of understanding how inflation and monetary growth rates became so different across countries in the first place. I suspect that if we set out to explain differences in inflation and monetary growth rates among countries, we will probably uncover many reasons why inflation and real activity might appear related in complex and nonlinear ways.

## REFERENCES

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