Impact of Exchange Rate Change on Foreign Trade Balance in Nepal.

Nepal is a land locked country having 800 kms. open border with India. It has been facing the trade deficit from history to yet especially with India and then to the rest of the world (RoW) countries. His Majesty the Government had adopted the different policies in different time but most of them are found to be failed. In these circumstances this study tries to identify whether the exchange rate change (especially the currency devaluation) is the best solution to solve the problem by using the appropriate hypothesis and methodology as mentioned in the article.

1. Introduction

Nepal is one of the land-locked countries in Asia. Like other land-locked countries it happens to be among the least developed of the developing countries. Landlockedness is the major geographic weakness that becomes the main hindrance in overall development of Nepal. It has 800-Kms. long open boarder with India.

Nepal has been facing trade deficit from history to yet, especially with India and then to the rest of the world countries. Whatever may be the claim of the government, the trade sector is the one of the least attended sector of the economy; however, it has a great role to increase the economic growth and to alleviate the poverty. Various measures like: export-exchange entitlement scheme, dual exchange rate, direct cash subsidies and frequent changes in other procedural aspects such as the licensing system and the tariff structure were made aimed much fanfare but with little impact. The trade deficit continued to grow unbridled, and is increasingly posing a serious challenge to the various economic structure of the nation (*Bajracharya and Sharma: 1996*).

Among the tools of export promotion and import curtailment, exchange rate devaluation is one. However, this is not a sufficient tool in case of under-developed countries like Nepal because there is no monopoly power over its exports and no monospony power over its imports. Also, the financial market in such nation is not well developed and the economy is not monetized. Thus, to correct the trade deficit, stabilization tool such as exchange rate policy and fiscal and monotony policies have greater role. So this study is, basically, undertaken to understand the impact of exchange rate management on trade balance in Nepal.

2. Existing Scenario of Foreign Trade Balance

In the Nepalese economic history, the data on balance of payments (BoPs) are relatively of recent. In this scenario, they are taken here since 1975 onwards. The trade balance over the period under study was always in deficit.

The average trade deficit in fifth plan period was Rs. 1396.02 million per annum, of which 59.17% was with India. The average annual deficit for the period as a whole was 1.527% of the total GDP of the same period. Out of five fiscal years three had current account surplus with a slight margin but the deficit for the other two years was heavy in size. However, the average annual deficit for the period as a whole was 0.27% of GDP of the same period.

The trade sector of the Nepalese economy during sixth plan period could be considered to be the weakest compared to the preceding and sub-sequent periods. The balance of payments deficit was increased by 204.5% in comparison to the fifth plan period. As a result of this, despite almost the same rate of export growth compared to the preceding plan period, imports capacity of exports came down to 28.75% during this plan period. In this period also, the average trade deficit was Rs. 4250.26 million per annum of which 39.15% was with India. At the first-two years of this plan period the current account deficit was increased by marginal rate, however it was increased by a heavy percentage rate at the remaining three fiscal years of this plan period. The average annual deficit for the period as a whole in current account was 2.52% of GDP of the same period.

Table I: Periodic Average Trade Balance. **In Million Rs.**

Plans / Heading	Fifth Plan Period	Sixth Plan Period	Seventh Plan Period	Plan Holiday	Eighth Plan Period
Trade Balance with India	-826.08	-1664.16	-3198.64	-7793.2	-15962.0
% of Total Trade	59.17%	39.15%	32.52%	45.49%	40.51%
Trade Balance with Rest of the World Countries	-569.94	-2586.36	-6635.16	-9253.05	-23366.075
% of Total Trade	40.83%	60.48%	67.48%	54.51%	59.49%
Total Trade	-1396.02	-4250.2	-9833.8	-17106.9	-39278.075
% of GDP	1.52%	3.31%	3.86%	6.55%	13.92%
Current Account Balance	-55.82	-4438.6	-4795.3	-9786.85	-13402.35
% of GDP	0.27%	2.82%	1.97%	8.00%	3.62%

Source: ***Quarterly Economic Bulletin, NRB, 1997.***
Economic Survey, HMG/MOF, 1998/99.

Among the period under study, the seventh plan period should be considered to be the best so far as the improvement in the external sector of the economy is concerned. The trade deficit with India was the least in seventh plan period among the periods under study. It was 32.50%. The trade deficit tremendously increased in eighth plan period, i.e.; trade deficit in percentage of GDP increased form 3.86% to 13.92% in eighth plan period. The above mentioned evidence proved the above mentioned statement that- "Nepal has been facing the trade deficit from history to yet and that deficit continued to grow unbridled, and is increasingly posing a serious challenge to the various economic structures of the nation." Thus, His majesty the Government of Nepal had opted the different trade policies in the past to control the trade deficit. Some of these policies are under mentioned.

3. Trade Policies Opted by His Majesty the Government of Nepal (HMG/N)

In this regard, the first measure introduced by Nepal was called Exporter's Exchange Entitlement scheme. This system was popularly known as the "Bonus system" According to this system those people who wanted to imports should have the bonus. To get bonus they had to exports goods in the third countries. The bonus was to be used for the purpose of importing various goods from third countries. Other trade regimes the Nepal had opted in the past were:

1. Dual Exchange Rate System.
2. Auction System.
3. Duty Draw-Back Facility.
4. Bonded Warehouse System.
5. Partial and then Full Convertibility of Current Account.

The last system is still is practice. Each of these systems contributes significantly in the process of diversification of Nepal's exports of third countries. However, certain lacunas were felt in these systems. As a result, each one of these systems was decided to scrap one after another and replace each by another new.

Despite the introduction of these measures, no significant improvement was noticed in the trade sector of the country. Trade deficit continued to grow and the rate of economic growth was also not encouraging. This shows that simply providing incentives on exports is not enough to correct the trade deficit of the nation. To alleviate these problems, Nepal opted for trade liberalization. However, the tendencies of trade deficit have been increasing.

4. Theoretical Issue

(a) Foreign Trade and Economic Growth

According to the classical and neo-classical economist foreign trade is an important factor of economic development of any country. Adam Smith's model of foreign trade postulates the existence of ideal land and labour before a country is opened to world markets. In general, classical economists considered comparative advantages as determining the pattern of trade.

However, the indirect benefits that a nation gained from foreign trade are:

1. Those that widen the extent of the market, induced innovations, and increase productivity.
2. This emphasis on the supply side of the development process.
3. Those that have an educative effect in instilling new wants and tastes and in transforming technology, skills, and entrepreneurship.

For these several reasons, we can conclude that the gain from trade does not result in merely an once-over changes in resource allocation but it continuously impact the economic development of a nation positively. Foreign trade changes existing production level and increases the productivity of the economy. If trade increases the capacity for development, then the larger the volume of trade, the greater should be the potential for development.

There are other theories too, which argues about the positive effect of foreign trade on the rate of economic growth of a country. Among them the demand-motored model of the staple theory and Corden supply-motored model. Both of these models give the positive

view of trade and development and thus emphasize the direct gain that comes from international specialization plus the additional support to country's development through a number of spread effects within the domestic economy.

(b) Problem in Balance of Payments and Correction Measures

One of the most important sources of information about a country's international economic position is its balance of payments. This is a summary statement of all the transactions between the residents of one country and the rest of the world. It covers a given period of time, usually a year. The balance of payment accounts consists of the following two accounts.

1. Current Account (a/c) and
2. Capital Account (a/c).

The current a /c is a part of the balance of payments in both visible and invisible trade. Visible imports and exports consist of physical merchandise of all kinds, whereas the invisible imports and exports are services, transfers and interest, profit and dividends. If X denotes the gross exports and M the gross imports in monetary term then current a/c balance of payments equation become.

$$B = X - M \text{ ---------- (1)}$$

If $X > M$, $B > O$, the case of current a/c surplus.
If $X > M$, $B < O$, the case of current a/c deficit.
If $X = M$, $B = O$, the case of current a/c balance.

The capital a / c is a part of the balance of payment, which records long term and short-term capital movements between the countries. However, in this study, we consider only the trade account of current a/c balance.

In equation (1), when $B \neq O$, we need correction and when $B < O$, serious problem arises. In this case the balance of payments is in deficit.

Now the question is: what action can be taken by the government to control a persistent payments imbalance?

There are three main possibilities

1. It could adopt demand management policies.
2. It could impose import controls.
3. It could allow the exchange rate to change.

Normally, currency depreciation is appropriate to correct a deficit.

Depreciation will immediately affect the relative prices of traded goods. The foreign price (P) of exports will fall and the domestic price (P_d) of imports from foreign countries will rise. These price changes will intern cause a rise in the demand for exports and a fall in the demand for imports. So long as these demand changes can be realized, they will affect the country's balance of payments. However, the price effect of depreciation does not tell in the complete story because it is possible that the national income will also be affected. This change in income will cause changes in the demand for imports and this will insert a further influence on the trade balance. At the same time, the inflationary impact of devaluation may

come through various channels. The consequences of such inflation will be that it erodes the impact of the devaluation. Thus, to reduce inflationary impact of devaluation it is considered to be better to use the real exchange rate, then the nominal.

Thus, if we consider the price effects of depreciation, we have to made the following two assumptions.

1. The supply elasticity is very large so that increase in demand can easily be met , and
2. We ignore the possible income change.

Under these assumptions, an increase in B in the above equation (1) will represents a movement from a deficit towards surplus and so can be regarded as an "improvement".

The greater the elasticity of demand for exports, the bigger will be the increase in the total value of exports following the depreciation. Only if the demand for exports is perfectly inelastic then the total volume remains unchanged. That is if e_x is the elasticity of demand for exports, and if e_x = o, depreciation does not increase exports.

In case of imports, if $e_m < 1$, depreciation will rise the total value of imports and if $e_m > 1$, depreciation will reduce the total value of import where e_m is elasticity of demand for imports.

Clearly, what happens to the trade balance of a country depends crucially on both the elasticity of demand for exports (e_x) and on elasticity of demand for imports (e_m). Assuming that we start from and equilibrium position initially, the trade balance will improve following depreciation if:

$$e_x + e_m > 1 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

This has been known as the "Marshall- Lerner Condition". This states that "a depreciation of a currency will result in an improvement in the balance of trade if the sum of the elasticity's of demand for exports and for imports exceeds unity.

Although demand elasticity in international trade are extremely difficult to estimate. The existing evidence suggests that the sum of elasticitics is considerably greater than one in the long run. It is possible. But, the conditions may not be satisfied in the short-run. It may take time for the country's importer to find alternative supplies in response to the increase their purchase of exports following the fall in exports price. So, depreciation may at first come the trade balance to deteriorate. Eventually, perhaps after a year, imports and exports should respond to the changed price and the trade balance should improve. This delayed improvement in trade balance following depreciation is often referred to as the J-curve effect. Graphically this effect is shown in the following Figure. If of course the Marshall-Lerner condition is not fulfilled in the long run either then the curve in the figure will flatter out at a deficit greater than that before the devaluation.

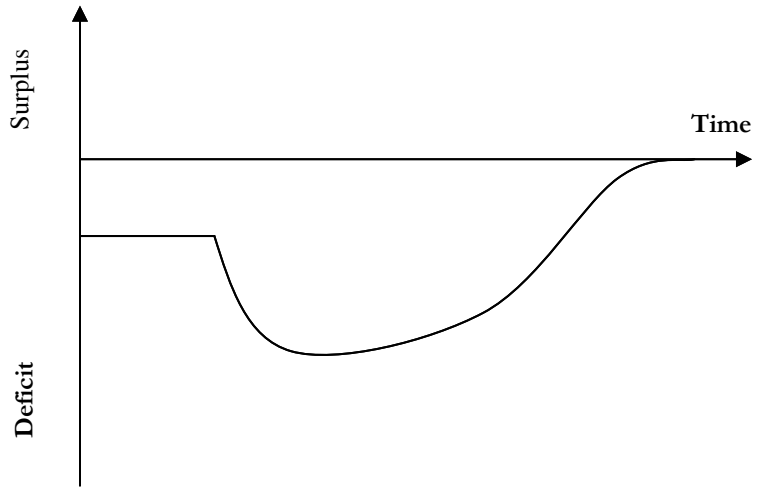

Figure: Showing J – Curve Effect.

5. Hypothesis

Followings are the hypothesis of the study.

1. Changes in Real Effective Exchange Rate (REER) will change on exports. This is there is relationship between REER and exports.

   Mathematically,

   Ho: $b_2 = 0$
   H_1: $b_2 \neq 0$ (Two-tail)

2. Change in REER will change on imports.

   Mathematically,

   H_0: $b_2 = 0$
   H_1: $b_2 \neq 0$ (Two-tail)

6. The Model

The analysis is mainly concentrated on the impact of exchange rate change on foreign trade balance. Thus, the following exports and imports functions are considered:

$$X_t = f (NGDP, REER, X_{t-1}) \ldots\ldots\ldots\ldots (1)$$

Where,

NGDP = Nominal GDP.
X_t = Exports in the year t.
REER = Real Effective Exchange Rate.
X_{t-1} = Exports in year t – 1.

and

$$M_t = f (NGDP, REER, M_{t-1}) \ldots\ldots\ldots (2)$$

Where,

M_t = Imports in the year t.

M_{t-1} = Imports in the year t – 1.

In linear form following models are considered

a. Case with India

$X_t = a + b_1X_t + b_2\ REER_{ic} + b_3\ NGDP + U_t$

$M_t = a + b_1M_{t-1} + b_2\ REER_{ic} + b_3\ NGDP + Ut$

b. Case with Rest of the World Country

$X_t = a + b_1X_t + b_2\ REER_{\$} + b_3NGDP + U_t$

$M_t = a + b_1M_{t-1} + b_2\ REER_{\$} + b_3\ NGDP + U_t$

All the above models include the concept of constant terms "a" because of the fact that there will be some exports and imports even if all other variables are zero. U_t the residuals term, shown that the exports and imports are also affected by other variables not included in the model.

The ordinary least square (OLS) method of regression will be used to estimate the parameters. For this purpose we choose the SPSS 9.0 version of computer software.

In the above analysis, REER is calculated by using the formula.

$$REER_{ic} = \frac{1/(NER)_c}{1/(NER)_b} \times \frac{CPI_N}{WPI_i} \times TW_I \times 100$$

$$REER_{\$} = \frac{1/(NER)_c}{1/(NER)_b} \times \frac{CPI_N}{CPI_{us}} \times TW_{ROW} \times 100$$

Where,

NER = Nominal Exchange Rate.

CPI_N = Consumer Price Index of Nepal.

CPI_{US} = Consumer Price Index of United State.

WPI_I = Wholesale Price Index of India.

TW_{ROW} = Trade Weight (Rest of the World Countries).

TW_I = Trade Weight (India). And the Suffices:

c = Current year, b = Base year.

7. Empirical Evidence

The relationship between exports and REER and imports and REER can be seen with the help of following estimated regression equations shown in the Table - II below.

Table II: Relation between Exports and REER and Imports and REER.

Cases with Results	t – Ratio of REER Coeff.	t – Sig.	F - Ratio	F – Sig.	R^2 – Value	D– W Value
Case with India						
$X_t = -1040.78 + 0.548X_{t-1} + 22.24REER_{ic} + 0.0096NGDP$	2.678	0.015	43.128	0.0000	0.8838	1.98
$M_t = -5346.027 + 0.658M_{t-1} + 83.19REER_{ic} + 0.005NGDP$	3.351	0.0038	556.00	0.0000	0.9899	2.01
Case with Rest of the World Countries						
$X_t = 714.89 + 0.494X_{t-1} - 47.03REER_{\$} + 0.045NGDP$	-0.705	0.49	111.11	0.0000	0.9514	1.19
$M_t = -1569.31 + 0.983M_{t-1} + 19.228REER_{\$} + 0.042NGDP$	0.436	0.668	1614.68	0.000	0.9965	1.5

From the above evidence we can conclude that exchange rate devaluation is found to be significant as shown by t-significant but failed to correct trade deficit. By devaluation both exports and imports found to have deceased in case of India. This decrease is in percentage term but not in absolute term. In case of rest of the world countries it is found to be insignificant as indicated by t- significant. However, in the letter case, it will possible to correct trade deficit by devaluation if we devalued NC vis-à-vis US dollar together with the proper management of other economic tools to correct trade deficit.

In most of the cases in case of rest of the world countries, exports are found to have increased after devaluation. But the rates of growth of imports are found to have decreased. The Marshall-Learne condition is also found to have fulfilled in each devaluation except the case of 1982 devaluation. Also the export growth is found to have higher than the import growth. However, due to the large import base and comparatively small export base in absolute term, trade balance is found to be impossible by devaluation only.

8. Conclusion

Nepal is a land locked country having 800 kms. open border with India. It has been facing the trade deficit from history to yet. His Majesty the government had adopted the different policies in different time but most of them are found to be failed. It is mainly due to the long open border, unscrupulous trading and inefficient tax administration.

Our export is mainly import based. Data on export shows that export has been increasing at a high rate as a result import is also increasing. Thus, even if the Marshal-Lerner condition is fulfilled, by devaluation X-M gap does not decrease. The model shows that in Nepal, exchange rate devaluation is not the proper way of correcting the trade deficit. Thus, to correct the trade deficit in Nepal, we should increase the export by mobilizing the domestic resources which cartel imports in one hand and we should decrease imports by using the fiscal tools, by increasing the efficiency of tax administration, by establishing the import substitution type of industries, etc. on the other hand.

BIBLIOGRAPHY

Banskota, N.P. (2052 B.S.), "South Asian Trade Co-operation," Ratna Pustak Bhandar, Kathmandu, Nepal.

Bhagwat, Avinash and Onitsuka, Youska. (1074). "Export Import Response to Devaluation" Experience of the Non-industrial Countries in the 1960". IMF Staff paper. Vol. 21. IMF, Washington D.C.

Bhagwati, Jagdish (1996). "Trade, Tariffs and Growth, Essay in International Economics." C. Tinling and Co. Ltd., London and Prescto.

Clement, M.O. and et. al. (1967). "Theoretical Issues in International Economics." Constable and Company Ltd., London.

Einzing, Paul. 1996. "The Text Book of Foreign Exchange." Macmillian, London.

Ellsworth, P.T. and Leith J. Clark. (1975). "The International Economy." Macmillian Publishing Co. Inc., New York.

Harrod, Roy and Hague, Douglas. (1968). "International Trade Theory in a Developing World." Macmillan, London.

Heller, H. Robert. (1977). "International Monetary Economics." Prentice Hall of Indian Private Limited, New Delhi.

Johnson, Hary G. (1958). "International Trade and Economic Growth." George Allen and Unwin Ltd., Museum Strect London.

Kreinino, Mordechai E. (1977). "International Economics A Policy Approach." The Dryden Pess, Harcout Brace Jovanovich College Publishers, New York.

Lipsey, Richard G. (1995)." A Introduction to Positive Economics." Oxford University Press, Walton Street, Oxford.

Meier, Gerald M. (1973). "International Economic Reform." Oxford University Press, London.

Poudyal, Sri Ram. (1988). "Foreign Aid, Trade and Development." Delhi: Common Welth Publishers.

Poudyal, Sri Ram (1992). "Trends in Foreign Aid in Nepal" in H. Bogartg. et. al., eds. Foreign Aid of Nepal, Kathmandu: NEFAS.

Rehman, Sobhan. (1991)." Structural Adjustment Policies in the Third World Design and Experience." University Press Limited, Dhaka, Bangladesh.

Ridler, Duncan and Yardle, Christopher A. (1972). "A Simplified Method for Analyzing the Effects of Exchange Rate Change on Export of a Primary Commodity". IMF Staff Paper. Vol. 19, IMF, Washington D.C.

Sharma, Gunanidhi. (1987)." Monetary Structure of the Nepalese Economy." South Asian Publishers, New Delhi, India.

Sharma, Shankar and Bajracharya, Pushkar, (1996). "Impact of Economic Liberalization in Nepal." IIDS, Kathmandu, Nepal.

Sodersten, Bo and Reed Geoffrey. (1994). "International Economics." Mackays of Chathan P/C, Chatham Kent.

Steinherr, Algred. (1981). "Effectiveness of Exchange Rate Policy for Trade Account Adjustment", IMF Staff Paper, Vol. 28, IMF, Washington D.C.