

Trade, Income and Finance

Monetary integration of Nepal with India: A road to faster growth?

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Introduction

Nepal has had a strong trade relationship with India which, during the year ending mid-July 2007, accounted for 69 percent of its exports and 62 percent of its imports. The country has long maintained a fixed exchange rate of its rupee vis-à-vis the Indian rupee at NR1.60 = IR1.00. Since IR floats against the major currencies of the world, NR's exchange value against them also fluctuates in the same proportion. This can create a problem for the small economy of Nepal, particularly at a time when the dominant IR appreciates significantly vis-à-vis the US dollar, as has happened in the last several years. The effective appreciation of the NR raises the price of Nepal's exports to third countries and lowers the value of dollar earnings of Nepali workers when remitted to Nepal.

These disadvantages of the NR peg with the IR go with an important benefit that Nepal receives from such an arrangement. The unilateral peg avoids uncertainty arising from exchange rate fluctuations between the two rupees. Since transport costs and tariffs have fallen in recent years, the law of one price is expected to be operating more smoothly between the two countries making bilateral trade freer of obstructions. While this benefit is shared by both the countries, the cost of stability arising from such a fixed exchange system is borne entirely by Nepal. The larger country is free to pursue stabilization policies in its own interests, whereas the currency peg denies Nepal independence in setting its own monetary policy or using it to offset any adverse policy shock coming from India.

A likely complication in the not too distant future is the introduction of capital account liberalization in India. A large foreign exchange reserve and a sustained and robust output growth give India a high degree of confidence in its ability to manage full rupee convertibility.

How Nepal will cope with this likely scenario has emerged as an important policy question. If Nepal is to avoid any strain in its currency peg with India, would it be easier if Nepal drops its currency completely by adopting INR as its monetary unit? Or, would it still be beneficial or even feasible to continue its current practice in the face of capital account convertibility in India?

Our research examines if conditions necessary for an India-Nepal optimum currency area (OCA) currently exist. We do not address the more difficult questions of political feasibility of such a scheme for Nepal, a country in which the nature of a new political order is just being debated. The OCA literature has gained prominence in the wake of the expansion of European Union where several newer member nations have adopted Euro as their new currency. The basic theory (Mundell, 1961; Krugman, 1993, Obstfeld, 1997) emphasizes labor mobility, large interregional trade, similarity of shocks, and smooth fiscal redistribution as conditions that are necessary for a region to meet to become an OCA. We analyze the strength of these conditions between Nepal and India over time to determine if the conditions have become more or less conducive to the formation of an OCA today compared to 10 or 20 years ago. The conditions of high labor mobility and large bilateral trade seem favorable to an OCA whereas other criteria look more divergent. We examine some of them in this paper.

Frankel (1999) gives a greater emphasis to two properties to evaluate whether the benefits from an OCA will exceed costs—the openness to trade, i.e., the extent to which countries in the region trade within the region, and correlation of income changes among countries. If countries score high in each criterion, costs from the loss of monetary independence should not outweigh the gains from the OCA.

The more recent empirical literature suggests that benefits from the elimination of currency fluctuations may not be large. If so, this would place a larger burden on the cost of joining a monetary union to assess the desirability of a membership. However, in the context of EU, fiscal policy has gained prominence as a more practical local tool for a small economy to deal with shocks originating in the larger members of a region (Padoa-Schioppa, 2004; Corsetti, 2008). If internal operation of fiscal policy is smooth, the attractiveness of an OCA increases. On the other hand, there are limits to fiscal deficit and increase in public debt that an OCA member is normally required to observe. Even in Nepal, the Rastra Bank Act prevents a large scale monetization of public debt. This does not mean fiscal policies of India and Nepal are well harmonized, yet it indicates another aspect of Nepal's policy similarity, within a broad range, with

India. Among other aspects of economic trends, the money supply growth in the country has stayed moderate as in India, and most of Nepal's trade already occurs with India as well.

A major difference between economic performances in the two countries is the GDP growth itself. Per capita income in Nepal has grown on average at a low rate of 1 percent a year for the last five years and 3 percent in the last 10, compared to about 5 percent in India over the last decade. Whether incomes in Nepal and India are likely to converge in the medium run is yet to be seen. It should be highly interesting to see if relinquishing monetary autonomy more completely to India is likely to give a much needed boost to Nepal in terms of trade, foreign direct investment, and income growth.

II. Methodology

We first examine if price shocks in India transfer to Nepal easily and quickly. The following equation identifies the primary determinants of the price level in Nepal.

$$\log P = b_0 + b_1 \log M + b_2 \log Y + b_3 \log P^* + u \quad (1)$$

where,

$\log P$ = logarithm of the consumer price index (CPI) in Nepal,

$\log P^*$ = logarithm of the foreign price level proxied by CPI in India,

$\log Y$ = logarithm of real per capita GDP in Nepal in 1995 prices,

and

$\log M$ = logarithm of money supply, defined as M1, in Nepal in 1995 prices.

The quantity theory of money suggests that an increase in the money supply leads to increase in the general price level as long as the output level does not increase in the same proportion. Therefore the coefficient of money supply is expected to be positive. If there is an increase in output level given the money supply, the overall price level decreases. The coefficient of $\log Y$ should then carry a negative sign. The significance and size of the coefficient of $\log P^*$ is a main focus of our study. If it is positive and statistically significant, it indicates that inflation in India is one of the main determinants of inflation in Nepal.

Next, in order to see how the rate of economic growth in Nepal is related with economic growth in India, we can estimate the following equation:

$$grth = c_0 + b_1 M2 + b_2 open + b_3 inv_{-1} + b_4 grth^* + b_5 ygrth^*_{-1} + v \quad (2)$$

where,

grth = per capita real GDP growth,

M2 = broad money supply normalized by nominal GDP,

inv = total domestic investment as a proportion of GDP,

open = openness, total trade to GDP ratio, and

*grth** = per capita real GDP growth in India.

In an equation such as (2), *M2* is commonly used as a measure of the degree of financial development in a country. In particular, in poor countries this variable captures financial depth as monetization of their economies proceeds with growth. Thus, *M2* is expected to have a positive coefficient. Likewise, the coefficient of *open* is also expected to be positive as historical evidence generally shows that the more open an economy, *ceteris paribus*, higher its economic growth and vice versa. Further, it is well established that one of the primary determinants of economic growth in any country is its level of investment as a proportion of output. Since the effect of investment on output can take some time to materialize, we work with one year lagged, as well as contemporaneous, investment.

To examine if economic growth in India has an effect on growth in Nepal, we include *grth** in our model. Since such effect is likely to appear with some lag, we include a one-year lagged growth in India in equation 2.

Annual time series data from 1975 to 2006 that we use are derived from the World Development Indicators database (World Bank, 2008).

III. Results and Discussion

Most of the macroeconomic time series data are non-stationary. The regression using non-stationary data series can produce spurious results. In order to establish the stationarity of the data series we conducted the unit root test of all the data series in both equations using Augmented Dickey-Fuller and Phillips Perron tests. We find all the data series to be integrated of order one and hence are stationary only at the first difference level.

Next, Johansen's (Johansen and Juselius 1990) cointegration test shows if the variables in this equation are cointegrated. We find the null hypothesis of no cointegration is rejected for equation 1 but could not be rejected for equation 2. Therefore, following Engle and Granger, equation (1) is estimated in the first difference form with an error correction term whereas equation (2) is estimated only in the first difference form (without an error correction term).

$$\Delta \log P = b_0 + b_1 \Delta \log M + b_2 \Delta \log Y + b_3 \Delta \log P^* + e \quad (3)$$

$$\Delta grth = c_0 + b_1 \Delta M2 + b_2 \Delta open + b_3 \Delta inv_{.1} + b_4 grth^* + b_5 grth^*_{.1} + \varepsilon \quad (4)$$

The estimated results from equations (3) and (4) appear below:

$$\Delta \log P = 0.019 + 0.015 \Delta \log M - 0.303 \Delta \log Y + 0.909 \Delta \log P^* \quad (5)$$

(1.234) (0.196) (1.502)# (5.649)***

$$R^2 = 0.634 \quad D.W. = 1.731 \quad F = 11.284 \quad n = 31$$

$$grth = 0.47 + 9.07E-13 \Delta M2 + 11.58 \Delta open + 21.19 \Delta inv_{.1} - 0.02 grth^* + 0.39 grth^*_{.1} \quad (6)$$

(0.48) (0.01) (0.85) (0.61) (0.14) (2.01)*

$$R^2 = 0.22 \quad D.W. = 2.46 \quad ARCH F = 1.54 \quad F = 1.35 \quad n = 30$$

where figures in parentheses are t-values for the corresponding coefficients, and ***, *, # indicate significance at 1%, 10% and 15% levels respectively.

The coefficient of money supply in equation (5) is not significant indicating that any growth in money supply does not significantly affect the price level in Nepal. Instead, given open borders with India and free convertibility of the Nepali rupee, an increase in Nepal's money supply tends to worsen its current account balance and reduce its foreign exchange reserve. The coefficient of changes in log Y is negative as expected, however, it is only significant at 15 percent. Supply factors do tend to exert a downward pressure on prices, but their effects and significance seem weak.

The most interesting finding in equation (5) is the coefficient of changes in the Indian price level. This coefficient is positive as expected and statistically significant. The coefficient suggests that a 1 percent increase in the price level in India leads to a 0.91 percent increase in the price level in Nepal. Clearly price level in Nepal is strongly linked to the overall price level in India.

Equation (6) shows how growth rate in Nepal is related to various domestic and international factors. We find all the domestic variables to be positively related to growth in Nepal, but none of them seems to influence a significant impact. On the other hand, the coefficient of lagged economic growth in India is positive and statistically significant. This suggests that Nepal's economic growth is positively affected by Indian economic growth. The coefficient suggests that a 1 percent increase in Indian economic growth, *ceteris paribus*, helps the Nepalese economy to grow by 0.4 percent.

Once again, a large degree of Nepal's openness to India in trade and in the mobility of labor and capital appears to be augmented by interlinkage of the real sectors more broadly between the two countries. Both the R^2 and F-ratio call for a better specification for the real sector of Nepal. Yet, the large and significant impact of the Indian growth on growth in Nepal stands out in our results.

IV. Conclusion

Strong trade relations of Nepal with India and a fixed exchange rate of its rupee vis-à-vis the Indian rupee create both advantages and disadvantages for Nepal. The value of NR in the world market depends completely on the behavior of IR. An appreciation of the IR thus creates a loss of competitiveness for Nepal's exports and reduces domestic currency value of remittances sent by Nepali workers from outside India. Stabilization policies taken by India may not consider existing conditions in Nepal and may harm Nepal's interests. Also, India may not be too far from liberalizing the capital account in its balance of payments. How Nepal can cope with this likely scenario has emerged as an important policy question.

Our research examines if Nepal meets conditions for an optimum currency area with India. We find that most of inflation in Nepal is explained by inflation in India in the same year. Further, the rate of economic growth in Nepal is also influenced by Indian growth, but this effect on the real sector occurs with a one year lag. In addition, a large labor and capital mobility between these countries seems to indicate the desirability of OCA formation. For a clearer evaluation of such a hypothesis, however, the findings of this study need to be supplemented with research on at least two more issues. One is the nature and goals of fiscal policies in these countries and the other is the outstanding trade policy issues that have kept the bilateral trade from being completely open.

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