

# **TOURISM MODEL OF J&K STATE**

## **A Study of Conflict on Macroeconomic Variables**

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### **Abstract**

*Jammu & Kashmir state, in the context of development, has some inherent economic disadvantages and from past few decades, simultaneously, has been suffering badly due to extremely adverse situations which has not only hampered the size and nature of its developmental scenario, but gave rise to the critical problems like unemployment. Notwithstanding the state is unique tourist destination in the sense as it offers attractions for varied type of tourists, as Jammu being known for pilgrim tourism, Kashmir for scenic and Ladakh for adventurous tourism. This kind of distinctiveness is seen only in the state of Jammu and Kashmir. The state has a huge tourist potential while the growth and development of other sectors was restricted due to certain natural limitations. Being a hilly region, the state's peculiar features did not allow its industrial sector to gain momentum. Agriculture, being the mainstay of the state economy, has its own limitations, like single crop season and small size of holdings. With the growth of population, there has been increase in the work force that needs to be engaged. Given the capacity of other sectors in the state, tourism has been the main sector which offers great scope to the growing able body work force. However, the ongoing situation in the state has not only squeezed the space for adjustment but also left already absorbed large chunk jobless and adversely affected macroeconomic variables of the state economy. In this backdrop, the present study tries to evaluate the impact of conflict on the macroeconomic variables and explores that how it affected the physical, social, human and institutional capital of the state. However, the inferences have been drawn on the basis of time series data for 26 years (1990-2016) with the help of Multi Regression Model and Johansen's Co-integration Test.*

### **Keywords**

Tourism, Conflict, Co-relational Analysis, Economic Sectors, Impact, Able Body, Macroeconomic Variables, Agriculture, J&K State.

### **Introduction**

Contemporary growth of tourism<sup>1</sup> is the gradual consequence of the increase of wealth in societies and the greater availability of goods and services that were once considered to be luxury. Tourism activities that used to be limited to those who are rich and have plenty of spare time,

now have become a way of life, and a consumption habit for many people in both the developed and the developing world. Tourism is a growth rather an export growth engine and employment generator having the capacity to create large scale employment both direct and indirect, for diverse sections of society from the most specialized to unspecialized work force and gives tremendous fillip to the economy. The landmass of Jammu & Kashmir<sup>2</sup> has a great promise for development of various sectors, especially, tourism in view of its innate potential which placed the state on the map of national as well as international tourist destinations. It is an admitted fact that with the increase in the arrival of tourists, more economic activity gets generated which has multiplier effect on the income levels of the population dependent on this sector. But because of the lull of conflict<sup>3</sup> Jammu & Kashmir has to experience the cauldron of macroeconomic instability<sup>4</sup> rather volatility<sup>5</sup> since 1989 which augmented the precautionary savings<sup>6</sup> that eventually reduces the investments which halted the macroeconomic variables of the state economy and affected the physical, social and institutional capital of the region as a whole.

A host of researchers across the country have theoretically investigated the issue of impact of conflict on tourism sector, but, as such, no one has examined empirically the dynamic and causal relationship between conflict and macroeconomic variables of the state economy.

### **Methodology**

In order to investigate the impact of conflict on macroeconomic variables of the state economy, the following regression model has been adopted:

$$Y_i = \alpha + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + \dots + b_{24}X_{24} + \mu$$

In order to measure Jammu & Kashmir tourism Model the dynamic, causal and co- relational relationship among various macroeconomic variables of the state economy, the following model has been used

$$\ln.RGSDP = \beta_0 + \beta_1 \lnFTOAR + \beta_2 \lnFER + \mu$$

where:

RGSDP = the real gross state domestic product;

FTOAR = the foreign tourist arrivals and

FER = the foreign exchange earnings.

However, the above regression model is subject to check the stationarity of time series data with the help of Augmented Dickey Fuller and Phillip Perrons Unit Root Tests.

$$\Delta Y_t = \beta_1 + ZY_{t-1} + \alpha_i + e_t \text{ (Equation 1) } > \text{Intercept Only}$$

$$\Delta Y_t = \beta_1 + \beta_{2t} + ZY_{t-1} + \alpha_i + e_t \text{ (Equation 2) } > \text{Trend \& Intercept}$$

$$\Delta Y_t = ZY_{t-1} + \alpha_i + e_t \text{ (Equation 3) } > \text{No Trend \& No Intercept}$$

### Impact of Conflict on Macroeconomic Variables

Conflict or any kind of dispute and distrust, decelerates sustainable growth of the economy if it leads to violence and threatens peace. Minor conflicts, however, which are manageable, have often been conducive to peace if the issues are addressed in a timely manner and involve cooperation among the concerned parties. Nonetheless, macroeconomic variables of an economy are perceived as an approach which can supplement social, political and economic reconciliation efforts in post-conflict settings. If macroeconomic variables are operating with sustainable principles and practices, it can have positive impacts in reducing the tensions of the host economy. The potential role of macroeconomic variables in contributing to peace from socio-cultural, political, human rights, social justice, environmental (climate-change), corporate social responsibility, health, globalization, intergenerational tourism. Such initiatives highlight the cor-relational and causal relationship between the macroeconomic variables and peace and support the theory that can be helpful in mitigating conflict and accelerating peace and also there are interconnections among the ‘impact of conflict on tourism’<sup>7</sup>; ‘impact of tourism on conflict’<sup>8</sup>; and ‘impact of peace on tourism & conflict’<sup>9</sup>. It has been found from the empirical results that there is significant impact of conflict on the various macroeconomic variables of J&K state (Table-I).

**Table-I**  
**Regression Results of Macroeconomic Variables of J&K State**

Macroeconomic Variables	Coefficients				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1987.268	2.370		838.594	0.000
GSDP <sub>FC</sub> of Agriculture(X <sub>1</sub> )	1.717E-006	0.000	0.057	0.389	0.723

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GSDP <sub>FC</sub> of Industry(X <sub>2</sub> )	1.500E-005	0.000	1.061	0.773	0.496
GSDP <sub>FC</sub> of Services(X <sub>3</sub> )	1.895E-005	0.000	2.908	2.367	0.099
GSDP <sub>FC</sub> of Manufacturing(X <sub>4</sub> )	-4.377E-005	0.000	-1.004	-1.243	0.302
GSDP <sub>FC</sub> of Construction(X <sub>5</sub> )	-3.376E-005	0.000	-1.006	-1.372	0.264
GSDP <sub>FC</sub> of Banking & Insurance(X <sub>6</sub> )	0.000	0.000	-1.907	-1.235	0.305
Gross Capital Formation(X <sub>7</sub> )	0.000	0.001	-0.115	-0.324	0.767
Net Fixed Capital Formation(X <sub>8</sub> )	0.000	0.001	0.083	0.319	0.770
Capital Expenditure(X <sub>9</sub> )	-0.147	0.187	-0.494	-0.788	0.488
Fixed Capital(X <sub>10</sub> )	-0.001	0.001	-2.040	-1.352	0.269
Working Capital(X <sub>11</sub> )	0.000	0.000	-0.463	-1.919	0.151
Invested Capital(X <sub>12</sub> )	0.000	0.000	-1.073	-1.188	0.320
Social Sector Expenditure(X <sub>13</sub> )	0.249	0.183	1.073	1.356	0.268
Gross Fiscal Deficit(X <sub>14</sub> )	0.409	0.200	0.831	2.049	0.133
Revenue Deficit(X <sub>15</sub> )	-0.394	0.193	-0.706	-2.042	0.134
Own Tax Revenue(X <sub>16</sub> )	0.020	0.433	0.052	0.046	0.966
Own Non-Tax Revenue(X <sub>17</sub> )	0.193	0.412	0.196	0.469	0.671
Number of Workers(X <sub>18</sub> )	-0.001	0.001	-1.417	-1.130	0.341
Total Person Engaged(X <sub>19</sub> )	0.001	0.000	1.338	1.549	0.219
Total Emoluments(X <sub>20</sub> )	0.004	0.003	1.505	1.510	0.228
Total Inputs(X <sub>21</sub> )	0.000	0.000	1.454	2.600	0.080
Net Value Added(X <sub>22</sub> )	5.985E-005	0.000	0.130	0.235	0.829
Tourist Inflow(X <sub>24</sub> )	0.018	0.006	0.323	3.061	0.003
Tourist Earnings(X <sub>23</sub> )	0.031	0.006	0.513	4.860	0.000
R	:	1.00(Coefficient of multiple correlation)			
R Square	:	0.7384(Coefficient of multiple determination)			
Adjusted R Square	:	0.993			
Std. Error of the Estimate	:	0.656			

From the multi-regression model analysis, it is implied that most of the macroeconomic variables were affected since 1991 which had adversely impacted the economic growth of the state economy. Taking as the whole of GSDP<sub>FC</sub> of Agricultural(X<sub>1</sub>) (b<sub>1</sub> = 1.717) is not significant (p=0.723), and the coefficient resulted positive which indicates that conflict has largely impacted agriculture sector. The GSDP<sub>FC</sub> of

Industry( $X_2$ ) ( $b_2 = 1.500$ ,  $p=.496$ ) and the  $GSDP_{FC}$  of Services( $X_3$ ) ( $b_3 = 1.895$ ,  $p= .099$ ) and net value added( $X_{22}$ ) ( $b_{22} = 5.985$ ,  $p= 0.829$ ) were insignificant and their coefficients were positive which means that conflict has greatly affected the industrial and services sector of the state economy as well. Importantly, it was because of state's peculiar geographical location, remoteness and isolation from the main markets and political uncertainty and vulnerability to externalities and thereby resulting in limited capacity in public and private sectors and has not been a preferred destination for industrial investors.

Taking together the  $GSDP_{FC}$  of manufacturing( $X_4$ ) ( $b_4=-4.77$ ,  $p=0.302$ );  $GSDP_{FC}$  of construction( $X_5$ ) ( $b_5=-3.376$ , $p=0.264$ ); Capital Expenditure( $X_9$ ) ( $b_9=-0.147$ , $p=0.488$ ); Fixed Capital( $X_{10}$ ) ( $b_{10}=-0.001$ , $p=0.269$ ); Revenue Deficit( $X_{15}$ ) ( $b_{15}=-0.394$ , $P=0.134$ ); Number of Workers( $X_{18}$ ) ( $b_{18}=-0.001$ , $p=0.341$ ) were not significant but have negative coefficients which indicates that conflict had minor impact on these variables all together during the reference period(1991-2016). While the  $GSDP_{FC}$  of Banking & Insurance( $X_6$ ) ( $b_6=0.00$ , $p=0.488$ ); Gross capital formation( $X_7$ ) ( $b_7=0.00$ , $p=0.767$ ); Net Fixed Capital Formation( $X_8$ ) ( $b_8=0.000$ ,  $p= 0.770$ ); Working Capital( $X_{11}$ ) ( $b_{11}=0.000$ ,  $p=0.151$ ); Invested Capital( $X_{12}$ ) ( $b_{12}=0.000$ ,  $p=0.230$ ) and Total Inputs( $X_{21}$ ) ( $b_{21}=0.000$ ,  $p=0.080$ ) were all insignificant but having the coefficient's zero which indicates that conflict had no impact on these variables throughout the reference period.

However, the Social Sector Expenditure( $X_{13}$ ) ( $b_{13}=0.249$ ,  $p=0.268$ ); Gross Fiscal Deficit( $X_{14}$ ) ( $b_{14}=0.409$ ,  $p=0.133$ ); Own Tax Revenue( $X_{16}$ ) ( $b_{16} = 0.020$ ,  $p=0.966$ ); Own Non-tax Revenue( $X_{12}$ ) ( $b_{12} = 0.193$ ,  $p=0.966$ ); Total Person Engaged( $X_{19}$ ) ( $b_{19}=0.001$ , $p=0.219$ ); Total Emoluments( $X_{20}$ ) ( $b_{20}=0.004$ , $p=0.228$ ); were statistically insignificant having coefficients approaching to zero which indicates that conflict had low impact on these macroeconomic variables but tourist inflow( $X_{23}$ ) ( $b_{23}=0.018$ ,  $p=0.003$ ) and tourist earnings( $X_{24}$ ) ( $b_{24}=0.031$ ,  $p=0.000$ ) were statistically significant which means that these variables had been impacted adversely but at the same time it has been computed from given regression model(2) that there is 87.5% impact of real exchange earning and foreign tourist arrivals on the RGSDP. However, the value of *R Square* in our multi-regression model(1) is 0.7384, which implies that there is 73% impact of conflict on the macroeconomic variables of Jammu & Kashmir state which halted the growth process of the state

economy since 1991 to till date. However, from the given regression model (2) implies that 87.5% of growth rate of RGSDP has been affect by foreign tourist arrivels and foreign exchange rate.

$$\ln\text{RGSDP} = 0.093 + 0.0373 \ln\text{FTOAR} + 5.15 \ln\text{FER} \dots \dots \dots (2)$$

(0.17)\*    (0.47)\*                      (17.80)\*

R-Sq = 87.5% and R-Sq(adj) = 87.1%

**Tourism Model of J&K**

On the basis of regression model (2), tourism happen to be an important source of foreign exchange earnings, can support the economic growth with equity, has great capacity to create large scale employment of diverse kind – from the most specialized to the unskilled and hence can play a major role in creation of additional employment opportunities. Nevertheless, By using the E-Views, the results of the Augmented Dickey Fuller (ADF) test shows that all the variables except economic growth were not stationary at level while the Phillip Perron (PP) test suggested the presence of a unit root for the variables at level. Therefore, entire series were subjected to further test at first differencing. It is evidence that all the variables achieved a stationary trend process after the first differencing for both the ADF and PP test. Hence, the null hypothesis of unit root could no longer be accepted for the variables at this level. This means that the series could be regarded to be integrated to order 1 process.

**Table-II**  
**Augmented Dickey Fuller (ADF) Unit Root Test Statistics at**

Variable	Level*	Intercept*	Intercept & Trend*	1 <sup>st</sup> Difference*	Remark
lnRGSDP	0.334250 (-1.945823) (p=0.7790)	-0.482833 (-2.906210) (p=0.8873)	-2.033196 (-3.479367) (p=0.5725)	-7.967208 (-1945903) (p=0.0000)	Integrated to order 1
lnFTOAR	0.226070 (-1.948686) (p=0.7471)	-3.040391 (-2.931404) (p=0.0137)	-3.785154 (-3.518090) (p=0.0271)	-7.327695 (-1.948886) (p=0.0000)	Integrated to order 1
lnFER	1.641598 (-1.945987) (p=0.9745)	-0.647371 (-2.907660) (p=0.9900)	-1.673349 (-3.481595) (p=0.7517)	-6.280932 (-1.945987) (p=0.0000)	Integrated to order 1

\* Stationary trend at 5% level of significance

**Table-III**  
**Phillips Perron (PP) Unit Root Test Statistic at**

Variable	Level*	Intercept*	Intercept & Trend*	1 <sup>st</sup> Difference*	Remark
lnRGSDP	0.334250 (-1.945823) (p=0.7790)	-0.482833 (-2.906210) (p=0.8873)	-2.045232 (-3.479367) (p=0.5660)	-7.967208 (-1945903) (p=0.0000)	Integrated to order 1
lnFTOAR	0.215731 (-1.948686) (p=0.7441)	-3.706732 (-2.931404) (p=0.0074)	-3.941900 (-3.518090) (p=0.0185)	-9.006466 (-1.948886) (p=0.0000)	Integrated to order 1
lnFER	1.975551 (-1.945823) (p=0.9878)	0.982480 (-2.906210) (p=0.9960)	-1.489619 (-3.479367) (p=0.8234)	-6.103568 (-1.945903) (p=0.0000)	Integrated to order 1

\* Stationary trend at 5% level of significance

The Augmented Dickey Fuller (ADF) test results indicated that all these variables were non-stationary in their levels and stationary at first difference I(1).<sup>10</sup> Therefore, it is necessary to determine whether there is co-integrating relationship between real gross state domestic product/ economic growth, foreign tourist arrivals and foreign exchange earnings of the state economy by applying *Johansen's Co-integration Test* which utilize both the trace and maximum Eigen statistic in determining the significance or otherwise of the co-integrated series as suggested by the unit root results. However, evidence from the trace and maximum Eigen statistics revealed at least one co-integrated equation for both statistics. The existence of a co-integrated series from the result thus implies the existence of possible long- run relationship (long-run association-ship or move together) among the variables over time then we can run restricted VAR that is VECM but if the variables are not co-integrated, we cannot run VECM, rather we shall run unrestricted VAR, but our variables are co-integrated so we can easily run restricted VAR.

**Table-IV**  
**Johansen's Co-integration Rank Test of (Trace) & (Max-Eigen Value)**

Hypothesized No. of CE(s)	Eigen Value	Trace Statistic	Critical Value (5%)	Prob.**	Max-Eigen Statistics	Critical Value (5%)	Prob.**
None *	0.619601	45.65614	29.79707	0.0004	39.62787	21.13162	0.0001
At most 1	0.135237	6.028276	15.49471	0.6922	5.957306	14.26460	0.6187
At most 2	0.001729	0.070970	3.841466	0.7899	0.070970	3.841466	0.7899

Trace and Max-Eigen value test indicates 1 co-integrating equation(s) at the 0.05 level.<sup>11</sup>  
 \* Denotes rejection of the hypothesis at the 0.05 level.  
 \*\*MacKinnon-Haug-Michelis (1999) p-values.

Analysis of the normalized coefficients reveals a significant long-run relationship between tourism arrival, foreign exchange earnings and real gross state domestic product (economic growth) in Jammu & Kashmir state. Importantly, a percentage change in tourist arrivals results to 3.62% change in economic growth of the state. This indicates that the degree of the responsiveness of economic growth to changes in tourism arrival is highly elastic. Foreign exchange earnings shows a significant relationship with economic growth such that a percentage change in foreign exchange earnings leads to 4.72% change in economic growth holding other factors constant. Moreover, the foreign exchange earnings coefficients show that the degree of responsiveness of economic growth to changes in foreign exchange earnings is also highly elastic within the domain of the current study.

**Table-V**  
**Johansen's Normalized Co-integrating Coefficients**

<b>Co-integrating Equation(s)</b>	<b>Log Likelihood</b>	<b>-83.68552</b>
Normalized co-integrating coefficients (standard error in parentheses)		
Ln_RGSDP	Ln_FTOAR	Ln_FER
1.000000	3.628727 (0.42807)	-4.727954 (0.23684)

**Table-VI**  
**Vector Error Correction Model (VECM)**

<b>Error Correction</b>	<b>D(ln_RGSDP)</b>	<b>D(ln_FTOAR)</b>	<b>D(ln_FER)</b>	<b>Prob.</b>
CointEq1	-1.031109	-0.032709	-0.051941	0.000
Std. Error	(0.09912)	(0.07138)	(0.03674)	
t-value	[-10.40313]	[-0.45823]	[-1.41360]	

The vector error correction model was applied given the existence of a co-integration thus it become imperative to determine the direction of causality between economic growth, tourism arrival and foreign exchange earnings in Jammu & Kashmir state. We find that there is long-run causality running from FTOAR and FTR to RGSDP because our error correction term means that RGSDP has negative sign and is significant.<sup>12</sup> However, in order to show the short-run relationship running from FTOAR and FER to RGSDP we have to use Wald Test.

**Table-VII**  
**Vector Error Correction Model (VECM) of Wald Test**

Test Statistic	FTOAR	FER	Probability
F-statistic	36.03216	27.77543	0.0000
Chi-square	108.0965	83.32630	0.0000
Null Hypothesis: C(5)=C(6)=C(7)=0		Null Hypothesis: C(8)=C(9)=C(10)=0	

In the above table it is evident that the value of is highly significant at 5% level of significance, therefore, we accept the null hypothesis which means that there is short-run causality running from tourist arrivals and foreign exchange earnings to economic growth of the state economy. Henceforth, it is proved that tourism sector has both long-run as well as short-run causality running from GSDP to other economic variables of the state economy during the conflict situation. So any underperformance in this sector would be detrimental for the growth of state economy. To determine the nature of the causal relationship among the included variables in the growth model, the study is further tested to a granger causality test.

**Table-VIII**  
**Granger Causality Test**

Null Hypothesis	F-Statistics	Probability
Ln_FTOAR does not Granger Cause Ln_RGSDP	3.25731	0.0334
Ln_RGSDP does not Granger Cause Ln_FTOAR	0.25688	0.8559
Ln_FER does not Granger Cause Ln_RGSDP	7.97495	0.0002
Ln_RGSDP does not Granger Cause Ln_FER	0.58574	0.6285
Ln_FER does not Granger Cause Ln_FTOAR		0.0439
Ln_FTOAR does not Granger Cause Ln_FER		0.6285
3.00167		
0.58574		

The results presented in Table 1.6 shows that the causal relationship between foreign tourist arrival and foreign exchange earnings indicates no causality from either side. It could be observed that neither economic growth granger causes foreign exchange earnings nor foreign exchange earnings granger causes economic growth. However, it is important to note here that unidirectional causality runs from tourist arrivals to economic growth; exchange earnings to economic growth and tourist arrivals at 5% level of significance. This implies that tourism granger causes growth through no evidence of causality is observed from arrival

to growth meaning that growth does not granger causes tourism arrival.

## **Conclusion**

From the above analysis, it could be easily concluded that the conflict has adversely impacted the state economy and directly affected the large chunk of masses involved in the trade. In order to revive the sector there is urgent need to invite all the stakeholders and evolve a strategy providing required incentives and concessions, to put the state back on the confidence map so that the tourism sector would cope with the difficult situation and regain the sheen of its normal functioning. Such performance would engage the masses in great numbers and benefit the state economy as well. All this will go a long way to help in bringing prosperity in the state.

## **References & Notes**

- 1 The activities of persons traveling to and in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes.
- 2 The landmass of Jammu & Kashmir is having vast natural resources, which promises prosperity to the people when such resources are properly conserved and exploited.
- 3 The economic cost of the conflict cannot be confined to a particular sector of industry or investment prospects rather it has affected the important sources of livelihood of local people such as tourism, horticulture, handicrafts and industries of the state.
- 4 Macroeconomic instability is ‘a situation of economic depression where the economy does not seem to have settled in a steady position’. It can take the form of volatility of key macroeconomic variables and of un-sustainability in their behavior. In addition to volatility, unsustainable performance in the macroeconomic variables like low and unstable growth rate, high inflation, large unemployment, unsustainable and current account deficits are also the attributes of macroeconomic instability. Macroeconomic volatility refers to fluctuation in macro variables and to the uncertainty associated to them.
- 5 J&K economy is not experiencing normal volatility but ‘crisis volatility’ which refers to extreme shocks exceeding certain cut off points. The continued curfew in the state due to unrest is the instance of ‘Crisis volatility’. The major costs of macroeconomic instability are significant in terms of i) Welfare loss ii) Increase in inequality and poverty and iii) Decline in long term growth.
- 6 In Kashmir Valley people save more for future shocks that are caused due to conflict economy. During the unrest of 2016, we could see that the people of the valley could sustain only when they had kept good savings apart on which they sustained during 5 month long inactivity.
- 7 Tourism is perceived as an approach which can supplement social and political reconciliation efforts in post-conflict settings. If tourism is operating with sustainable principles and practices, it can have positive impacts in reducing

tensions between visitors and host communities. The potential role of tourism in contributing to peace from socio-cultural, political, human rights, social justice, environmental (climate change), corporate social responsibility, health, globalization, intergenerational tourism. Such initiatives highlight the co relational *and causal relationship* between tourism and peace, and support the theory that tourism can be helpful in mitigating conflict and accelerating peace.

- 8 Conflict, a state of dispute and distrust, decelerates sustainable growth of the tourism sector if it leads to violence and threatens peace. However, minor conflicts which are manageable have often been conducive to peace if the issues are addressed in a timely manner and involve cooperation among the concerned parties. Destinations are less appealing to tourists if they are insecure or likely to experience serious conflict – war, political unrest , terrorism, violations of human rights or heavy crime regardless of the abundance of scenic or cultural attractions. Although, there are instances of tourist attractions based on war and atrocities, tourism in general is highly vulnerable to turmoil and can thrive only under peaceful conditions.
- 9 Peace is a state that not only indicates the absence of direct violence but also sustains peaceful relationships among all levels and segments of society and between society and nature. It is based on human rights, economic wellbeing, and socio-political equality for all the people. It is also found to have a direct relationship with tourism.
- 10 Rule-1: If the (absolute) test statistics is *greater than* the critical value (absolute) then we can reject null hypothesis and accept alternative hypothesis. But if the (absolute) test statistics is less than the critical value (absolute) then we cannot reject null hypothesis rather we accept the null hypothesis. Symbolically, If *test-statistic > Critical value* = reject the null hypothesis and if *test-statistic < critical value* = accept the null hypothesis.  
Rule-2: Secondly, if the P-value is less than 5% (0.05) we can reject null hypothesis and accept alternative hypothesis. But if the P value is greater than 5 % (0.05) we cannot reject null hypothesis rather we accept null hypothesis. Symbolically, if *P-value < 5%(0.05)* = Reject null hypothesis and if *P-value > 5%(0.05)* = accept the null hypothesis.
- 12 If the error correction term is negative in sign and is significant, then we can say that there is a long run causality running from the independent to dependent variables so far as the rule is concerned.

