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An Econometric Analysis Of The General Level Of Prices In Nepal

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Introduction:

While trying to explaind (or comment) about the movements of prices in Nepal, it has been the general tendency of the Economists to put frequently the ghost of Indian inflation foreward and, leave the domestic policy and policy makers untouched as they are unable to check it.

This paper attempts to develop a model of price level for Nepal, whose explanatory power (measured by R^2) and the significance of parameters (checked by T – ratio) provide an ample basis to conclude that our domestic factors are also responsible as well. While developing the model, Indian peices are also considered as well along with the generalization of quantity equations. More importantly, the model, derieved by using the concept of demand & supply functions of money introduces lagged effect of money supply on price by allowing systemetic inequalities between demand for and supply of money. And also, expected level of future prices have been used for cost of holding money balances. For rest of the paper section I discusses in

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short the quantity equations and its defects and section II outlines the alternative specification of the Demand – supply (D – S) model in a more general form and then the medel is switched towards Nepalese condition. In soction III emperical definition of the arguements are presented and the model is estimated by using ordinary least squares (OLSQ). Finally section IV provids some tentative conclusions & Recommendations.

I. Analytical Frame work: The System of Quantity Equations.

Let us consider the system of Fisherian varsion of the quantity equations:

$Md = PY$ (demand for Money).....(1)
$Ms = MV$ (supply of Money).....(2)
$Md = Ms$ (eqbm. condition).....(3)

Where:

$Md =$ nominal demand for money.
$Ms =$ Supply of nominal money.
$Y =$ an index of final goods & services produced in the economy.
$P =$ an index of prices of Y.
$M =$ Total stock of money in the hand of the public.
$V = PY/M$, the income velocity or the number of times that one unit of money became, income during the specified period.

Solving (3) for price, P, using (1) and (2) yields

$$P = \frac{MV}{Y} \text{ ..... (4)}$$

Simililarly, the Cambridge system of equations is:

$Md = KPY$ (demand).....(5)
$Ms = M$ (supply) .....(6)
$Md = Ms$ (eqb. condition)....(7)

Where: Md, Ms, M, P & Y are same as in Fisherian version and,

$K = \frac{I}{V} = \frac{Md}{PY}$, a exogeneously determined constant.

Solving (7) for price level P, using (5) (6)
Yields:

$P = M/KY$ .....(8)

Economic properties of (4) and (8) are virtually the same, if we mamupulate them in a conventional way, both will yield:

$\frac{dP}{P} = \frac{dM}{M}$ .....(9)

Therefore the consequent policy suggestion would be to regulate the stock of money supply.

But the implication of the quantity theory in this form, or in short the usefulness of quantity equations will ultimately rest upon the assumptions (implicit and (or explicit) that are made.

If we analyse the system of quantity equations, no matter of the versions, we find that money is regarded as a specific type of commodity which possesses the following characteristics.

a. The demand for real money balance $\left(\frac{Md}{P}\right)$, as implied by money demand function, is independent of monetary veil, so that any change in monetary factors can not affect it. Specifically, the expected loss of holding money balance has no role to play.

b. Money is neither a luxury for an inferior good, as implied by the exogenity of V or / K, so that the desired ratio of real cash to real income (in combridge version) or the velocity (in Fisherian version) is not affected by changes in real income. Or, in other words, K & Y are independent and income elasticity of demand for nominal money is exactly plus one.

c. There is no money illusion, as implied by the equilibrum condition, so that any change in the supply of the nominal money stock is atonce realized by the public & adjusted instantaneously.

Unless emperically verified, these assumptions are unnecessarily restrictive and therefore, in a general form quantity equations may become unstable; if any of the particular assemption is not satisfied, it could nullify the simple quantity theory results. Therefore in the next section the unnecessarilly restrictive assumptions will be made more liberal, which permits us to express an alternative specification of the demand-supply model for price to a more general form, consistant with both the obeserved economic Phenome-non and, the concept of quantity equations.

II. The D – S Model : An Alternative Specification.

A. The demand for money

Let us assume that the public is a rational unit, it always tries to maximize the utility subject to the informatipn it receives. Then it can realistically be assumed that the public's desired ratio of real cash to real income in the shortrun is determined, for at any period, by the following implicit functional form:

$$K = \frac{Mdt}{P_t Y_t} = F\ (x_{1t}, x_{2t}, \ldots\ldots x_{nt}) \ldots\ldots (10)$$

Where X_{1t} = real income, expected cost for holding money balances and other (n – 2) information like this.

Let us further assume that the elasticity coefficients of K with respect to X_{1t} are contant overtime (for all i is), Then the functional form can be explicitly expressed in a log linear form as:

$$\ln\left(\frac{M_{dt}}{P_t Y_t}\right) = \sum_{i=1}^{n} bi \ln X_{1t} + \ln D_t \ldots\ldots\ldots (11)$$

Where D is the error due to the loglinear approximation of the some other implicit functional form. If the true relation is loglinear then $D_t = 0$. And, bi is the elasticity coefficient of the function associated with the variable X_i. Since random variations or pure raise in the dependent variable may occur which has no systematic explanation and, therefore for situations the causal relationship (II) can be expressed as:

$$\ln\left(\frac{Mdt}{Pt\ Yt}\right) = \sum_{i=1}^{n} bi\ \ln\ Xit + \ln\ Dt + \ln\ \theta t \ldots\ldots\ldots(12)$$

Where θ accounts for 'pure noise'.

Eq. (12) accounts for all the causal relationship between the dependent variable K and, all conceivable variables that could have caused change in it. Let us further assume that, except the level of real income Yt & expected cost of holding money balances, say C_t, all other variables exert least influences and are not obserable and quantifiable too. Then eq (12) expressed in terms of the two measured variables alone may be written as:

$$\ln\left(\frac{Mdt}{Pt\ Yt}\right) = b_i\ \ln\ Yt - b_2\ \ln\ C_t + \ln\ Xt + \ln\ Dt + \ln\ \theta t \ldots\ldots\ldots(13)$$

Where $Xit = Yt$, $Y2t = Ct$. and,

$$\sum_{i=3}^{n} bi\ \ln\ it = InXt.$$

Let us P express the Variable InXt and the error of approximation InDt, as deviations from their respective means, then rewritting (13) as:

$$\ln\left(\frac{Mdt}{Pt\ Yt}\right) = b_i\ \ln\ Y_t - b_2\ \ln\ C_t + (\ln\ \overline{X} + \ln\ xt) + (\ln\ \overline{D} + \ln\ dt) + \ln\theta_t \ldots\ldots\ldots(14)$$

$$\ln \overline{X} + \ln xt = \ln xt' \text{ and,}$$

Where

$$\ln \overline{D} + \ln dt = \ln dt.$$

In this case lnxt & lndt are deviations from their respective means, and θ_t is a random error, their means zero.

By rearranging (14) as:

$$\ln \frac{Mdt}{Pt\ Yt} = \ln bo + b_i \ln Y_t - b_2 \ln C_t + e_t \quad \cdots\cdots\cdots (15)$$

Where $\ln bo = \ln \overline{X} + \ln \overline{D}$ and,

$$et = \ln xt + \ln dt + \ln \theta_t.$$

and $E(et) = 0$.

Eq. (15) is a general form of money demand function expressed (as in Vogel 10) in terms of a regression equation with two independent variables Yt & Ct. Since a rise in expected cost of holding money balance is expected to have negative effect on the desired holdings, therefore b_2 has appeared with negative sign. Here it is important to note that in (15) if b_1, and b_2 both are not statistically different from zero, then the substitution of K for bo, which represents the mean effect of all left out variables that affect it and yields eq (5) of the cambridge version. Also till now, it has not been defined, what actually the cost of holding money balance is. The expected cost of holding money balance is no more than the expected maximum flow of income foregone by holding money instead of holding other assets. Economic theory and researches especially developed and excecuted in the context of developed economies, have a general convention (since there is no such universal asset which for all time could be regarded as yielding a maximum flow of income), to use the rate of interest on bonds or bank deposits rates as a proxy for the expected cost of holding money balances. But "for an underdeveloped country like Nepal, where the relevant market interface is between money markets and goods market" (Fry (3) P. 42), the alternative form to holding money can not be represented by financial papers and/or deposits, therefore, the opportunity

cost of holding money balance can not be represented by the rate of interest in papers or deposits, which is under govt. control too, instead may better be approximated by the expected decline in the value of money itself: that is by the expected level or prices. Therefore, substituting Ct by Pt* in and rearranging the terms in eq (15) obtain the demand for nominal money balance as:

$$\ln Mdt = \ln do + (1 + b_1) \ln Yt - b_2 \ln Pt^* + \ln Pt + et \ldots\ldots\ldots (16)$$

Where, Pt* is the expected level of prices for the period

(t + 1) in the period t.

B. The Supply of Nominal Money Stock

Assune that the supply of nominal money stock is exogeneously determined by the monetary authority then,

$$\ln Mst = \ln Mt \ldots\ldots\ldots (17)$$

Where Mt is the observed money stock at the begining of the t^{th} period.

C. The D–S relationship:

It is the general convention in emperical research to equate the demand for money function with supply of money function. This may not be a true specification of the D– S relationship when there exists money illusion, because, the market informations received by the public might be distorted and then, the adjustment may not be complete over the same period. Therefore, following the proposal of Starleaf [9] show [1], Feige [2] and Otani [6]. This paper does not constrained the relationship as usual, instead allows the possibility of systemetic inequality between the demand – for and supply of money functions, so that the degree of money illusion can make room for effecting the D–S functions, which turn, in affects prices.

To proceed on, let us assume that there exists a 'logrun' demand for money Mdt* for any period t, such that

$$\ln Mdt^* = \ln Mst \quad \ldots\ldots (18)$$

Where Mdt^* is determined by the following relationship–

$$\ln Mdt^* = (1-b)(\ln Mdt + b \ln M^d t-1 + b^2 \ln M^d t-2 + \ldots\ldots) \quad (19).$$

Where b is the elasticity Coefficient of money illusion such that $-1 < b < i$.[8]

And if we do not allow money illusion of any kind to exist

i, e if b=0, eq. (19) reduces to

$$\ln Mdt^* = \ln Mdt = \ln Mst \ldots\ldots\ldots (20).$$

In chow [1], Feige [2] and Otani [6] b is defined a partial adjustment coefficient, such that $0 < b < 1$. However this has been criticized by Starleaf [9] as overadjustment coefficient and he defined the D—S relationship as:

$$\ln Mdt = (1-b)(\ln Mst + b \ln Ms_{t-1} + b^2 \ln Ms_{t-2} \ldots\ldots)$$

By defining b as $-1 < b < o$ satisfies his condition for relation (18) and (19), but this may not be true for hyper inflation cases. Therefore for all situation it would be more appropriate to define b as $-1 < b < 1$. For more details see Starleaf [9].

Substituting (19) in (18) and Applying Koyck transformation yields,

$$\ln Mst - b \ln Ms_{t-1} = (1-b) \ln Mdt \ldots\ldots\ldots (21)$$

By rearranging the terms yield:

$$\ln Mdt = \frac{1}{1-b} \ln Mst + \frac{b}{b-1} \ln Ms_{t-1} \ldots\ldots\ldots (22)$$

both the coefficients $\left(\frac{1}{1-b}\right)$ & $\left(\frac{b}{b-1}\right)$ are positive fractions

when $-1 < b < o$ and $\left(\frac{b}{b-1}\right)$ is negative when $1 > b > o$,

however in all situations both seem to unity. The implication of negative & positive coefficients when $1 > b > o$ may be that when there is a case of hyper inflaction, people are highly sensetive with respect to present or current changes.

Now substituting (16) and (17) in (22) and solving for Price yields:

$$\ln Pt = -\ln bo + \frac{1}{1-b}\ln Mt + \frac{b}{b-1}\ln M_{t-1}$$

$$+ (1 + b_1)\ln Yt + b_2 \ln Pt^* - et \ldots\ldots\ldots (23)$$

Eq. (23) expresses the general level of prices as a function of both the present & one year lagged money stock supplied, real income and the expected level of future prices (i. e. the opportunity cost of holding money balances).

Several emperical studies have documented a strong relationship between money supply and price level, in many other economies. For example, in a recent study of chilean inflation Lioi [6] pl6 has ascepted the hypotheses that ".....for an inflation of the magnitude of chilean one, the main long run factor will be found to be the increase in the quantity of money....."

D. The D - S Model and Nepalese inflation

Nepal like many other economics has experienced a rising rates of inflation accompanied by similar growths in money stock supplied. Now the question arises, can we use explicity the equation (23) to estimate and explain and the inflationary tendencies in Nepal ? In other words, are all the determinants of Nepalese inflation in eq (23) ? If the answer is yes, perhaps then, we fail to incorporate an important feature of Nepalese economy in our analysis. The reason is - as:

Meiselman (5: P. 74) Writes:

"In an economy with fixed exchange rates, received theory holds that international trade is essentially like interregional trade, so that there is no important autonomy for an individual country. Prices at least those of internationally traded goods after adjustment for transportation costs and the like, are given by world, not domestic,

markets. Indeed, because prices tend to uniformity through speculation and arbitrage there are no important distinctions between world and domestic markets. An individual country if small, is essentially a price taker".

The same line of arguements have been expressed for Nepal by different economists. For example Dr. Pant in an emperical study of Nepalese inflation (7: P. 20) concludes that –

".....changes in prices in Nepal are caused by the structural changes in the economy rather than by changes in money supply. Perhaps, as most of the trade is with India (combined with free convertibility of Nepalese currency vis – a – vis Indian) currency) is unrestricted and free, changes in money supply in Nepal may have been reflected in (as the trade and payments with other countries except India is controlled) the balance of payment position with India instead of being reflected on prices".

And Dr. Fry writes (3: P 41 – 2)

"Nepal like most other countries, has experienced rising rates of inflation over the past few years. It seems commonly held view in Nepal that the Nepalese economy is so closely tied to India that inflation in Nepal is solel a result of inflation in India. No room exists for independent policy for Nepal".

Similarly, Dr. Pradhan (8: P. 4) States

"Nepal has however, an open economy with virtually no restrictions on the movements of most the goods across the border. Substitutes to almost all domestic products are easily available from India. This would mean that a rise in the level of domestic prices will quickly invite an import of Indian substrites thereby restraining the domestic prices to rise further. This would also mean that the Nepalese price situation is intimately linked with the Indian price situation".

If we analyse these views seriously, we find that in Nepal, rising trends of prices, resulting from increased monetary demand, will induce the business sector to reduce their cash balance & import more from India because, rising prices means, higher expected cost of holding money balances.

An increase in imports from India means two things. Firstly, there will be a reduction in the aggregate monetary demand equivalent to the amount exchanged for Indian currency in order to finance higher volumes of imports, provided that imports are not financed by additional monetary expansion. And secondly, even if it is financed by additional monetary expansion, the supply of output will be increased accordingly so that excess demand for goods could be absorved. This whole means that we are successful in exporting our inflationary pressure to India, and stabilizing our prices provided that Indian prices are not rising and overall balance of payment is in surplus.

However, the upshot of this line of resoning rests heavily on the assumption that any increase in aggregate demand is either for imported goods or can be satisfied by substituting imported goods. This means the volume of imports from India is directly proportional to the quantity of money supplied. We can not reject that increase is M are followed by increase in the volume of imports from India; while at the same time we can not accept that they are proportional. This is rather rigid. In fact, the extent of increase in the volume of imports is limited by the possibility of subsitution, which depends on the cross elasticitv between domestic product and imported goods. If the cross elasticity is at least unity, then the upper limit to the domestic price level resulting from increasing demand, which in turn is a result of increase is M, is fixed by Indian market conditions. However, if the cross elasticity is zero, then the rising prices for domestic goods cannot be checked by importing more from India, rather it will be determined by the domestic demand and supply conditions. But for the intermediate case, i, e, if the cross – elasticity lies between zero and unity, then the price in Nepalese markets will joined be determined by India prices and Nepalese demand and supply conditions, Even if there is perfect substitutability initial push is given by domestic conditions.

Given these conditions, therefore, implies that the elasticity of prices in Nepal with respect to Mt and M_{t-1} will never sum to unity as in (23), but instead will lie between zero and unity. Hence inorder to judge the situation, without a prijudice, it is necessary to include the Indian price as an explanatory variable to capture the systematic variation of Nepalese prices with respect to Indian price i, e, to capture the actual influence of Indian markets.

Furthermore, Indian prices can be regarded as exogeneously determined for Nepalese markets, because, a small country like Nepal, does not have monopsony power to affect it And, let us assume that the adverse impact of higher Indian prices, if any, are reflected directly in the domestic price index through foreign trade sector, then on the basis of these modifications, instead of eg. (23) the generalized model for Nepalese price level can be written as:

$$\ln pt = -\ln bo + B_1 \ln Mt + B_2 \ln M_{t-1} - (1 + b_1) \ln Yt + b_2 \ln Pt^* + b_3 \ln IPt - et \ldots\ldots\ldots (24)$$

Where,

IP = an index of Indian Price.

b_3 = elasticity of Pt with respect to IPt.

and B_1 and B_2 are the relative elasticities of Pt with respect to Mt and M_{t-1} respectively, resulting from the structural impact of Indian prices, such that $o \leq B_1 + B_2 < 1$ and $B_1 > 0$ & $B_2 \gtrless 0$

III Emperical Results

A. Estimating Equation:

Since eq. (24) is purley a theoretical model derived by reformulating the quantity equations to a more general form together with the structure of Nepalese Economy. Therefore, in order to verify the relation imperically and to ensure a meaningful test of significance the eq (24) is transformed into an estimating equation which reads:

$$\ln Pt = a_0 + a_1 \ln Mt + a_2 \ln Mt - 1 + a_3 \ln Yt + a_4 \ln Pt^* + a_5 \ln IP_{t+} \ldots\ldots + Vt \ldots\ldots\ldots (25)$$

where, $a_0 = -\ln bo$

$a_1 = B_1$, $a_2 = B_2$

$a_3 = -(1 + b_1)$, $a_4 = b_2$

$a_5 = b_3$, $Vt = -et$

and therefore vt follows the same property as followed by et: which as a random vanate & is assumed to be independent of all independent variables in (25). If eg. (24) is a good approximation to the truth then, the following atternative hypotheses about the significance of the parameter will be verified with a high multiple correlation coefficient adjusted for degrees of freedom ($\bar{R}^2$). Specifically the statistical hypotheses are:

	Null	Atterate
i)	$a_1 = 0$	$a_1 \neq 0$
ii)	$a_2 = 0$	$a_2 \neq 0$
iii)	$a_3 = 0$	$a_2 =/=0$
iv)	$a_4 = 0$	$a_4 \neq 0$
v)	$a_5 = 0$	$a_5 =/=0$.....(26)

with expected signs:

$a_1 > 0, a_2 \geq 0, a_3 < 0, a_4 > 0, a_5 > 0$.....(27)

These hypotheses will be tested by using t-ratio at .05 level of significance.

.B Emperial definition of the variables

And, for the purpose of the present study the following definition of the arguements has been employed.

a. An overall weighted price index for the whole country is not available, therefore weighted consumer price index for Kathmandu has been used to measure the price level, by changing the base year to 1964/65.

b. Regarding the definition of money supply following the traditional approach, 'narrow' definition has been employed and then the money supply figures at the end of the year (t_{-1}) is used to compute the index of money supply for period t, asseming figures for the year 1964/55=100.

c. GDP at constant psice has been used to calculate the proxy index for real income whose base is 1964/65.

d. While defining the Indian prices. in a more practical way, following Dr. Pant's (P. 17) proposal, 3 month lagged wholesale price index has been used by changing the base year to 1964/65.

e. Lastly, various expectational hypotheses are vailable in econometric literature. However for simplicity it is assumed that the expectations are generated by extrapolative hypotheses, which asserts that expectation of future inflation equal the current rate of inflation together with a correction which is added to allow for the trend in the inflation rate over the post period. The expected rate of future inflation Pt^{*1} can be define as:

$$Pt^* = P't + q\,(P't - P'_{t-1}) \quad \ldots\ldots\ldots\ldots (28)$$

For brevity replacing q by unity, which does not alter the significance of (28) and integrating both side of (28) with respect to time yields:

$$Pt^* = Pt.^{Pt}/P_{t-1} \quad \ldots\ldots\ldots\ldots\ldots\ldots (29)$$

Where, q is a numerical constant & the primed variables represent the time derivatives.

Therefore, on the basis of equation (29), the expected level of price has been made observable here and is used to compute the required inputs.

C. Emperical Results

Using these definitions of the variables, all the indices calculated then were changed into natural logs. Then ordinary least square (OLSQ) estimates of the equation (25) were estimated. The relevant summary statistics are given below.

Table - 1

OLSQ Regression results of equation (25)

Estimated coefficient of	Estimator	Estimates	Standard Error	T - value
constant	a_o*	4.5358572		**
ln M_t	a_1*	.0778551	.1032076	.7538698
ln M_{t-1}	a_2*	.1755613	.0612709	2.8653292
ln Y_t	a_3*	-1.0265032	.1522245	-6 7433507
ln P_t*	a_4*	.6534998	.0424955	15.378094
ln IP_t	a_5*	.1203862	.0462607	2.6023428
$\overline{R}^2$	$\overline{R}^2$*	.9993368		
$\overline{Sv}^2$	$\overline{Sv}^2$*	.0000332		

** Insignificant at .05 level of significance.

The regression results presented in Tab. 1 show that all estimates for all parameters have appreared with theoretically expected sign, which is subject to usual intrepretations. And, the computed t-value for all parameters have exceeded the critical value 2.571 and therefore we reject all null hypotheses set in (26) at .05 level of significance and accept the corresponding alternative hypotheses that they are statistically different from zero excent 26 (i). The computed t-ratio for the elasticity coefficient of price with respect to the current money stock falls short of significance and therefore, needs some explanation. Two alternative reasons can be put foreward of justification.

1. Either there exists a high degree of money illusion at work in the economy (i, o, b $\rightarrow$ - 1), so that, the public cannot realize the total increase in the money stock over the same period. As a result, aggregate demand has not been increased proportionately and the increased demand resulting from the realized portion of the increased money stock is satisfied by a heavy inflow of goods from India, and whose

effect has been captured by IPt variable itself. Therefore, the elasticity coefficient of Nepalese price level with respect to current money stock had appeared as statistically insignificant. or,

2. The second alternative is: there is no money illusion at all, allowing for money illusion in our model (24) we are misspecifying the estimating equation (25). Therefore, the variance of the estimates have increased and, the precision of the estimates was reduced. In order to get into the fact, which is correct let us test whether the equation with money illusion explains more or not.

The test of money illusion

If we assume that there is no money illusion at all in the economy, then the estimating equation reduces to –

$$\ln Pt = a_0 + a_1 \ln Mt + a_3 \ln Yt + a_4 \ln Pt^* + a_5 \ln IPt + Vt \quad \ldots\ldots\ldots\ldots\ldots\ldots (30)$$

Using the same estimating procedures & definitions of the variables, the OLSQ estimates of q (30) obtained are given in Tab. 2.

Table - 2

OLSQ results of equation (30)

Estimated coefficients of	Estimator	Estimates	Standard Error	T - value
Constant	a_0*	4.1883065		
ln Mt	a_1*	-.3543463	.054254	6.5312474
ln Yt	a_3*	-.8798109	.212722	4.1359657
ln Pt*	a_4*	.5532023	.0357555	15.471809
ln IPt	a_5*	.0522907	.588921	.8879068**
$\overline{R}^2$	$\overline{R}^{2}$*	.998543		
$\overline{S_v}^2$	$\overline{S}^{2}$*	.0000731		

** Insignificant at 0.5 level of significance.

Regression results presented in Table 2 also show that all estimates of the parameters have appeared with expeted sign, which needs no further elaboration. But, the more important, against the results presented in Table 1, estimates of the elasticity coefficient a_1* is statistically defferent from at .05 level of significance, whereas, the estimate of the elasticity coefficient a_5* falls short of significance. And the other two estimates a_3* and a_4* were changed drastically, with increase in standard error of a_3* and a slight decrease in the standard error of a_4*. The R^{-2} statisties is slightly reduced, but is overall, is equally competent, which of the two results are correct ? Or, in other words, is there money illustion ?

In order to decide it, let us hypothesize that regression results presented in Table 2 represent the truth. So that we can state our null and alternative hypotheses as:

HN : $a_3 = 0$; Implies no money illusion, therefore eq. 25 is the truth.

HA : $a_2 \neq 0$; Implies a money illusion, and therefore eq. 30 is the truth.

If HN is true, then the test statistic defined as:

$$f_{d,\ n-k} = \frac{(ESS_{HN} - ESS_{HA})/d}{ESS_{HA}/n-k} \qquad \ldots\ldots(31)$$

is an F variable with d, and (n - k) degrees of freedom, such that

$$\text{Prob}\ (F_{d,\ n-k} < F^{0.95}_{d,\ n-k}) = 0.95 \qquad \ldots\ldots(32)$$

Where, ESS=the sum of squares of the residuals in the regression equation.

d=The no. of restrictions imposed by HN.

and n - k=degrees of freedom in HA.

Since the calculated value for $F_{1,\ 5}$, which is 8.2 is greater than the critical value 6.61, given by any standard table on E - distribution, the therefore according to (32) we rejecct HN: $a_2=0$, and accept the alternative HA: $a_2 \neq 0$. This proves that there is money illusion at work in the economy. This meens the eq. (25) is better specified than eg. (30), which again means, regression results presented in table 1 explain the movements in Nepalese price level with minimum error.

D. Findings:

On the basis of tests & results presented above, we can sum up our tentative findings as:

1. Because of the openness of the economy and money illusion at work, changes in the level of money stock has no significant effect on the same period, but produces a lagged effect on prices. Every 10% increase in the money stock produces a mean effect of 1.8% increase in prices.

2. The mean income elasticity of prices is not significantly different from exactly minus one. Therefore, every 10% increase in GDP at constant price of 1064-65 has

a mean negative effect of 10% upon the level of prices or, in other word, it will reduce the price level by around 10%.

3. The mean elasticity of Nepalese price with respect to a change in Indian price has been found to be plus 12. This means, every 10% rise in Indian wholesale price produces 1.2% rise in Nepalese price Index.

4. Lastly, the mean elasticity of Nepalese prices with respect to the change in people's future price expectations has been found to be plus. 69. This means, every 10% increase in future expectation produces 6.5% rise in actual price index.

IV Summary Conclusion & Recommendations

A. Summary and conclusions

This paper is essentially a prelimaniry attempt to explore some facts about the determinants of price level in Nepal. At the same time this is an acid test of the analytical framework provided by simple quantity theory. Specifically, this is an attempt to determine to what extent money matters in explaining & stabilizing the price fluctuations in the Nepalese economy.

The overall fit of the model coupled with significance of parameters have varified that an increase in the level of money stock supplied raised the level of prices with a lag. But at the same time, the significant response of Nepalese prices to a change in Indian prices demonstrates that the supply of money stock is incapable to stabilize prices, so for as Indian prices are rising. Instability in Indian markets will directly intervene the Nepalese markets, through foreign trade sector. In fact, the direct adverse effect of Indian price is very little. A 10% rise in Indian price produces 1.2% rise in Nepalese price Index and, can be regarded as the cost of our ever expanding money supply, free convertibility and 'free trade'. But its interactions with domestic variables generates 'volatile' consequences, and can not be checked easily. Let me specify the mechanism through which it develops.

A small percentage rise in domestic price level resulting from Indian inflation will, no doubt, raise the level of expected prices. The inflationists, the trading class,

will very soon realize that the cost of holding money balances are increasing, (or at least increased). This means, they will at once reduce their cash balance and instead, will be holding real goods. This will at once create artifical shortages of goods in the domestic markets. On the other hand, the consumers find that prices are showing rising trend, and goods are disappearing from the market over a night. Naturally, they will also start making more purchases, which will raise the level of prices. Which means, a rise in price expectations and which again means, an increase in expected cost of holding money balances, which in turn means, a further rise in prices; and thus, the chain upsurge of prices will be continued.

In fact, this process of disequilibrium will disappear when the price level finds, its equilibrium level "autometically" through either one or both of the following two process.

1. The price level will be stabilized, when the consumers find unable to be exploited by the traders more, or in theoretical jargon, when the marginal utility of money becomes equal to or greater than the marginal satisfaction they can get from addional purchases. This will restrain the aggregate demand more painfully and in turn prices to rise further. This is why, the price of even the so called 'scarce good' can not rise indefinitely.

2. The prices will also be stabilized, when the abnormal level of profits invites possible substitutes from Indian markets. This will restrain prices through increase in aggregate supply. However, if there is no substitute of the scarce good / or goods at all and / or if there is also shortage of the same good / or goods in Indian markets, then prices will be stabilized through the first process.

3. The mechanism is equally operative, when there is complete stability is Indian markets, and Nepalese price level has been increased subject to the change in domestic variables, namely, decline in GDP and / or increase is price expectations and / or increase in money supply.

This whole mechanism indicates that Nepalese inflation rates are fluctuating erratically not solely because money stock has been increased in a varying rate and / or

rate of growth of GDP is fluctuating and / or Indian inflation rate are fluctuating, but mainly because the expectitions are erratic and therefore, the desired ratio of cash balance ratio changes, which means, frequent and erratic changes are occuring in velocity.....

B. Recommendations

In order to avoid price fluctuations we have in general two types of policy options. The first one is related to economic planning & policy of the government and is rather a long term measure. That is, our economic policy, in order to stabilize price, should be designed in such a way that, it could neutralize the initial impulse in the price index, so that the price expectations and inturn velocity do not get chance to fluctuate at all.

This goal can be achieved through pegging money supply with GDP and pace of monetization in the economy and paralizing the effects of Indian markets through border control, trade restrictions and trade diversification accompanied by integrating different pockets of the economy. Even if we can not paralize the economy out of Indian effects, the GDP level should be increased at least to the extent sufficient to depress the price index by the same amount as the Indian prices and / or money supply are generating.

And for the immediate use, the second policy option open to us is to supress the price expectations directly by the honest and uncorrupted administrative control. It has been clear that price expectations are intensified and thereby velocity is increased, when the business sector, specially the trading class is after capital gain and starts stock pilling. Which again realises the cost of holding money balance of the consumers too. Since,, price expectation is the function of present and past price. If once (or at the time needed the prices are controlled to rise, expectations will then be sterelized and thereby stabilizing the cost of holding money balances, rasises desired ratio of cost balance, which means a decline is velocity which inturn means a reduction in aggregate demand pressure and prices will then be stabilized.

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