Unit 1

Rates Determining Nepalese Foreign Trade

– NIRAJ POUDYAL[*]

ABSTRACT

Trade deficit has to be subsidized by precious foreign exchange earned as remittance, compensation from tourism and indirectly from foreign aid (grants as well as loan). Built-in-stabilizer has been demobilized by the existing pegged exchange rate with India and Nepal's sovereignty over foreign trade has been weakened. This makes it impossible to formulate and implement independent monetary and exchange rate policy in favour of domestic industries and export. Because of the fixed exchange rate regime, it is extremely difficult to predict the response of export and import to the exchange rate. There is high collinearity between the general price index of India (Wholesale Price Index) and that of Nepal (Consumer Price Index).

INTRODUCTION

International trade may be defined as exchange of goods and services between the residents of a given country and these of the rest of the worlds[1]. Trade is the resilience and lifeblood of virtually all modern national state. Foreign trade was the locomotive of growth for most of the then developing countries like Japan, Korea and Singapore. Increasing volume of trade has increased the interdependency among the countries, developing or developed. As a result of incredible innovations in information and transportation technology, liberalization and globalization whim, trade has become even easier and hence more profitable. Globalization process lead by international organizations like World Bank (WB) and International Monetary Fund (IMF), bolstered by strong economies like United States of America (USA) and Japan and followed by the expected future economic tigers like China, Brazil and India has limited the role of non - tariff barriers like custom duty and quota to make the situation of Balance of Payment (BoP) in favour of own economy and politics.

Problems in foreign trade, just like in any other economic problems, can not be solved ignoring the demand and supply forces. Supply side rather than demand side seems to be the most problematic facet for developing countries. Enhancing the competitiveness through upgrading of productivity seems to be the only way out especially for developing countries like Nepal.

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NEPALESE FOREIGN TRADE

Nepal seems to have remained fairly a closed economy till the end of 'Rana' regime in 1950. What can be said for sure is that the formal records are available only since 1950. Nepal's trade openness ratio, as measured by the sum of merchandise exports and imports to Gross Domestic Product (GDP), increased to 23 percent in this decade from less than 16 percent in 1970s[2]. Nepal's trade balance has never been positive. Although, there has been a significant growth in export since its openness to the outside world, its large import base, especially from India, has always been dominating in the foreign trade scenario of Nepal. More than 60 percent of the foreign trade is with the southern neighbor India. Few export items like carpets, pashmina and raw materials cover the entire portion of export from Nepal. Trade (especially export) concentration has further deteriorated on both the dimensions of commodities and destinations. Trade deficit has to be subsidized by precious foreign exchange earned as remittance, compensation from tourism and indirectly from foreign aid (grants as well as loan) that trade deficit is continuously increasing excluding some exceptions in 1996 and built-in-stabilizer has been demobilized by the existing pegged exchange rate with India and Nepal's sovereignty over foreign trade has been weakened.

Figure 1
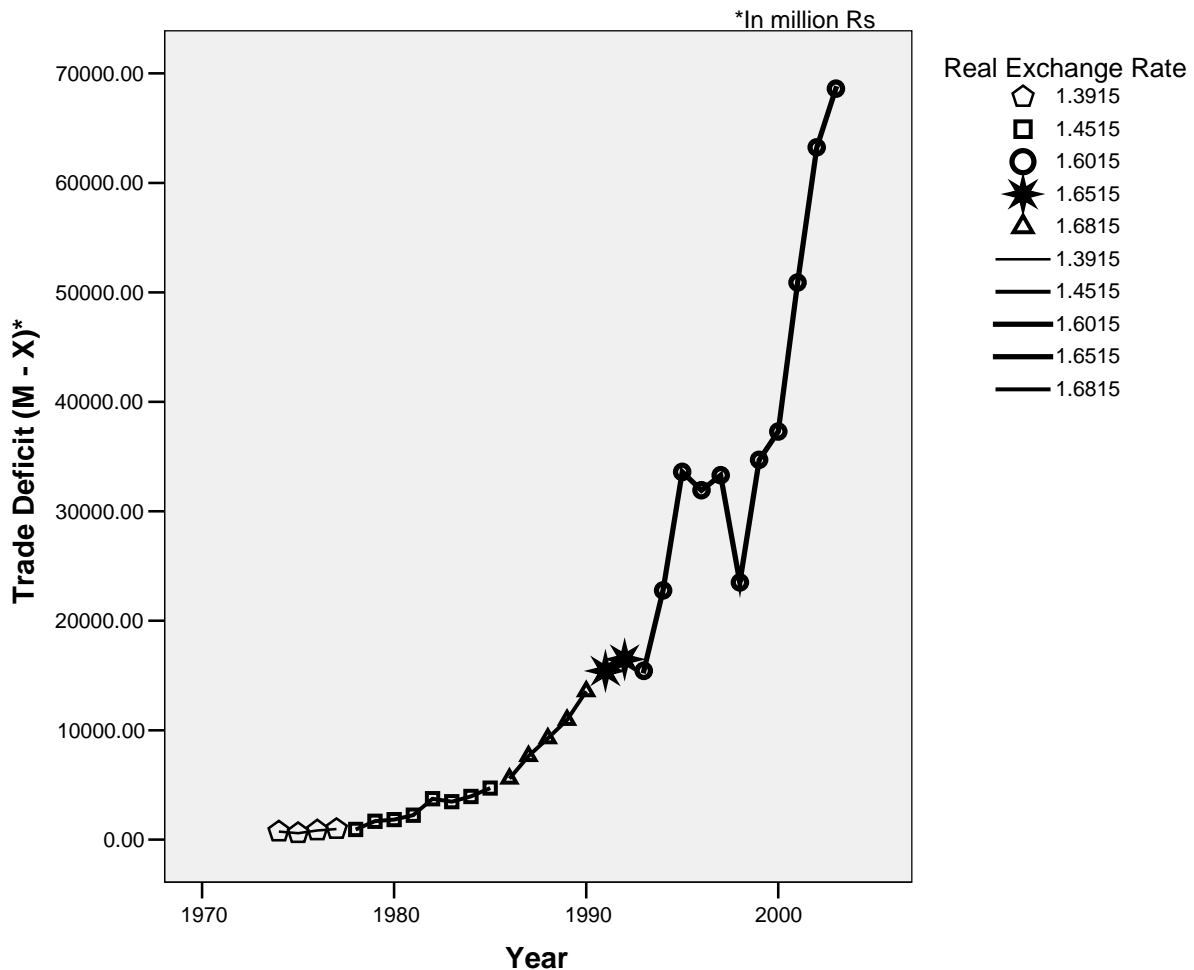
This makes it impossible to formulate and implement independent monetary and exchange rate policy in favor of domestic industries and export. Time series analysis of Trade Deficit (TD) defined as total nominal import (M) minus total nominal export (X) shows that TD is continuously increasing excluding some exceptions in 1996 and 1998.

Figure 1 might be the result of trade treaty between India and Nepal in 1996 which was thought to be in favor of Nepal. The treaty allowed the country to export goods towards India without regard to origin of raw materials used in the production so far as there was some local value added in production process. But the exceptions in these two years could not prove to be the long run trend. Growth rate of trade deficit rocketed even faster after 1998 breaking all the previous records.

EXCHANGE RATE AND FOREIGN TRADE

Because of the fixed exchange rate regime, it is extremely difficult to predict the response of export and import to the exchange rate. Moreover, the capricious tremor in the economy may not be unusual phenomenon. A long debate has been continuing as to whether the current fixed regime is correct or some other models should be followed. Further the debate has poured a lot of effort to question the current exchange rate itself (1.6 NRs = 1 IRs). It is very difficult to measure the extent to which the exchange rate is responsible for variation in the volume of international trade because of the constancy of the explanatory variable exchange rate over the time. But we can take the real exchange rate, which varies, as a proxy variable. Theoretically, there is a positive relation between trade deficit and exchange rate of a currency of the country. If we take the real exchange rate of Indian currency to explain the trade deficit of Nepal, there must be negative relationship between the two. On the other hand real exchange rate depends on the direction of foreign TD. If TD increases the real exchange rate of the country automatically depreciates under flexible exchange rate regime. In the Figure 1, we can see the obvious positive relationship between TD and real exchange rate of Indian currency in terms of Nepalese currency. Here, TD has worked as explanatory variable while as real exchange rate as dependent variable. We have defined the net volume of trade in favor of Nepal as the difference between total export and total import. In other words, we take trade deficit (as it always the case for Nepal) as regress and real exchange rate and income (GDP) as regressor for a regression model

$$TD = f(RER, GDP) \text{ ———————————————————— (1)}$$

where, TD = M – X, X = export and M = import, GDP = Gross Domestic Product, RER = Real Exchange Rate = $ER.P/P_f$, P_f = foreign price and P = domestic price.   ER = Exchange Rate of Indian currency in terms of Nepalese currency.

INFLATION RATE AND FOREIGN TRADE

General price in the domestic economy works as determinant of foreign trade directly. Theoretically, domestic general price and TD are positively related as increase in domestic price decreases the competitiveness of exporters and encourages import of foreign goods. On the other side increase in TD encourages price to slow down. So far, Nepal is considered to be successful in its price stability objective of fiscal and monetary policy. This is quite obvious as the inflation rate has rarely exceeded the rate of 7 percentages per annum. However, this cannot be doubtless as many economists argue that inflation rate in Nepal is rarely under the direct influence of fiscal and monetary policy of Nepal. The most important fact in Nepalese context is that the pegging of Nepalese currency (NC) with Indian currency (IC) has

created a channel through which Nepal imports prices from India[3]. That means there is high collinearity between the general price index of India (WPI: Wholesale Price Index) and that of Nepal (CPI: Consumer Price Index). For the econometric analysis, it is sufficient to take CPI as an explanatory variable in the regression model (1). Our model then becomes

$$TD = f(RER, GDP, CPI) \text{————————————————————(2)}$$
CPI = Consumer Price Index

If we observe the historical data of CPI (1972/73 =100 as base year) and TD, we can see the clear positive relation between them. Although it might be the result of autocorrelation along time, we cannot ignore the clear trend of relationship.

Figure 2
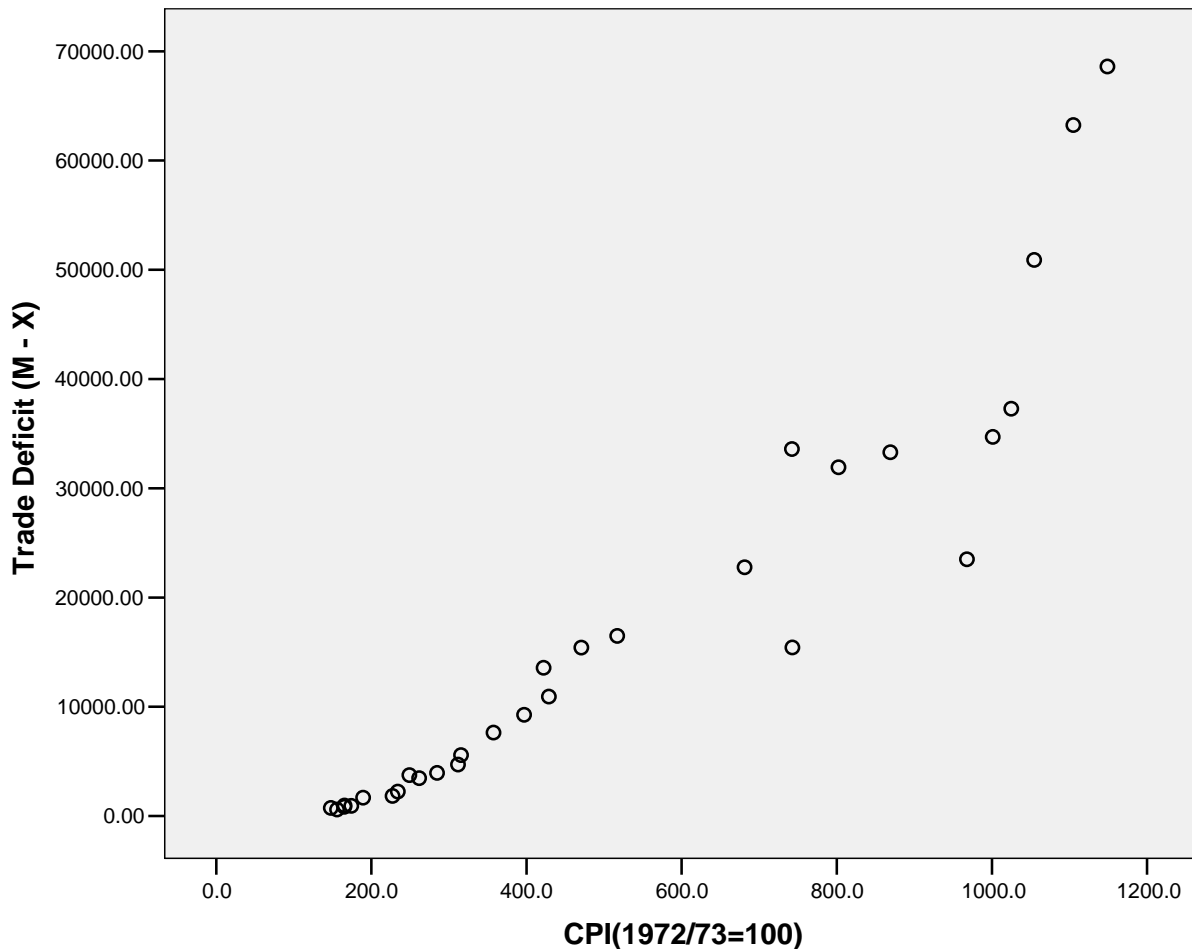
INTEREST RATE AND FOREIGN TRADE

Interest rate (r) is responsible for changes in TD volume not as directly as general price (CPI) and exchange rate (RER). Interest rate inversely affects the level of urban consumption and hence the overall consumption expenditure (C) of the economy. Consumption expenditure, on the other way around, is a crucial and significant component of GDP. We have already taken GDP as a determinant of TD. Similarly, interest rate inversely affects the level if investment (I), another important component of GDP. This existence of simultaneity of relationship among the macroeconomic variables calls for the use of simultaneous econometric model.

COMPLETE MACROECONOMIC MODEL

This paper is based on macroeconomic model with the assumption that supply side is the exogenous factor. The complete macroeconomic model is based on Keynesian macroeconomic analysis (Demand Side Analysis).

$$lnTD_t = a_1 + a_2.RER_t + a_3.GDP_t + a_4.CPI_t + a_5CPI_{t-1} \text{ ——— (3)}$$
$$GDP_t = C_t + I_t + G_t - TD_t$$
$$C_t = f_1(GDP_t, GDP_{t-1})$$
$$I_t = f_2(GDP_{t-1})$$
$$G_t = f_3(GDP_t, GDP_{t-1})$$

where G_t = government expenditure.

In this model, $lnTD_t$, GDP_t, C_t, I_t, G_t are endogenous variables. GDP_{t-1}, RER_t, CPI_t, CPI_{t-1} are predetermined variables.

Total number of endogenous variables = total number of equations = G = 5
Total number of variables in the model (endogenous and predetermined) = K = 9
Number of variables included in a particular equation = M

Using the order condition (necessary condition) K – M > G – 1, we can see that the equation of TD is exactly identified and other equations are overidentified. In such a situation use of the Two Stage Least Squares (2SLS) method of estimation seems more appropriate. This method is fairly simple in conception and in computations. It has yielded more satisfactory results than any other econometric methods and has become the most important technique for the estimation of overidentified functions[4].

OPERATIONAL DEFINITIONS OF VARIABLES TO BE USED IN THE MODEL
GDP = real GDP taking 1973/74 as base year (GDP deflator has been used to calculate real GDP)
CPI = Consumer Price Index taking 1972/73 as base year
RER = Real Exchange Rate of Indian currency in terms of Nepalese currency
$lnTD$ = natural logarithm of TD

Using 2SLS involves following two stages:

Stage I

We estimate the endogenous variable GDP_t (which is used as explanatory variable for the regression equation (3) using the predetermined variables of the model. They are GDP_{t-1}, RER_t, CPI_t and CPI_{t-1}. Thus we estimate the regression equation using the historical data since 1974 A.D to 2003 A.D. as:

$$GDP_t = b_0 + b_1.GDP_{t-1} + b_2.CPI_t + b_3.CPI_{t-1} + b_4.RER_t + u_t$$

We get the estimation result as:

$$GDP_t = -15035.1 + 1GDP_{t-1} - 44.17CPI_t + 45.505CPI_{t-1} + 11262.631.RER_t$$

s.e.	(5106.287)	(0.099)	(7.815)	(5.947)	(3841.791)
t-value	(-2.944)	(10.058)	(-5.652)	(7.651)	(2.932)

p-value   (0.007)   (0.000)   (0.000)   (0.000)   (0.007)

$R^2 = 0.994$ $R^2 = 0.993$ $F(4, 24) = 1068.539$ (0.000)   D-W = 1.559

The results show that the regression is highly significant in a sense that explanatory variables are able to explain 99.4% of the variation in GDP. All the coefficients are statistically significant as indicated by very lower p-values. Direction of coefficients of GDP_{t-1}- and CPI_{t-1} correspond the theoretical (economic) relationship. Coefficients represent change in GDP due to unit change in corresponding variable. F statistics is highly significant implying overall goodness of fit. D-W statistics implies that there is no severe autocorrelation. Problem of heteroscedasticity and multicollinearity do not seem to be strict.

Stage II

We next substitute the estimated value of GDP (GDP) for the original GDP in equation (3) and perform the regression.

$$ln TD_t = 3.040 + 2.452 RER_t + 4.07E\text{-}005 GDP_{t-1} - 0.003 CPI_t + 0.002 CPI_{t-1}$$
s.e.   (1.069)   (0.812)   (0.000)   (0.002)   (0.001)
t-value   (2.844)   (3.021)   (1.794)   (-1.571)   (1.965)
p-value   (0.009)   (0.006)   (0.086)   (0.130)   (0.062)

$R^2 = 0.889$ $R^2 = 0.869$ $F(4, 23) = 45.834$ (0.000)   D-W = 0.831

The results show that the regression is highly significant in a sense that explanatory variables are able to explain 88.9 percent of the variation in *lnTD*. F statistics is also statistically highly significant implying high degree of goodness of fit. All the coefficients are statistically significant as indicated by very low p-values. The coefficients of all explanatory variables give the percentage change in TD due to unit change in the corresponding variable. Direction of coefficients of GDP_{t-1}, CPI_{t-1} and RER_t correspond the theoretical (economic) relationship. D-W statistics implies that there negative autocorrelation.

CONCLUSION AND RECOMMENDATIONS

Trade deficit is the vital indicator of accessing economic situation of a country. Rocketing trade deficit is the undeniable fact of Nepalese economy. Along with export capacity, international competitiveness in terms of quality export items and uncomplicated service system, real exchange rate, inflation and interest rates are also crucial determinant variables of trade deficit. There is undeniable influence of inflation, GDP and exchange rate on trade deficit and vice versa. In the world of quota free trade and ever decreasing tariff barriers, the paper has highlighted the patent significance of price stability and apt exchange rate to mollify the widening gap between import and export. Sustained growth of export through product and destination diversification can ease the problem in a more stable and reliable comportment.

ENDNOTE:

[1]   Mannur, H. G.; International Economics, Vikas Publishing House, New Delhi, 1999.

[2]   Karmacharya, B.K. (2004). "Performance of Nepal's Foreign Trade" in M.K. Dahal (ed.), Nepalese Economy: Towards Building a Strong Nation-State. Central Department of Economics, Tribhuvan University and New Hira Books Enterprises

[3] Thapa, Nara Bahadur (2004). "The Conduct of Monetary Policy in Nepal: Problems and Process," in M. K. Dahal (ed.), Nepalese Economy: Towards Building a Strong Nation-State. Central Department of Economics, Tribhuvan University and New Hira Books Enterprises.

[4] Koutsoyiannis A. (1977). Theory of Econometrics, Second Edition. Palgrave.

REFERENCE:

Dahal, M.K. (ed.)(2004). Nepalese Economy: Towards Building a Strong Economic Nation State, Central Department of Economics and, Tribhuvan University and New Hira Books Enterprises.

Economic Survey of Nepal (various issues), MOF, Government of Nepal.

Greene, W.H. (2000). Econometric Analysis, Fourth Edition, Pearson's Education Asia, Singapore.

Gujarati D. N. (2003). Basic Econometrics, Fourth Edition, McGraw Hill, New York.

Karmacharya, B.K. (2004). "Performance of Nepal's Foreign Trade" in M.K. Dahal (ed.), Nepalese Economy: Towards Building a Strong Nation-State. Central Department of Economics, Tribhuvan University and New Hira Books Enterprises.

Koutsoyiannis, A. (1977). Theory of Econometrics, Second Edition, Palgrave.

Oxford Dictionary of Economics, John Black, Second Edition2002, Oxford University Press, New York.

Poudyal, N. and Uprety, K. (2006). Regression and Econometric Methods: An Introductory Analysis, Asmita Publication, Kathmandu.

Source of Data: Various publications of Central Bureau of Statistics.

Thapa, Nara Bahadur (2004). "The Conduct of Monetary Policy in Nepal: Problems and Process," in M.K. Dahal (ed.), Nepalese Economy: Towards Building a Strong Nation-State. Central Department of Economics, Tribhuvan University and New Hira Books Enterprises.

Thirwall, A. P. (2002). Growth and Development, Seventh Edition, Palgrave Macmillan.