

Discussion of “Tailwinds and Headwinds: How Does Growth in the BRICs Affect Inflation in the G-7?”

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It is well known that in all G-7 countries inflation has been low and rather stable for almost twenty years. During this period, we have seen the emergence of the BRIC countries (Brazil, Russia, India, and China)—especially China—as a producer of low-cost manufacturing goods. Many economic commentators have suggested a causal link between the two. In particular, it is conjectured that the resulting low cost of manufacturing imports has likely contributed to the good inflation outcomes observed in industrial countries. The object of this paper is to examine such claim. However, the authors recognize up front that the case is complicated by the fact that growth in the BRIC countries has not only been associated with producing low-cost manufacturing goods, but it has also simultaneously increased the demand for oil and other commodities. Since such demand tends to push up the price of oil, it follows that the effect on inflation of the growth of BRIC countries can have either been a desirable effect—referred to as a tailwind effect that helps keep inflation down—or an undesirable effect—referred to as a headwind effect which tends to push up inflation. The authors’ goal is to quantify these two offsetting forces so as to evaluate their net effect on inflation in G-7 countries. The authors pursue the questions using a calibrated stochastic dynamic general equilibrium model. They view the underlying cause of growth in the BRIC countries as resulting from exogenous productivity increases. Since productivity growth has been high for many years in these countries, it appears reasonable to take it as the main driving force.

The model explored in the paper is in the New Keynesian (NK) tradition. It has three blocs: a first bloc meant to capture the

behavior of the BRIC countries, a second bloc reflecting the behavior of G-7 countries, and a third bloc representing oil-producing countries. Both the G-7 bloc and the BRIC bloc have a structure that is common to many NK models. In both blocs there are intermediate goods producers that are monopolists and who set prices subject to Calvo frictions. These intermediate goods are produced using labor and oil, and they are combined in a competitive market to create an output good that can be consumed by both domestic and foreign consumers. The labor market is also imperfectly competitive in both blocs and subject to stickiness. Consumers in the two blocs make labor supply decisions, consumption decisions, and portfolio decisions so as to maximize the present discounted value of utility. The oil-producing bloc is more simple, as the agents in this bloc simply sell oil and uses the proceeds to buy goods from both the G-7 bloc and the BRIC bloc. In the baseline model, monetary authorities are assumed to follow a Taylor-type rule. The preferences of consumers in the BRIC and G-7 countries exhibit habit formation. The only driving force in the whole model is the productivity growth in the BRIC bloc. In particular, the authors examine the effect of a persistent but unanticipated increase in productivity in the BRIC countries.

The model is calibrated using parameters found in the literature. The main result in the baseline case is that a productivity shock in the BRIC countries leads to a temporary decline in inflation in the G-7 countries. The paper is nicely written and explains clearly the mechanisms at play. For example, there are mainly three channels by which the productivity shock affects inflation in the G-7 bloc. First, the productivity shock increases the supply of the intermediate goods produced in the BRIC, and this decreases the marginal cost of producing the final good, thereby putting downward pressure on inflation. Second, the growth in the BRIC countries increases the price of oil, which increases the cost of producing intermediate goods, which in turn places upward pressure on inflation. Finally, there is an effect through the direct consumption of oil by consumers. Hence the model captures well both the tailwind and headwind effects, with the finding that the tailwind effect is likely to dominate.

The authors do an extensive sensitivity analysis. The main parameters they emphasize as governing the result relate to the substitutability of oil and labor in the production of intermediate

goods, and the substitutability of domestic and foreign goods in the production of the final good. For example, they find that if the substitution between labor and oil is sufficiently low, it is possible to reverse the main result and find that the headwind effect dominates the tailwind effect. Since in the short run this substitution elasticity may be quite low, this caveat is very important. The paper also explores the effects of changing monetary policy rules and of assuming different asset structures. Overall, the authors find that the tailwind effect almost always dominates the headwind effect. While there are many different additional scenarios that could be considered, the most relevant missing case in my opinion relates to rules behind the pricing of exports. It is assumed throughout the paper that exports are priced in the producer's currency, while for the BRIC countries it is more reasonable to assume that exports are priced in U.S. dollars and therefore exchange rate pass-through is likely more limited than in the model. Allowing for such a possibility would likely reduce the strength on the tailwind effects, but I doubt it would reverse the main results. Overall, I found the analysis very well executed and explained.

While the analysis in the paper provides an illustration of how a productivity shock in the BRIC countries may be transmitted to the G-7 countries, it is less clear what one should take away from this exercise with respect to the role of BRIC productivity growth on the low and stable inflation observed in the G-7 over an extended period of time. In particular, the effects documented in the paper are very short lived, about four to five quarters. So how should this be interpreted in relation to a long-term outcome? I believe that more work needs to be done to answer this question. For example, it would be helpful to extend the analysis in the paper to include a historical counterfactual. To do such a counterfactual, one could begin by estimating a series of surprise total factor productivity (TFP) shocks for the BRIC countries. I would do this using some variant of a rolling regression to reflect the possibility of slow learning regarding the growth process of BRICs. With slow learning, TFP shocks are likely to have a positive mean over the last fifteen years, as agents' expectations of TFP growth were likely lagging behind realizations. Once such a series is in hand, the resulting shocks could be fed into the model to get a historical account of the effects of BRIC TFP shocks on inflation over the sample of time of interest. This would

allow one to evaluate the average effects of such shocks on inflation in the G-7 bloc of the model. Furthermore, one could examine how such a series of shocks would affect the volatility of G-7 inflation. If such a shock series substantially reduces inflation over a sustained period, this would provide more direct support to the notion that BRIC TFP has been an important contributor to low inflation.

While the paper does an excellent job of explaining the mechanisms at play in the model, it would be interesting to explore its implications further by breaking down some of its elements. For example, the current model takes BRIC TFP as the driving force and calculates its effect on G-7 inflation. The effects on inflation arise due to modification in the terms of trade between the two blocs and to changes in oil prices. It would be relevant to know if the model can create correlations between oil prices, terms of trade, and TFP which resemble that observed in the data.

In summary, the paper asks a very interesting and pertinent question with respect to the link between BRIC growth and inflation outcomes in G-7 countries. The modeling choices are appropriate for the question at hand, and the paper provides a very nice illustration of the complex mechanisms behind such a link. While the paper arrives at the answer that a positive TFP shock in BRIC countries is likely to put downward pressure on inflation in G-7 countries, it would be helpful to extend the analysis so as to include a quantitative exploration of the effects of BRIC TFP shocks on average inflation over the period of interest.