An Econometric Analysis on the Relationship between Tourism and Economic Growth: Empirical Evidence from Nepal

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Abstract A sector potential to carry Nepal in a new economic dimension is tourism. To ensure this to happen, this study tries to examine the relationship between tourism earning and economic growth during the period 1974-2012. Econometric tools such as unit root, co-integration, and error correction are used to examine the equilibrium position. In spite of the low contribution in economic growth, a share of 2% only is a present status; empirical findings reveal a robust fact that a unit change in tourism income will change the gross domestic product by 8.79 units with tourism income elasticity coefficient of 0.2. The causality analysis suggests that there is no short run causality running from either way. However unidirectional causality exists running from gross domestic product to tourism earning in the long run. This study has single implication which advises policy makers of Nepal that they should devise strategies to attain the causality running from tourism to economic growth. It ensures to attain the tourism led-economic growth. In addition, it indicates the speed of adjustment of previous level disequilibrium. The system would correct this at the speed of 39% annually to come at the steady state. These are the self-evident fact that tourism sector has a large potentiality to contribute to economic growth.

***Keywords**: Tourism earning, tourism income elasticity, co-integration, error correction*

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1. Background

Economic development requires stable political environment with a high quality of good governance. From the past several years, unsettled political issues create havoc in the society. Corruptions beginning from the policy level to implementation, insecurity, irresponsibility, unaccountability, are in action since the beginning of insurgency. All are happening at a time on which political players are the winners while rest of the society is being suffered. The economic stagnation or its further deterioration is the combined effect of this situation. Economic development suffers from the unstable political situation. Unsettled political issues have put economic progress in a cage. Results are obvious, pushing people into a state of poverty and finally turning them into frustration and pessimism. And even more it is stimulator to create social unrest. In order to overcome the situation, Nepal is in urgent need to introduce integrated development approach to improve living condition of its people to an extent in which the people of neighboring countries are enjoying along with to settle the political issues to keep good governance. It has to identify resources currently available that have comparative advantage to intervene.

China and India both are trying to peak out their economy in a new height. Both have identified the potential indigenous resources to specialize in order to catch up the global market on the basis of comparative advantage. China keeps up manufacturing sector to utilize its abundance cheap labor while India is in service sector particularly IT industry. But the pace of development of both countries is not parallel over the years. India is far behind. However, reform of these countries produces the anticipated results that have facilitated people towards to enjoy descent life. Looking at the geography and demography of Nepal neither sector is favorable to follow the suit. What Nepal is to follow to get leap forward its economy that helps to walk together with its neighbor? One potential industry to carry Nepal into the prosperous place is tourism.

1.1. Scope of Tourism

At present, tourism sector share to GDP is minimal at around 2% over the years. Having an immense potentiality this seems humiliating. Even in the developed countries of the world tourism industry contributes a significant share in their GDP. As compared to them, developing countries like Nepal has more potentiality as their resources are left unused. Topographical, Cultural, religious diversity, social harmony, natural abundance, distinct demographic

characteristics and biodiversity make Nepal a tourism friendly rich country. They all have distinct features peculiar as well as amazing and are waiting for proper action to develop. Public investment if pour sufficiently to build tourism friendly infrastructure (airplanes, airports, rope, rail and road ways) along with policies favorable to private sector in view of targeting to exploit them, both internal and external private sector investment will come unconditionally up in building hotels and developing other necessities that can attract a large number of tourists to visit Nepal. Mere slogan without making enough infrastructures will not work. A diplomat will fail to convince people in their respective countries at which they are working to visit Nepal until Nepal fails to take proper action to develop prerequisites complement to boost tourism industry.

Tourism in case of Nepal is "Fast and High Return" sector. If developed rationally, it can attract FDI to develop its complements such as power, industries to produce distinct goods targeted to meet the requirement of tourists. It will generate employment opportunities to the kids to come. A large number of youths fly abroad, legally and illegally to work in the hotels and motels designated to boost up tourism industry. A few months back, I had an opportunity to visit Malaysia. In a hotel where I was lodged, two Nepalese women from Dhading district were alerted to serve guests' on their demand (food, drink, etc.). Like these women, Nepalese youths are working not only in Malaysia but also in Middle East and East Asia. They send a major part of their income in their home which covers more than 25% of Nepal's GDP. Tourism industry if developed properly in Nepal, it helps Nepalese to stay and work in their own country. This helps to carry development endeavor in a greater speed and hence enable economy to grow at a faster rate. An annual growth rate above 7-8% is required to make Nepal a prosperous. An integrated development approach is required to go with it. Prioritization of tourism industry along with the power sector will definitely help to achieve anticipated growth rate to make Nepal's economy comparable to its neighbor.

1.1.1. Past trend of Tourism income

Despite of the little attention, tourism industry is playing significant role in the economy in terms of foreign exchange earnings and providing gainful employment. However, the annual growth rate of tourism income during the period 1976-86 was 19.6% and reached 22.5% in the period 1986-96, an increase of 14.8%. But this rate

has fallen to 7% in the period 1996-2006, a decrease of 69% indicating a lowest performance during the period under review. The period under consideration was plagued by Maoist insurgency at which insecurity was prevalent. Fear was rampant. A larger number people were internally displaced. Abduction even killing was common. The situation was terrible which has made the international world to frighten to visit Nepal. With the end of insurgency, the flow of tourists coming into Nepal has begun to increase that in turn increases the volume of earning. During the period 2006-12, annual growth rate of tourism income was 12.7% an increase of 81%. This rate of growth still is far more less than the growth rate of the period 1986-96. In the given situation, it will take another additional decade to reach at the level of 1986-96. Figure 1 exhibits the growth rate of tourism income in different time period.
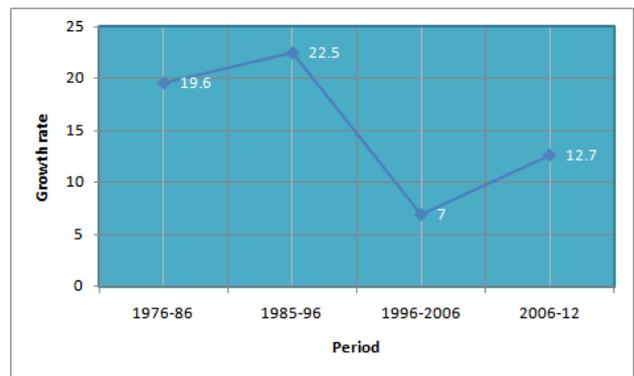

Figure 1. Tourism income growth rate in different periods

1.1.2. Historical trend of GDP and Tourism income

Figure 2 represent the historical trend of per capita gross domestic product (PCGDP) and per capita tourism income (PCTSM). Both series are increasing over the years. It indicates that both are positively associated to each other. It is expected that increase in PCTSM would increase the PCGDP. They are consistence in their direction, but different in the pace of their movement, PCTSM strolls more slowly than PCGDP. More fluctuation has been observed in PCTSM as compared to its counterpart. Observing in the graphs it can be said that both of these series at their level are non-stationary. Standard tests are essential to apply whether they represent stationary and non-stationary.
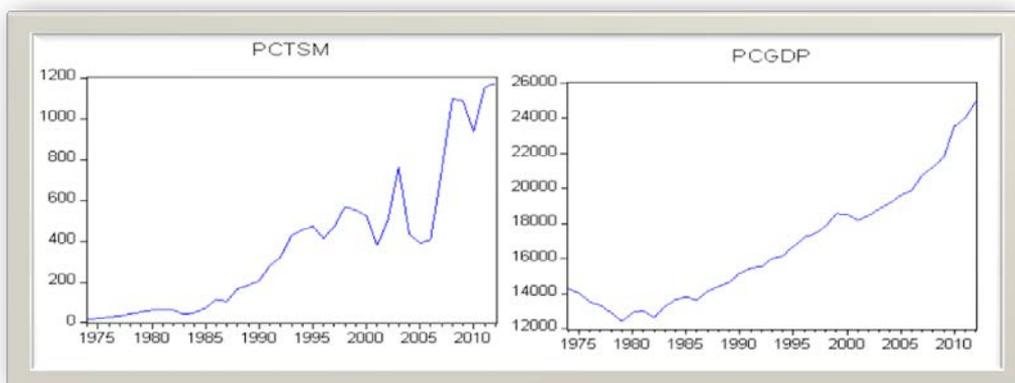

Figure 2. Trend of gross domestic product and tourism income

2. A Brief Survey of Literature

Suresh and Senthilnthan [1] undertook a study to examine the causal relationship between economic growth and tourism income in Sri Lanka during 1977-2012. They employ Granger Causality test in association with unit root, co-integration test and error correction model to determine the presence and direction of causality between economic growth and tourism earning. Their finding reveals that the causality running from economic growth to tourism earning. Burger [2] and Pradhananga [3] assessed the economic impacts of tourism in Nepal using input-output model. In the similar way Shrestha [4] and Sharma [5] analyzed economic impact of tourism using simple regression models.

Adamou and Clerides [6] have empirically investigated the relationship between specialization, development and economic growth. Descriptive cross country comparisons indicate a link between specialization and economic development. Econometric analysis shows that tourism specialization associated with higher rate of economic growth at relatively low levels of specialization but eventually diminishing returns set in and tourism's contribution becomes minimal. Dhungel [7], Dhungel [8] and Dhungel [9] undertook studies to determine causality between electricity consumption, remittance, foreign aid and economic growth using Granger causality test based on error correction and vector error correction models. He found mixed results about the causality running from one variable to another. Gautam [10] employed Granger causality test based error correction model to determine the causality between tourism earnings and economic growth during the period 1974-2009. Finding reveals that tourism earning causes economic growth rate in short and long run.

Tayebbi, et.al [11] studied the relationship between international tourism and economic growth in Iran through Granger causality model during1960-2005. Finding reveals mutual causality between tourism and economic growth. Zortuk [12] showed the economic impact of tourism on Turkey's economy. It used quarterly data from 1990Q1 and 2008Q3 to investigate the relationship between tourism expansion and economic growth. Using Granger Causality Test based on VECM it discovered that unidirectional causality from tourism development to economic development exists between the two variables in Turkey. Khalil, et.al [13] examined the role of tourism in economic growth of Pakistan. Using annual data for the period from 1960 to 2005, they identified empirically whether there is a unidirectional or bidirectional causal relation between tourism and economic growth. Using the concepts and methods of the co-integration and Granger Causality Test, their study explored the short-term dynamic relations as well as long-run equilibrium conditions and concluded about the existence of co-integration between tourism and economic growth in Pakistan.

Kim, et.al [14] evaluated the causal relationship between tourism development and economic growth in Taiwan. Causality tests following co-integration method were applied in order to determine the causality direction between tourism development and economic growth. They found long run equilibrium relationship along with the mutual or bidirectional causality between the variable under consideration. Scatariu [15] emphasized evolution process of tourism and its role in economic growth and regional development. He represented mental limit of tourism and focused on the relationship between tourism, economic growth and regional development. Suresh and Senthalinatha [16] study used Granger causality test to determine the direction of causality between variables tourism income and economic growth in Sri Lanka. They also used co-integration and error correction model to determine the long run relationship. They found unidirectional causality running from economic growth to tourism income.

3. The Data, Variables and Their Characteristics and Model

3.1. Data and Variables

The variables included for analysis are real per capita gross domestic product (PCGDP) and per capita tourism income (PCTSM). Data for real import in million rupees during the period 1974-2012 is collected from the Economic Survey, a yearly publication of Ministry of Finance, the Government of Nepal. Population data is taken from Asian Development Bank. The data for tourism income in million rupees during the period 1974-2012 is taken from the publication of Nepal Rastra Bank, a central bank of the government of Nepal. The data of these variables are expressed in per capita terms to incorporate the effect of population growth.

3.1.1. The model

A typical model that represents the import function with explanatory variable remittance as below is estimated in order to determine the marginal propensity to import.

$$PCGDP_t = b_0 + b_1 PCTSM_t + U_t \qquad (1)$$

Where,

$PCGDP_t$ =Per capita gross domestic product,

$PCREM_t$ = per capita tourism income, U_t = error tem and

b_0, and b_1 are the parameters to be estimated.

3.1.2. Estimation of tourism income elasticity

b_1 (equation 1) represents the tourism income elasticity if the variables are converted into natural logarithm. The estimation of equation 1 is made without converting the series into natural logarithm. Therefore, following model is used to estimate the income elasticity (E_y) which states that the amount of GDP rise or fall associated with the rise or fall in the inflow of tourism income. E_y is thus the change in GDP induced by the change in tourism income. Thus

$$E_y = \frac{D(PCGDP)}{D(PCTSM)} \times \frac{\overline{PCTSM}}{\overline{PCGDP}} \qquad (2)$$

Where $\dfrac{d(PCGDP)}{d(PCTSM)} = b_1$ is the first derivative of equation (1) and $\overline{PCTSM}$ and $\overline{PCGDP}$ are the mean value of PCTSM and PCGDP respectively.

By substituting in (2)

$$E_y = b_1 \times \frac{\overline{PCTSM}}{\overline{PCGDP}} \qquad (3)$$

E_y indicates the proportional change in GDP caused by the proportional change in tourism income.

3.1.3. Short and long run causality

While investigating the cause and effect between the variables under consideration there are a number of issues associated with the time series data to be addressed. Unit root test is conducted to determine the order of the variables. Prevalence of non-stationary is the common character of time series data. To check out this property, the data are subjected to Augmented Dickey and Fuller (ADF) test. ADF is performed by adding the lagged values of the dependent variable ΔY_t, here Y_t refers to PCIGDP and PCTSM. The following regression is for ADF purpose.

$$\Delta Y_t = \beta_1 + \beta_2 t + \partial Y_{t-1} + \alpha_i \sum \Delta Y_{t-i} + \mu_t \qquad (4)$$

Where μ_t refers to the white noise error term and $\Delta Y_{t-1} = (Y_{t-1} - Y_{t-2})$ and so on are the number of lagged difference term which is empirically determined. Akaike lag selection criteria is used to select a number of lags. The null hypothesis of ADF test states that variables under considerations have unit root. The hypothesis of would be rejected if the probability value is less than 5% level of significance. Alternatively, non-stationary is rejected if the calculated value of t-statistics is less than the critical value at 5% level of significance .

Once variables have been classified as integrated of the same order, it is possible to set up models that lead to stationary relations and when standard inference is possible. The necessary criterion for stationary among non-stationary variables is called co-integration. Testing for co-integration test is necessary step to check empirically meaningful relationships. Engle and Granger [17] proposed co-integration test for examining the hypothesis is non-co-integration. The test of co-integration is based on testing stationary of the error term U_t from equation (1). The equation to be tested is given by:

$$\Delta U_t = \gamma_0 + \gamma_1 U_{t-1} + \gamma_2 T + \sum \varphi_i \Delta U_{t-i} + \varepsilon \qquad (5)$$

Where γ and Ψ are the estimated parameters and ε is the error term

If there is one co-integrating relationship, then the causal relationship among the variables can be determined by estimating the Vector Error Correction Model (VECM). Though co-integration affirms a stable long run relationship between the variables but in the short run this equilibrium may not exist. The error correction mechanism explains short run adjustment towards long run relationship between the variables. It provides the information about the speed of adjustment to long run equilibrium and avoid the spurious regression problem.

Finally, VECM has been followed to examine the short and long run causality between PCGDP and PCTSM. Lags are chosen on the basis of akaike criteria. For this, following models are estimated.

$$D(PCGDP)_t = b_0 + b_1 ECT + b_2 D(PCGDP)_{t-1}$$
$$+ b_3 D(PCGDP)_{t-2} + b_4 D(PCTSM)_{t-1} \quad (6)$$
$$+ b_5 D(PCTSM)_{t-2} + \varepsilon_t$$

$$D(PCTSM)_t = c_0 + c_1 ECT + c_2 D(PCTSM)_{t-1}$$
$$+ c_3 D(PCTSM)_{t-2} + c_4 D(PCGDP)_{t-1} \quad (7)$$
$$+ c_5 D(PCGDP)_{t-2} + \varepsilon_t$$

Where,

$D(PCGDP)$ and $D(PCTSM)$ are the dependent variable in equation (6) and (7) respectively

$D(PCGDP)$ = First difference of per capita gross domestic

$D(PCTSM)$ = First difference of per capita tourism income

ECT is the error correction term

ε = error term

b_i and c_i where $i = 0, 1, 2, 3, 4 \ and \ 5$, are the parameters to be estimated.

b_1 and c_1 of model (4) and (5) respectively should be negative and significant which represents long run causality equilibrium between the variables under consideration. But the short run causality to happen further assumptions are needed. For this purpose, following hypothesis are assumed to examine the short run causality (Table 1).

Table 1. Null hypothesis

Equation	Null hypothesis	Test statistic	Implication
6	b4 = b5 = 0	Wald	Tourism income causes gross domestic product or short run equilibrium between PCGDP and PCTSM
7	c4 = c5 = 0	Wald	gross domestic product causes tourism income or short run equilibrium between PCGDP and PCTSM

4. Empirical Results

4.1. Descriptive Statistics

Before applying the higher econometric methods to the data of selected variables, it would be suitable to give the descriptive statistics. Table 2 shows the average values of the variables (mean and median), range, and standard deviation (the dispersion of data around their mean). The mean value of both the variables is useful to estimate the average elasticity coefficient of tourism income. Kurtosis (a measure of whether the data are peaked or flat relative to a normal distribution) and Skewness (a measure of symmetry, or more precisely, the lack of symmetry) glimpses of normal distribution. Similarly, Jarque-Bera statistics is used to test the normality of the given distribution under consideration.

Table 2. Descriptive statistics

Variable	Mean	Median	Max	Min	Std. Dev.	Skew.	Kurt	J-Bera	Prob	Sum	Sum Sq. Dev.	Obs.
PCGDP	16704.1	15991.5	24980.8	12389.9	3435.6	0.72	2.6	3.6	0.16	652459.3	4.49E+08	39
PCTSM	381.7	379.7	1171.5	18.6	346.6	0.92	2.9	5.5	0.06	14884.7	4566018	39

4.2. Estimation of Tourism income Elasticity Coefficient

Table 3 presents results of equation (1) estimated through the ordinary least squares to determine the relationship between PCGDP and PCTSM in level. The overall fit of the model is robust as indicated by the F-statistics (220.3) and has a strong explanatory power (R-squared is 0.92). The individual coefficients are statistically significant as indicated by t-statistic. The estimated coefficient over the time period of 1974 to 2012 is 8.79 which possesses two important features: 1) the positive relationship between PCGDP and PCTSM and 2) a unit change in PCTSM will change the PCGDP by 8.79 units. The tourism income elasticity coefficient estimated using equation (3) is 0.2. It reveals that a 1% change in PCTSM will change the PCGDP by 20%. It indicates that additional increase in PCTSM by say rupees 100 in Nepalese economy will increase the PCGDP by rupees 2000. The implication is that if Nepal commits to achieve high economic growth as fast as possible it should have to focus on the specialization of tourism industry.

Table 3. Results of OLS parameter estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	13378.85	367.5037	36.40466	0.0000
PCTSM	8.785686	0.693105	12.67585	0.0000
MA(1)	0.609471	0.155850	3.910631	0.0004
F-stat		220.3	Probability	0.0000
LM test		0.9164	Probability	0.6324
R-squared				0.92
DW stat				1.74
Elasticity				0.2

4.3. Unit Root Test

4.3.1. Graphical View

Generally, the nature of time series data is non-stationary. The graphical view of non-stationary series is represented by Figure 2. Figure 3 exhibits the insight view on stationary of the data of PCGDP and PCTSM.
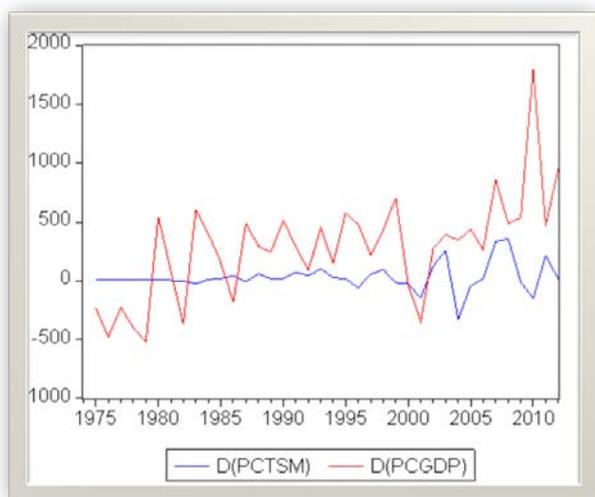

Figure 3. Series become stationary at first difference

4.3.2. Augmented Dickey-Fuller Test

They contain unit root. Data with unit root, if used to examine the relationship, may give a biased result. Standard tests are needed for the non-stationary series as shown in Figure 2 to arrive at stationary. One way of conducting unit root taste is the Augmented Dickey-Fuller (ADF) test which is estimated using equation 4. It is one of the widely used tests to investigate unit root in time series data. Table 4 represents the results of ADF test which proved that the series are non-stationary at level while they become stationary at first difference.

Table 4. Results of ADF test

Variable	Level		First difference	
	ADF value	Probability	ADF value	Probability
PCGDP	-2.329993	0.9082	-5.226815*	0.0001
PCTSM	-2.389993	0.3786	-6.024972*	0.0001

(*) significant at 5% level

4.4. Johansen co-integration Test

The purpose of the co-integration test is to identify the number of co-integrating equations in the system on the one and to determine the long run relationship between the variables PCGDP and PCTSM on the other. Table 5 represents the results of Johansen co-integration test procedure estimated with the help of equation 5. Results of co-integration test show that there are 2 co-integrating equations which obviously proved that there is long run co-movement between the variables under investigation. This suggests that there is at least two long run meaningful relationships between these variables.

Table 5. Unrestricted Co-integration Test

H0 (Null hypothesis)	H1 (Alternative hypothesis)	Trace statistics			Max. Eigen Value stat		
		Value	5% critical value	Prob	Value	5% critical value	Prob
r=0	r=1	33.80723*	15.49471	0.0000	28.09678*	14.26460	0.0002
r=1	r=2	5.710450*	3.841466	0.0169	5.710450*	3.841466	0.0169

(*) indicates rejection of hypothesis at 5% level
Both trace and eigen value indicate 2 co-integrating equation at the 0.05
Series PCGDP, PCTSM

5. Vector Autoregressive (VAR) Estimation

VECM, to be applied requires long run relationship between the variables PCGDP and PCTSM. The results of co-integration test as presented in Table 4 have met this requirement. Equation 6 and 7 as provided in the methodology are the VAR models. They are estimated using the data of the variables during the period 1974-2012. The lag order is 2 selected from Akaike criteria. The estimated results of these equations are presented in Table 6.

Table 6. Results of VAR estimation

Independent variable	Equation 6: dependent variable D(PCGDP)				Equation 7: dependent variable D(PCTSM)			
	Coefficient	Std.error	t-stat	Prob	Coefficient	Std.error	t-stat	Prob
ECT	-0.099170	0.087624	-1.131767	0.2667	-0.824396*	0.260522	-3.164396	0.0035
D(PCGDP)-1	0.197148	0.166346	1.185168	0.2453	0.492500*	0.196635	2.504647	0.0179
D(PCGDP)-2	0.149993	0.171217	0.876041	0.3880	0.050622	0.202971	0.249406	0.8047
D(PCTSM)-1	-0.368011	0.783795	-0.469525	0.6421	0.087792*	0.041732	2.103691	0.0439
D(PCTSM)-2	0.334205	0.809054	0.413081	0.6825	-0.014268	0.042954	-0.332168	0.7421
Constant	227.2735*	95.64564	2.376203	0.0241	-5.747718	23.99510	-0.239537	0.8123
R-square				0.24				0.41
DW				2.13				1.97

(*) indicates significance at 5% level.

Table 6 represents the results of the proposed models estimated through VECM. All the coefficients (b1, b2, b3, b4, and b5) of equation 6 are not individually significant as indicated by the probability value associated with the corresponding t-statistics. The R-square is 0.24. It indicates that 24% of the variation in dependent variable D(PCGDP) is jointly explained by the independent variables. Unlike the equation 7, some of the coefficients (c1, c2, c4,) of equation 7 are individually significant as indicated by the probability value associated with the corresponding t-statistics. R-square is 0.41 meaning that 41% of the variation in dependent variable D(PCTSM) is jointly explained by the independent variables. As compared to two equations, equation 7 is robust in terms of explanatory power and individual significant of coefficients than equation 6.

5.1. Short and Long Run Causality

The main thrust of this paper is to find out the short and long run causality between the variables PCGDP and PCTSM. Wald test as proposed in Table 1 is applied to test the hypothesis to determine the short run causality. However, the coefficients of ECT of both the equation of 6 and 7 of Table 7 represent the long run causality. These coefficients for the short as well as long run are given in Table 6.

Table 7. short and long run causality

Causality	Equation 6						Equation 7					
	Wald test			ECT (b1)			Wald test			ECT (b1)		
	Chi-square value	DF	Prob	Coef	t-stat	Prob	Chi-square value	DF	Prob	Coef	t-stat	Prob
Short run	0.726983	2	0.6952				4.529080	2	0.1039			
Long run				-0.099170	-1.131767	0.2667				-0.824396*	-3.164396	0.0035

(*) indicate a significant level at 5%.

5.1.1. Short Run Causality

As the hypothesis set in Table 1, the statistically insignificant value of Wald test represented by Chi-square of 0.73 with probability of 0.69 Table 6 of equation (6) reveals that the null hypothesis is accepted at the significance level of 5%. It implies that PCGDP does not cause PCTSM in the short run. It means no causality is found in the short run running from PCGDP to PCTSM.

Similar is the case of equation 7. The statistically insignificant value of Wald test represented by Chi-square of 4.53 with probability of 0.1039 in Table 7 reveals that the null hypothesis is accepted at the significance level of 5%. It implies that PCTSM does not cause import in the short run. Alternatively, no causality exists running from PCTSM to PCGDP in the short run.

5.1.2. Long Run Causality

Both the necessary and sufficient conditions for long run causality are 1) the estimated value of error correction term needs to be negative and 2) the estimated value of error correction term needs to be significant at the specified significant level for long run causality or equilibrium say 5%. The value of b_1 (error correction term) of equation (6) is (-) 0.099 with probability 0.2667 (Table 7). Result indicates that the error correction term is negative but not significant at 5%. This indicates that there is no causality running from PCTSM to PCGDP in the long run. The implication is that PCTSM does not cause PCGDP in the long run. However, both the conditions as described are met in the estimated result of equation (7). The value of c_1 (error correction term) of this equation is(-) 0.39 with probability 0.0035 (Table 7). This value is negative on the one and significant even at 1% level on the other. This fulfills both the conditionality for long run causality. The implication is that PCGDP causes PCTSM in the long run, not the other way around. It also indicates the speed of adjustment of the previous level disequilibrium. The system would correct previous level disequilibrium at the speed of 39% annually.

6. Conclusion

This study uses various econometric tools to establish relationship between gross domestic product and tourism income in Nepalese economy. The estimation shows a

stable, positive and significant relationship. Particularly the estimation of equation (1) produced a tourism income elasticity nearly 0.2. Its implication is that a 1% increase in tourism income will increase the gross domestic product by 20%. Two co-integrating equations obtained from the finding of Johansen co-integration test is a self proven fact on the existence of long run relationship between PCGDP and PCTSM. The causality analysis suggests that there is no short run causality running from either way. However unidirectional causality exists running from PCGDP to PCTSM in the long run. This study has single implication which advises policy makers of Nepal that they should devise strategies to attain the causality running from tourism to economic growth. In addition, it indicates the speed of adjustment of previous level disequilibrium. The system would correct this at the speed of 39% annually to come at the steady state. These are the self-evident fact that tourism sector has a large potentiality to contribute to economic growth.

References

[1] Suresh, J., and S. Sentilnathan, (2014). "Relationship between Tourism and Economic Growth in Sri Lanka", *"Economic Issues in Sri Lanka" compiled by Dr. S. Vijayakumar, pp. 115-132*.

[2] Burger, Veit, (1978). "The Economic Impact of Tourism in Nepal: An Input Output Analysis". A Ph. D. Thesis Submitted to Faculty of the Graduate School, Cornell University, Austria.

[3] Pradhnanga, (2000)."Tourists' Consumption Pattern and Its Economic Impact in Nepal", Delhi: Adroit Publishers.

[4] Shrestha, Sunity, (1995). "Portfolio Behaviour of Commercial Banks in Nepal", Kathamandu: Mandala Book Point.

[5] Sharma, Om Prakash, (2001). "Tourism Development and Planning in Nepal", A Ph. D. Thesis presented to Faculty of Social Sciences, Banaras Hindu University India.

[6] Adamou,A., and S. Clerides, (2009)."Tourism Development and Economic Growth: Internal Evidence and Lessons for Cyprus", Cyprus Economic Policy Review, 3(2), pp.3-22.

[7] Dhungel, K.R.,(2008). "A causal relationship between energy consumption and economic growth in Nepal" A*sia-Pacific Development Journal*, Vol.15, No.1, pp.137-150.

[8] Dhungel,K.R.,(2014a). "On the relationship between electricity consumption and selected macroeconomic variables: empirical evidence from Nepal" Modern Economy, 5(4), PP.360-366.

[9] Dhungel, K.R.,(2014b). "Does Remittance in Nepal Cause Gross Domestic Product? An Empirical Evidence Using Vector Error Correction Model". International Journal of Econometrics and Financial Management, 2(5), 168-174.

[10] Gautam,B.P.,(2011)."Tourism and Economic Growth in Nepal", NRB Economic Review, 23(2), pp.18-29.

[11] Tayebi, S.K., A. Jabbori and R.Babaki, (2009). "Studying the Causal Relationship between Tourism and Economic Growth", Knowledge and Development (Scientific Research) autumn 24.

[12] Zortuk, Mohmut, (2009). "Economic Impact of Tourism on Turkey's Economy: Evidence from Co-integration Tests", International Research Journal of Finance and Economics 25, pp.231-239.

[13] Khalil, Samina, M. K. Kakar and Walieullah, (2007). "Role of Tourism in Economic Growth: Empirical Evidence from Pakistan Economy". The Pakistan Development Review 46 (4); 985-995.

[14] Kim, H., Chan, H. and Jan, S., (2006). "Tourism Expansion and Economic Development: The Case of Taiwan", Tourism management 27, pp.925-933.

[15] Scutariu, L.A., (2009). "Tourism Economic Growth Factor and Essential in Regional Development of Romania", University of Suceava.

[16] Suresh, J. and L. S.Selthinnathan, (n.a.). "Relationship between Tourism and Economic Growth in Sri Lanka", available at: http://ssrn.com/abstract=2373931.

[17] Engle R. and Granger C. (1987), "Co-integration and error correction; representation, estimation and testing", Econometrica, 55: pp-251-276.