Nepal and Bhutan: Development Strategies and Growth

Kamal P. Upadhyaya
University of New Haven

Gyan Pradhan
Westminster College

Dharmendra Dhakal
Tennessee State University

I. Introduction

Nepal and Bhutan are both landlocked mountainous countries surrounded by China in the north and by India on the other three sides. Until recently, both countries have been ruled by active monarchies. India is the major trading partner for both countries, accounting for 50 percent of Nepal's and over 80 percent of Bhutan's trade. There are also important differences between the two countries. For instance, Nepal is relatively more independent of India in terms of its defense as well as foreign policy. In addition, Nepal is larger than Bhutan in terms of population, population density, size of economy, arable land, agricultural production and hydropower potential. Nepal's population is also much more diverse in terms of ethnicity. Another difference is that Nepal's economic growth rate has been quite dismal compared to that of Bhutan, particularly in recent decades. In this paper we examine the economic development strategies of the two countries and estimate a growth model in order to provide some insight into the complex development problems facing these nations.

II. The Economies

Nepal's economy grew at a reasonably fast pace during the 1990s as the economy responded to macroeconomic stability, liberalization, declining population growth rates and a rapid growth in trade (World Bank, 2005). The human development index improved as a result of better health and education indicators along with income growth. The proportion of the population living in absolute poverty declined as a result of the relatively broad-based growth performance of the economy and the growing significance of remittances. However, in the 2000s, political instability, effects of the global recession, and intensification of the Maoist conflict led to a sharp reduction in exports, manufacturing and tourism services. In recent years, growth has continued to suffer, poverty has remained endemic and income distribution has become more unequal.

Bhutan has established a record of high and sustained growth in recent years based mainly on its vast hydropower resources for export to India and strong international assistance. Bhutan's economy grew at nearly 9 percent in 2005 with the high growth of construction associated with a major hydropower project accounting for half of the growth in GDP. Despite steady progress, however, a third of the population lives below the poverty line and income distribution is highly unequal—the income of the top 20 percent is eight times higher than that of the bottom 20 percent. The economic base is narrow and largely depends on hydropower which accounts for 12 percent of GDP and 45 percent of government revenues.

III. Development Strategies

Nepal emerged from self-imposed isolation and started its development process with its First Five Year Development Plan in 1956 which emphasized the development of infrastructures, agriculture and import substituting industries. Subsequent development plans continued to emphasize the development of infrastructures and agriculture as the country lacked basic infrastructures. In addition, these plans also emphasized trade diversification, private involvement and fulfillment of basic needs of the population with the objective of achieving high growth with employment (Khatiwada and Sharma, 2002). Nepal created several public enterprises which were essentially government monopolies. Huge government investments in inefficient public enterprises, continuously growing government budgets and low revenue efforts created budgetary deficits, inflationary pressures and balance of payments problems which were accentuated due to an overvalued exchange rate. As a result, the country suffered from serious macroeconomic instability by the mid-1980s which forced it to adopt a structural adjustment and economic liberalization program.

Bhutan also started its development process late. The country lacked indigenous capital, manpower and infrastructure necessary for economic growth. Until the end of its First Five Year Development Plan (1961-66) the country was virtually inaccessible by road and air. Therefore, the main goal of the first plan was to build roads. In subsequent five-year plans, roads, transport and public works continued to receive high priorities. The Second Five Year Plan (1966-71) placed emphasis on power generation from its vast hydropower potential and helped it end its physical isolation. In the third and fourth development plans, emphasis was placed on industrialization. In the 1980s, the development decentralization process was started under which development plans were drawn up for each district (Labh, 1984). As in Nepal, by the end of the 1980s, privatization processes were initiated under which public enterprises were privatized.

IV. Sources of Growth

Standard growth models suggest that the rate of output growth depends primarily on the incremental change in the capital stock (Dhakal *et al*. 1996). Given the shortage of capital in developing countries, foreign assistance supplements the amount of capital and thereby contributes to economic growth (Chenery and Strout, 1966). Assuming the amount of labor is constant, the following model is developed:

$$y = AK^{b}e \qquad (1)$$

Where *y* denotes the level of output, *A* represents the efficiency parameter, *K* is the amount of capital, *b* represents the contribution of capital, and *e* is the random error term. After log transformation, equation (1) can be written as:

$$log\ y = A + b\ log\ K + e \qquad (2)$$

The first difference of equation (2) changes it into growth form:

$$\Delta\ log\ y = c_0 + c_1\ \Delta\ log\ K + v \qquad (3)$$

Replacing *K* in equation (3) by AID (foreign aid defined as grants and foreign borrowing),

$$\Delta\ log\ y = c_0 + c_1\ \Delta\ log\ AID + v \qquad (4)$$

where *v* in equations (3) and (4) is the random error term. Equations (3) and (4) are estimated for Nepal and Bhutan using annual time series data. An error correction model is estimated for Nepal in order to capture the long-run relationship between the variables. For Bhutan an error correction model is not developed because the length of data required was not available. In order to capture the lagged effect, a one-year lag of *K* is also added. The estimated results are reported below.

<u>Nepal</u>

$$\Delta\ log\ y = 0.038 + 0.18\ \Delta\ log\ K - 0.09\ \Delta\ log\ K_{-1} - 0.04\ ER_{-1} - 0.67\ AR\ (1) \qquad (5)$$

$$(8.08)^{***} \quad (2.66)^{**} \qquad (1.36) \qquad\qquad (2.89)^{**} \quad (4.04)^{***}$$

$Adj.\ R^2 = 0.171 \quad DW = 2.41 \quad F = 2.34 \quad RESET\ F = 1.18$

$$\Delta \log y = 0.04 + 0.02\, \Delta \log AID + 0.00007\, \Delta \log AID_{-1} - 0.05\, ER_{-1} \quad (6)$$
$$(7.72)^{***} \quad (0.91) \quad (0.002) \quad (1.79)^{*}$$

Adj. $R^2 = 0.013$ $DW = 2.49$ $F = 1.12$ *RESET* $F = 0.311$

<u>Bhutan</u>

$$\Delta \log y = 0.05 + 0.03\, \Delta \log K + 0.06\, \Delta \log K_{-1} \quad (7)$$
$$(2.54)^{**} \quad (0.26) \quad (0.58)$$

Adj. $R^2 = 0.171$ $DW = 2.41$ $F = 2.34$ *RESET* $F = 1.93$

$$\Delta \log y = 0.037 + 0.06\, \Delta \log AID + 0.12\, \Delta \log AID_{-1} \quad (8)$$
$$(2.57)^{***} \quad (1.31) \quad (2.33)^{**}$$

Adj. $R^2 = 0.186$ $DW = 1.93$ $F = 3.06$ *RESET* $F = 1.72$

*Figures in parentheses are t-values. ***significant at 1% critical level, ** significant at 5% critical level, and *significant at 10% critical level.*

Because of serial correlation, equation (5) is estimated using AR (1) term. The overall estimation of this equation appears fine in terms of the R-squared statistic and F value. The Durbin-Watson value falls within the inconclusive range but the ARCH-LM test suggests the absence of autocorrelation. The results thus indicate that in Nepal domestic capital has had a significant effect on growth while foreign aid and borrowing have had very little effect. The opposite holds true for Bhutan—domestic capital does not seem to have had any significant effect on growth; instead, foreign aid has been the source of growth. Given that the private sector is still relatively underdeveloped and that Indian assistance has been well-utilized for mega electricity and other infrastructure development projects, this finding is not surprising.

V. Conclusion

This paper has sought to examine the factors that have contributed to the economic growth of Nepal and Bhutan. After a brief discussion of the economy and growth strategy of each country, standard growth models for Nepal and Bhutan are developed and estimated. The results indicate that domestic capital has been a significant source of economic growth in

Nepal whereas foreign aid has not had any appreciable effect on growth. The reverse is true for Bhutan.

References

Chenery, H.B., and A.M Strout. (1966) "Foreign Assistance and Economic Growth," *American Economic Review,* vol. 56, pp. 679-733.

Dhakal, Dharmendra, Kamal Upadhyaya, and Mukti Upadhyay. (1996) "Foreign Aid, Economic Growth and Causality," *Rivista Internazional di Scienze Economiche e Commerciaili,* vol XLIII, no. 3, pp. 597-606.

International Monetary Fund, *International Financial Statistics*, various issues.

Khatiwada, Yubaraj and Suman Sharma. (2002) *Nepal: Country Study Report,* IIDS, Kathmandu, Nepal.

Labh, Kapileshwar. (1994) "Economic Development in Bhutan: Recent Trends and Prospects," *International Studies*, vol. 31, no. 2., pp. 189-206.

World Bank, *World Development Indicators 2005*.