Inflation and exchange rate causality

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By *Dr. Sadiq Ahmed*

Bangladesh has been experiencing a rapid growth in the general price level in recent years.

Vegetables are on display for sale at a chain superstore in Dhaka. The rapid rate of inflation has become a major economic and social problem for Bangladesh. Photo: Star/file

The rate of inflation has crept up steadily since July 2009, rising from an average of 2.3 percent during 2008-09 to a peak of 12 percent in September 2011. The inflation rate declined to 10.1 percent in March 2012. The nominal exchange rate (defined as taka per one dollar) climbed from around Tk 70.2 in September 2010 to Tk 84.4 in January 2012. It has now stabilised around Tk 81.8 since February 2012. On the whole, the taka depreciated by 20 percent over the 16 months of September 2010 to January 2012 as compared with zero depreciation over the entire four years from July 2006 to July 2010.

The rapid rate of inflation has become a major economic and social problem for Bangladesh. Unless this is tackled forcefully and with some urgency it could become a major political debacle for the government when it seeks reelection in the next 20 months. It is also important that right policy choices are made in the effort to control inflation.

One popular debate concerns the role of nominal exchange rate in managing inflation. There are quite a few policymakers, researchers and businesspeople who believe that the depreciation of the exchange rate is the primary culprit underlying rapid inflation in Bangladesh. This group believes that the government should basically pursue a fixed nominal exchange rate policy. The underlying logic is the standard cost-push argument for inflation. Exchange rate raises the taka price of imported inputs that pushes up the cost of production and that in turn fuels inflation.

I have written quite a bit on how to manage the inflation challenge. My basic message based on quantitative research is that lax monetary policy during 2009-11 has been the primary source of the present inflationary episode. I do not wish to repeat here the detailed analysis underlying the result. The topic of this article is to comment on the simplistic view that inflation is the result of exchange rate depreciation and by having a fixed exchange rate we will avoid inflation. In doing this, I will report on the results of my research that uses modern quantitative techniques that are consistent with good international practices.

It will be useful to give a little background to the nature of the quantitative investigation. Time series data and related analysis can be very helpful in understanding macroeconomic developments, making projections for the future and developing policy responses to tackle unhappy macroeconomic outcomes. The analysis of inflation is a good example of how proper time series analysis can help the government to control inflation and stabilise the macroeconomy. I will like to stress the importance of “proper time series analysis” because in its absence we can easily reach erroneous conclusions that, if applied to policymaking, can do substantial damage to the macroeconomy.

A key requirement of this “proper” analysis is to first start with a good theory about causality. Many things tend to move together over time. Without a sound analysis of how developments are correlated and what is the cause and what is the effect there is either a risk of spurious correlation or mis-specification of the relationship. Economic theory helps avoid the problem of spurious correlation, but it sometimes does not help identify the causality. This problem of establishing causality in time series data has received a great deal of attention in quantitative economic research and considerable progress has been made in recent years to help identify proper causality, thereby facilitating better policymaking and economic forecasting.

Working independently in different time periods, two researchers, Clive Granger of the University of Nottingham in England and Christopher Sims of the Princeton University in the USA, pioneered the quantitative methods for establishing causality. Both received the Nobel Prize in Economics; Granger in 2003 (unfortunately he died in 2009) and Sims in 2011. The statistical technique developed to establish causality is known as the Granger-Sims test.

Good practice quantitative research using time series data first needs to ensure that the data are “stationary” (to enable meaningful predictions) and that causality is established using the Granger-Sims test before deciding which variable is the cause (also called the independent or exogenous variable) and which variable is the effect (also known as the dependent variable or endogenous variable).

Let me now move to the relationship between inflation and exchange rate in Bangladesh. The Granger-Sims test applied to Bangladesh time series data for inflation and the rate of change of the nominal exchange rate over the 30 year periods between 1981 and 2011 show that the causality is from inflation to exchange rate changes and not the other way round.

Further quantitative results show that the depreciation of the nominal exchange rate is strongly and positively correlated with the inflation differential between Bangladesh and the USA (the country issuing the reserve currency). On average, a one percent increase in inflation differential causes a 0.8 percent increase in the rate of depreciation of the nominal exchange rate.

This causality from inflation to exchange rate is a very powerful and fundamental result for policymaking. The main message is that if we want to have a stable exchange rate over the longer term, we need to keep the rate of inflation low and closely aligned to international inflation. The other policy that could help stabilise the exchange rate is foreign capital inflows. Bangladesh does not have a strategy for mobilising foreign capital and as such is missing out on one useful policy instrument for exchange rate management.

This result leads to the question what happens if the nominal exchange rate is kept unchanged? To answer this question, let us examine the recent developments. As stated earlier, the exchange rate was virtually fixed for four years during July 2006 to July 2010. The rate of inflation started climbing from July 2009 owing primarily to expansionary monetary

policy (during 2009 to 2011). This increased the demand for imports, which put pressure on the balance of payments. Bangladesh was fortunate to have substantial balance of payments surpluses in 2006-2010 owing to large inflow of remittances that allowed the Bangladesh Bank to build up substantial reserves. So, when the demand for imports soared (import growth accelerated to 40 percent in 2011), the BB was able to protect the exchange rate for a while and instead take the pressure on reserves. Between April 2011 and November 2011, the central bank lost as much as $2 billion of foreign reserves.

Faced with this unsustainable pressure on the reserves, the BB let the exchange rate depreciate. Even with that rapid depreciation, the current account balance that recorded a surplus of $3.7 billion in FY2010 is now expected to become a deficit in FY2012. If the exchange rate was not allowed to bed adjusted to the demand pressure, there would have been a substantial further run on the reserves. The other adverse effect of a fixed exchange rate regime in the face of rapid inflation is a substantial appreciation of the Bangladesh currency in real terms. The continued over-valuation of the real exchange rate would hurt exports. Carried over the longer- term, the trade gap would widen rapidly and destabilise the balance of payments that could fuel a major economic crisis.

The basic message, graphically illustrated by the Bangladeshi experience and also reflected internationally in other country experiences, is that a fixed exchange rate regime is inconsistent with an expansionary monetary policy. If the exchange rate is to be used as a policy variable to anchor inflation, then it must be supported by adequate reserves and an appropriate monetary policy that limits the rate of inflation to the rate prevailing in the reserve currency country on a long-term basis (a near impossible target for Bangladesh). This will also imply that fiscal policy cannot rely on borrowings from the BB as presently. A fixed exchange rate regime imposes huge discipline on monetary and fiscal policies in the absence of which the exchange rate will become over-valued in real terms leading to balance of payments problems.

A much better policy regime for Bangladesh is to continue with the present flexible exchange rate management but support a stable (but not fixed) nominal exchange rate outcome by pursuing prudent fiscal and monetary policies. Prudent monetary and fiscal policies will keep inflation under control over the longer-term (although short-term inflationary episodes might result from international oil price or food price hikes) thereby moderating the pressure on the

nominal exchange rate.

Thus, the core objective of monetary policy should be to target a relatively low rate of inflation over the longer term and not allow substantial deviations from this long-term rate. For example, a 5 percent rate of inflation would appear to be a reasonable long-term target for monetary policy. With the US inflation rate in the 2-3 percent range, this will imply a 2-3 percent annual average rate depreciation of the nominal exchange rate over the longer term.

The writer is vice chairman of the Policy Research Institute of Bangladesh. He can be reached at sahmed1952@live.com.