Does Tourism-led Growth Hypothesis Exist in Pakistan? A Fresh look from Combine Cointegration and Causality Approach with Structural Breaks.

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Does Tourism-led Growth Hypothesis exist in Pakistan? A Freshlook from Combine Cointegration and Causality Approach with Structural Breaks

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- Tourism function is investigated for Pakistan.
- Tourism stimulates economic growth.
- The feedback effect exists between tourism and economic growth.

Abstract

Purpose: *The prime objective of this study is to re-investigate the tourism-led growth hypothesis by accommodating structural breaks over the annual period 1988-2014 for Pakistan. This study used two measure of tourism development -tourist arrivals and tourism expenditure per capita to explore the relationship between tourism and economic growth.* ***Methodology:*** *The unit root problem is tested by applying Ng-Perron unit root test. However, Perron, (1997) single structural break and Clemente et al. (1998) double structural breaks unit root tests also employed. To examine the long relationship between tourism and economic growth, we applied newly invented Bayer-Hanck, (2013) combine cointegration approach in the presence of structural breaks. The robustness of combine cointegration approach is tested by Johansen cointegration technique. Further, VECM Granger causality is used to understand the direction of causality during structural shocks.* ***Findings:*** *We found all data series stationary at first difference. The empirics confirm the existence of long run relationship between underlying variables in the presence of structural breaks. The results of VECM Granger causality predicted unidirectional causality running from tourism development (tourist arrives) to economic growth in long run as well as short run when. But, bidirectional relationship between tourism development (tourism expenditure) and economic growth has found. This validates the tourism-led growth for Pakistan.* ***Recommendations:*** *Policy makers should focus on development of tourism industry to enhance economic growth for Pakistan.*

Keywords: Tourism, Economic Growth, Pakistan
JEL Classification: L83

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I. Introduction

Over the past few decades, the expansion and diversification in tourism sector has noticed. When we compare tourism sector to other economic sectors, we observe fastest growth rate in tourism sector. The growth in tourism sector is uninterrupted by occasional shocks. According to World Tourism Organization (2015), international tourist arrivals in the world have surged from 278 million in 1980 to 1133 million in 2014. Moreover, international tourist arrivals have grown by 4.4% and reached 1200 million in 2015 (UNWTO, 2016). The international tourist arrivals are expected to grew by 3.3 percent in a year over the period of 2010-2030 and expected to reach 1.8 billion by 2030. The world tourism organization stated that the growth in tourist arrivals in emerging economies will be high (+4.4% in a year) by relating advanced economies (+2.2 % in a year). Similarly, international tourism receipts have increased from 104 billion USD in 1980 to 1245 billion USD in 2014 globally. It is also noticed that tourism contributed to world GDP by 9 % in 2015. The relationship between tourism and economic growth can be analysis by testing three hypotheses:1) the Tourism-Led Economic Growth hypothesis; 2) the Economic-Driven Tourism Development hypothesis; 3) reciprocal causality hypothesis (Oh, 2005). First hypothesis states that tourism leads economic growth and the causal relationship should be unidirectional running from tourism to economic growth for this. Second hypotheses describe that economic growth drives tourism and there must be unidirectional causality going from economic growth to tourism. Last hypotheses combine previous (1) and (2) hypotheses and predict bidirectional causality or two-way causality between economic growth and tourism. In tourism-growth literature, the causal relationship between tourism and economic growth is still unclear. Some studies supported tourism-led growth hypotheses, (e.g. Gunduz and Hatemi-J, 2005; Kaplan and Celik, 2008; Aslan, 2015; Tang and Tan, 2015a; Jayathilake, 2013; Surugiu and Surugiu, 2013). While, other studies said economic growth drives tourism, (e.g. Oh, 2005; Bouzahzah and Menyari, 2013; Payne and Mervan, 2010; Katircioglu, 2009). However, some researchers were in the favor of two-way causality hypothesis, (e.g. Kim et al. 2006; Lee and Chien, 2008; Akan et al. 2008; Shahbaz et al. 2015; Khalil et al. 2007; Lashkarizadeh et al. 2012; Mishra et al. 2011). Tourism has positive impact on economic growth and it contributes in economic growth in various ways: reduction in unemployment, increase in foreign reserves through foreign exchange earnings, improvement in balance of payment, development of infrastructure, decline in budget deficit via tax revenue, development of abilities and skills etc. (Davis et al.1988; Uysal and Gitelson, 1994; Belisle and Hoy, 1980; Khan et al. 1990; Durbarry, 2002; West, 1993; Archer, 1995).

In emerging economies like Pakistan, direct contribution of tourism industry in GDP was 1.81 billion USD on an average for period of 1990-1999. This contribution had increased to 3.39 billion USD on an average for 2000-2010. Further, it increased to 7.73 billion USD by 2015 that was 2.84 percent of GDP. So, when we observed total contribution to GDP, it was 18.83 billion USD in 2015 that was 6.93 percent of total GDP. The tourism plays a vital role in employment generation. In 1990, tourism has created 649 thousand jobs which continuously increased and reached 1428 thousand in 2015 (World Travel and Tourism Council WTTC, 2016). The total contribution of tourism (both direct and indirect) to employment explains the clear picture of job creations. This study contributes in existing literature by following ways: (1) use two models to check the impact of tourism development on economic growth for Pakistan; (2) examine tourism-led growth hypotheses with in an extended Cobb Douglas production function; (3) implication of Perron, (1997) single structural break and Clemente et al. (1998) double structural breaks unit root test; (4) applying newly developed combine cointegration in the presence of structural events; (5) structural breaks VECM Granger causality.

II. Literature Review

There are many studies proved tourism-growth relationship for different countries. Table-1 shows an overview of literature regarding tourism-led growth hypothesis. Balaguer and Cantavella-Jorda, (2002) examined tourism-led growth hypothesis in Spain by taking time quarterly time period of 1975-1997. They used Johansen cointegration and Granger causality approach to investigate tourism-growth relationship. Their findings suggested that cointegration exist between tourism and economic growth and tourism causes economic growth. Later, Antonakakis et al. (2015) used spillover index for Greece, Italy, Portugal, Spain, Australia and Germany by using monthly time duration from 1995-2012 and confirmed the existence of tourism-led growth hypothesis for Italy, Portugal, Spain and Germany. Oh, (2005) studied tourism-led growth hypothesis for Korea over the period of $1975Q_1$-$2001Q_1$. The empirical findings of Granger causality showed that tourism leads economic growth. Kim et al. (2006) probed the relationship between growth rate of tourist arrive and growth rate of income for Taiwan. They used quarterly time duration form 1971Q1-2003Q2 and annually time period from 1956-2002. The findings suggested bidirectional causality between tourism and economic growth. Lee and Chien, (2008) re-examined the tourism-led growth

hypothesis in the presence of structural breaks over the period of 1956-2003 for Taiwan and confirmed the results of Kim et al. (2006). Kreishan, (2011) observed the relationship between tourism development and economic growth by applying Johansen cointegration and Granger causality for Jordan. The findings explained that tourism pushups economic growth. Similarly, Lee (2008) determined the tourism-led growth hypotheses for Singapore over the period of $1978Q_1$-$2007Q_2$. The findings of this study support the tourism-led growth hypotheses. Same findings have derived by Katircioğlu, (2011) for Singapore by using annual data series from 1960-2007. Similarly, a bidirectional causality has been found by Lashkarizadeh et al.(2012) that verified the existence of tourism-led growth hypothesis for Iran. Similarly, Ongan and Demiroz, (2005) explored the relationship between tourism and economic growth by taking quarterly frequency from 1980-2004 for Turkey. The empirical findings showed that bidirectional causality exists between tourism development and economic growth. But, Gunduz and Hatemi-J, (2005) argue that only tourism causes economic growth. They used leverage bootstrap causality approach over the period of 1963-2002. Later on, Kaplan and Celik, (2008) provided the evidence in the favor of unidirectional causality running from tourism development to economic growth for Turkey. In this debate, Akan et al. (2008) supported the findings of bidirectional causality between tourism and economy growth for Turkey by Ongan and Demiroz, (2005). By adding literature, Ozturk and Acaravci, (2009) argued that there is no long run relationship between tourism development (tourism receipt and arrivals) and real GDP for Turkey. Further, Gokovali, (2010) confirmed the tourism-led growth hypothesis by using Cobb-Douglas production in Turkey. Savas et al. (2012) used two proxies for tourism development (tourism arrives and tourism expenditure) and analyzed the tourism-led growth hypothesis over the period of $1984Q_1$-$2008Q_3$ for Turkey. They indicated that tourism causes economic growth. The latest study by Aslan, (2015) supported the findings of Savas et al. (2012) by applying ARDL bound testing and Granger causality approach for quarterly frequency of 2003-2012. The empirical findings demonstrated that tourism leads economic growth from Turkey.

Further, Tang and Tan, (2013) took 12 different tourism markets and apply combine cointegration Granger causality approach to analysis tourism-led growth hypothesis. They used monthly time period form $1995m_1$-$2009m_2$ and confirmed the existence of tourism-led growth hypothesis. Later on, Kumar et al. (2015) applied ARDL bound testing approach and Toda-Yamamota Granger causality for annually time duration form 1975-2011 for Malaysia. Their findings suggested that tourism causes investment and investment causes economic growth. Similarly, Tang and tan, (2015a) confirmed tourism-led growth hypothesis by using multivariate model derived by Solow over the annual period 1975-2011 for Malaysia. After that, Tang and Tan, (2015b) provided evidence for existence of tourism-led growth hypothesis by using tourism arrives as a proxy of tourism development for Malaysia. Shahbaz et al. (2015) used two models (tourism development and tourism arrives) for tourism development and examined the tourism-led growth hypothesis for Malaysia. Their findings argued tourism causes economic growth, financial development and trade openness and they also cause tourism. Brida and Risso, (2009) explored tourism-led growth hypothesis by applying Granger causality and impulse response function for time period from 1988-2008. They used tourism expenditure as a proxy of tourism development and empirics discovered unidirectional causality running from tourism expenditure and exchange rate to economic growth for Chile. The findings of Kreishan (2015) for Bahrain are also consistent with the results of Brida and Risso, (2009). Jayathilake, (2013) used tourist arrives for tourism development and discovered unidirectional relationship form tourism development to economic growth for Sri Lanka. But, Katircioglu, (2009) did not find any evidence in the favor of tourism-led growth hypothesis for Cyprus. This study used annual data set from 1960-2005 and applied Granger causality. For Spain, Balaguer and Cantavella-Jorda, (2002) took quarterly data form $1975Q_1$-$1997Q_1$and applied Granger causality approach. The results showed that tourism-led growth hypothesis exists due to unidirectional causality running from tourism to economic growth in Spain. Kibara et al. (2012) observed the relationship between tourism, trade and economic growth over the period of 1983-2010 for Kenya. They applied ARDL bound testing and Granger causality approach and described unidirectional relationship running from trade to tourism and tourism to economic growth.

Similarly, some researcher verified tourism-led growth hypothesis for India i.e. Mishra et al. (2011) searched the causal links between tourist arrives, tourism foreign exchange earnings and economic growth by applying Granger causality over the period of 1978-2009 for India. They found bidirectional links between tourist arrives and economic growth, and tourism foreign exchange earnings and economic growth. After that, Georgantopoulos, (2013) checked the impact of tourism expenditure, business travel, tourism spending, leisure travel, and exchange rate on economic growth for India over the period of 1988-2011. The empirical findings suggested that business travel drives economic growth but, tourism spending and economic growth cause each other. In case of Romania, Surugiu and Surugiu, (2013) applied VECM Granger causality and Impulse response function by taking time period from 1988-2009. The evidence confirmed the existence of tourism-led growth hypothesis.

Payne and Mervan, (2010) inspected the relationship between tourism receipt, economic growth and real effective exchange rate by applying Toda Yamamota causality approach over the quarterly period 2000-2008 for Croatia. Their findings did not confirm the existence of tourism-led growth hypothesis. They concluded that economic growth drives tourism in Croatia. But, Belloumi, (2010) predicted that tourism drives economic growth by applying Granger causality approach for time period form 1970-2007 in Tunisia. Similarly, Bouzahzah and Menyari, (2013) investigated tourism-led growth hypothesis for annual time spam from 1980-2010 and determined that tourism-led growth hypothesis does not exist because unidirectional causality running from economic growth to tourism has been found in Morocco. Later on, Tang and Abosedra, (2015b)re-investigated the causal relationship between tourism and economic growth by applying Granger causality approach and argued that tourism-led growth hypothesis exists in Morocco and Tunisia. Further, Tang and Abosedra, (2014a) explained tourism-led growth relationship in Lebanon for time spam from 1995-2010. They applied Granger causality approach and establish unidirectional relationship from tourism to economic growth. But, Tang and Abosedra, (2015c) applied bootstrap and rolling causality for monthly data from 1995-2011 and concluded same findings for Lebanon.

In case of Pakistan, there are very few studies investigated the tourism-led growth hypothesis such as Khalil et al. (2007) used Granger causality and cointegration approach to explorer tourism-growth relationship and predicted bidirectional relationship between tourism and economic growth for Pakistan. Later on, Malil et al. (2010) reinvestigated tourism-led growth hypothesis by incorporating current account deficit with them over the period of 1972-2007. They explained that tourism and current account deficit cause economic growth. Moving on, Jalil et al. (2013) applied ARDL bound testing and Granger causality approach by taking annual frequency from 1972-2911 and found existence of tourism-leg growth hypothesis for Pakistan. The findings of Adnan-Hye and Ali-Khan (2013) are consistent with Jalil et al. (2013) and Malik et al. (2010).

Table-1: Overview of Literature.

Authors & Publication year	Time Period & Countries	Methodology	Variables	Cointegration	Causality	Does tourism-led growth hypothesis exist?
Antonakakis et al. (2015)	Greece, Italy, Portugal, Spain, Australia, Germany. (1995m1-2012m12)	Spillover index approach	Economic Growth (Proxy of Industrial Production), Tourist Arrives	----	----	Yes, for Italy, Portugal, Spain, & Germany. No, for Australia & Greece.
Oh,(2005)	Korea (1975Q1-2001Q1)	Engle and Granger two-stage approach, a bivariate Vector Auto regression (VAR) model	Real Tourism Receipt, Real GDP	No	Y -----> T	No
Kim et al. (2006)	Taiwan, (1971Q1-2003Q2, and 1956-2002)	Johansen, Granger causality	Growth Rate of Tourist Arrive, Growth Rate of Income	yes	Y<-----> T	Yes
Gunduz and Hatemi-J, (2005)	Turkey (1963-2002)	Leveraged bootstrap causality	Tourist Arrivals, Real GDP	yes	T -----> Y	Yes
Ongan and Demiroz, (2005)	Turkey (1980Q1-2004Q2)	Johansen, VECM Granger causality	Tourism Development, Economic Growth	yes	T<-----> Y	Yes
Kaplan and Celik, (2008)	Turkey (1963-2006)	VAR procedure	Real GDP, Tourism Receipt, Exchange Rate	Yes	T, E ----->Y	Yes
Akan et al. (2008)	Turkey (1985-2007)	Granger causality, VAR model	Tourism Receipt, Growth Rate	Yes	T<-----> Y	Yes
Katircioglu, (2009)	Turkey, (1960-2006)	ARDL, Johansen	Real GDP, Tourist Arrives, Real Exchange Rate	no	---	No
Ozturk and Acaravci, (2009)	Turkey (1987-2007)	Johansen, ARDL, VECM	Tourism Development (Used both proxies Tourism receipt and arrive) Real GDP, Exchange Rate	No	---	No

Gokovali, (2010)	Turkey (1985-2005)	Cobb-Douglas production function with Tourism revenue	Capita, Labor, Tourism Revenue and GDP	---	---	Yes
Savas et al. (2012)	Turkey (Model-1 data 1985Q1-2008Q3) (Model-2 data 1984Q1-2008Q3)	ARDL, ECM. Used two model (1-Turisum expenditure) (2-Tourist arrives)	Tourism Development (Proxies of Tourism expenditure and tourism arrives) Exchange Rate, Economic Growth	yes	T-----> Y	Yes
Aslan, (2015)	Turkey (2003Q1-2012Q4)	ARDL, Granger causality	Expanse of Tourism (Accommodation, transport, Sporting activities, Sightseeing, Cloth & Footwear, Gift), Economic Growth	Yes	T -----> Y	Yes
Tang and Tan, (2013)	Malaysia, 12 different tourism markets (1995m1-2009m2)	Combine cointegration, Granger causality	Tourism Arrive, Economic Growth (Proxy of Industrial Production)	Yes	----	Yes
Kumar et al. (2015)	Malaysia (1975-2011)	ARDL, Toda Yamamota, Granger causality	Tourism Receipt, Investment(I) (Capital), Growth (output per worker)	Yes	T-----> I I -----> Y	Yes
Tang and Tan, (2015a)	Malaysia (1975-2011)	Multivariate model derived by Solow, Johansen cointegration	GNP, Tourism Receipt, Real National Savings, Political Stability	yes	T -----> Y	Yes
Tang and Tan, (2015b)	Malaysia (1991Q1-2014Q1)	Johansen, Granger causality	GDP, Tourism Arrive, Capita, Net Export	Yes	T -----> Y	Yes
Shahbaz et al. (2015)	Malaysia (1975Q1-2013Q4)	ARDL, Granger causality	Tourism development (Proxies of Tourism arrive and receipt), GDP, Financial Development, Trade Openness	Yes	T <-----> Y, FD, TO	Yes
Kreishan, (2011)	Jordan (1970-2009)	Johansen, Granger causality	Tourism Development, Economic Growth	yes	T -----> Y	Yes
Katircioğlu, (2011)	Singapore (1960-2007)	ARDL, ECM, Granger causality	International Tourism, GDP, Exchange Rate	Yes	T -----> Y	Yes
Lee, (2008)	Singapore (1978Q1-2007Q2)	ARDL, Granger causality	Tourist Arrive, Real GDP	No	T -----> Y	Yes
Khalil et al. (2007)	Pakistan (1960-2005)	Engle-Granger cointegration, Granger causality	Tourism,Economic Growth	Yes	T <-----> Y	Yes
Malik et al. (2010)	Pakistan (1972-2007)	Johansen, ECM	Tourism, Economic Growth, Current Account Deficit.	Yes	T, CA -----> Y	Yes
Jalil et al. (2013)	Pakistan (1972-2011)	ARDL, Granger causality	Real GDP, Tourism receipt, Capital Stock, Inflation, Trade Openness	Yes	T -----> Y	Yes
Adnan-Hye and Ali-Khan (2013)	Pakistan (1971-2008)	ARDL, Johansen, rolling window bound testing approach	Tourism Earnings, Real GDP	Yes	T -----> Y	Yes
Lashkarizadeh et al. (2012)	Iran (1980-2009)	Granger causality, ECM	GDP per Capita, Tourist arrives	Yes	T<----->Y	Yes

Mishra et al. (2011)	India (1978-2009)	Johansen, Ganger causality	Tourist arrives, Tourism Foreign Exchange Earnings (TFEE), Economic Growth	yes	T, TFEE <----->Y	Yes
Georgantopoulos, (2013)	India (1988-2011)	Johansen, VAR model, ECM, Innovative accounting approach	Economic Growth, Tourism expenditure, Business travel, Tourism spending (BTS), Leisure travel and tourism spending (LTS), Exchange Rate.	Yes	T =≠=> Y Aggregate model. But LTS<----->Y, BTS ----->Y	Yes
Payne and Mervan, (2010)	Croatia (2000Q1-2008Q3)	Toda Yamamoto causality	Tourism receipt, Economic Growth, REER	---	Y -----> T	No
Tang and Abosedra, (2014a)	Lebanon (1995-2010)	ARDL, Granger causality.	Tourism Arrive, Economic Growth	Yes	T -----> Y	Yes
Tang and Abosedra, (2015c)	Lebanon (1995m1-2011m12)	Bootstrap, rolling causality	Tourism, Economic Growth	----	T <-----> Y	Yes
Belloumi, (2010)	Tunisia (1970-2007)	Johansen, Granger causality	Tourism receipt, Real GDP, REER	Yes	T -----> Y	Yes
Bouzahzah and Menyari, (2013)	Morocco, Tunisia (1980-2010)	Johansen, Granger causality	Tourism receipt, REER, Real GDP	yes	Y ----->T	No
Tang and Abosedra, (2015b)	Morocco, Tunisia (1990-2010)	Combine cointegration, Granger causality	Real GDP per Capita, Tourist arrives	Yes	T <-----> Y	Yes
Brida and Risso, (2009)	Chile (1988-2008)	Johansen, Granger causality, Impulse Response	Tourism Expenditure, real GDP, Exchange Rate	Yes	T, E -----> Y	Yes
Kreishan, (2015)	Bahrain (1990-2014)	ARDL, Granger causality	Tourism, Economic Growth	Yes	T -----> Y	Yes
Jayathilake, (2013)	Srilanka (1967-2011)	Johansen, Granger causality	Tourism Arrive, real GDP, REER	Yes	T -----> Y	Yes
Katircioglu, (2009)	Cyprus (1960-2005)	ARDL, Granger causality	Real GDP, Net Exports, Tourism Arrives	Yes	Y ----->Ex, T T-----> Ex	No
Balaguer and Cantavella-Jorda, (2002)	Spain (1975Q1-1997Q1)	Johansen, Granger causality.	Real GDP, Tourism receipt, REER	yes	T, E -----> Y	yes
Kibara et al. (2012)	Kenya (1983-2010)	ARDL, Granger causality	Tourism, Economic Growth and Trade	Yes	T ----->Tr Tr -----> Y	Yes
Surugiu and Surugiu, (2013)	Romania (1988-2009)	Unrestricted Cointegration rank test, VECM Granger causality, Impulse response	Real GDP, REER, Tourism Arrive	yes	T -----> Y	Yes

Note: T symbolizes tourism, Tr is for trade, Y shows economic growth, E explains exchange rate, Ex denotes exports, LTS is for leisure tourism spending, BTS expresses Business tourism spending, TFEE denotes tourism foreign exchange earnings, CA shows current account, FD describes financial development, TO labels trade openness and I represents investment.

III. Data Collection, Model Development and Methodology Explanation

The model used in this study has derived from Fayissa et al. (2008), Panahi et al. (2015) and Sequeira and Campos (2005). The modified Cobb Douglass production function is following (eq 1):

$$y = f(td, pc, hc, reer) \quad (1)$$

We have transformed all series into logarithm (eq2) in order to estimate the elasticity.

$$\ln y = f[\ln td(ta, ts), \ln pc, \ln hc, \ln reer] \quad (2)$$

Here, *lny* shows natural log of real GDP per capita as a measure of economic growth, *ln td* shows natural log of tourism development, *lnpc* represents the natural log of gross fixed capital formation per capita at constant 2005 US$ as a proxy of physical capital, *lnhc* shows natural log of enrolment in secondary education per capita as a proxyof human capital and *lnreer* shows natural log of real effective exchange rate for measurement of external competiveness. We have taken two proxies such as tourist arrivals per capita (*ta*) and tourism expenditures per capita (*ts*) individually as a measure of tourism development. The estimated models (model-1 for tourism spending) and (model-2 for tourist arrivals) are mention below:

$$\ln y_t = \beta_0 + \beta_{ts}\ln ts_t + \beta_{pc}\ln pc_t + \beta_{hc}\ln hc_t + \beta_{reer}\ln reer_t + \mu_t \quad (3)$$

$$\ln y_t = \beta_0 + \beta_{ta}\ln ta_t + \beta_{pc}\ln pc_t + \beta_{hc}\ln hc_t + \beta_{reer}\ln reer_t + \mu_t \quad (4)$$

This study covers the annual time period from 1988 to 2014. All data series have collected from World Bank database, World Development Indicator.

III.I. Unit Root Analysis

There are many traditional unit root tests such as ADF proposed by Dicky and Fuller, (1981); PP introduced by Phillips and Perron, (1988) and DF-GLS invented by Elliotet al. (1996). These tests differ in their properties and unreliable for small data set (DeJong et al. 1992). These tests over-reject the null hypothesis or accept the null when it is false. This study applies NG-Perron unit root test to analysis unit root problem because it is unique in its nature and suitable for short data sample. It also has a good explanatory power and provides consistent and reliable results. These traditional unit root tests are unable to accommodate the problem of structural breaks. In doing so, Perron and Volgelsang, (1992) and Zivot–Andrews, (1992) structural break tests have the power to accommodate single unknown structural break stemming in the series. These tests are also failed to undertake more than one structural breaks. Under such circumstances, a more appropriate test is Clemente et al. (1998)which accommodates two structural breaks. The null hypothesis against alternative hypothesis is following:

$$H_0: x_t = x_{t-1} + m_1 DTB_{1t} + m_2 DTB_{2t} + \mu_t \quad (5)$$

$$H_1: x_t = u + n_1 DU_{1t} + n_2 DTB_{2t} + \mu_t \quad (6)$$

Here,$DTB_{1t}$is the pulse variable which is set to1 if $t=TB_i+1$ and zero elsewhere. DU_{it} = 1 if TBi<t(i=1,2) and zero elsewhere. TB1 and TB2 time period represents the modification of mean. We also assume $TB_i = \delta_i T$ (i=1,2) where $1>\delta_i>0$ while $\delta_1<\delta_2$ (Clemente et al. 1998).When two structural breaks are contained, then estimated unit root equation (7) is following:

$$x_t = u + \rho x_{t-1} + d_1 DTB_{1t} + a_2 DTB_{2t} + d_3 DU_{1t} + d_4 DU_{2t} + \sum_{i=1}^{k} c_j \Delta x_{t-1} + u_t \quad (7)$$

III.II Bayer and Hanck Combined Cointegration

Many cointegration tests are available in econometrics literature such as Engle and Granger, (1987); Johansen, (1991); Phillips and Ouliaris, (1990); Peter Boswijk, (1994) and Banerjee et al. (1998).There is contradiction in their results. In doing so, Bayer and Hanck, (2013) introduced a joint test statistic for the null of no cointegration based on Engle and Granger, Johansen, Peter Boswijk, and Banerjee tests to enhance the power of cointegration test. It is known as B*ayer-Hanck* combine cointegration test. The calculated F-statistics are the combination of various individual cointegration test results to provide a more conclusive finding. The Fisher's formulas of computing Bayer and Hanck cointegration is following (eq8, 9):

$$EG - JOH = -2\,[\ln(P_{EG}) + (P_{JOH})] \quad (8)$$

$$EG - JOH - BO - BDM = -2[\ln(P_{EG}) + (P_{JOH}) + (P_{BO}) + (P_{BDM})] \quad (9)$$

Where P_{EG}, P_{JOH}, P_{BO} and P_{BDM} are the p-values of various individual cointegration tests respectively. Once, the estimated Fisher statistics exceed the critical values provided by Bayer and Hanck (2013), the null hypothesis of no cointegration is rejected and vice versa.

III.III VECM Granger Causality

Once, the cointegration has been confirmed between the variables, we may proceed to VECM Granger causality to test the direction of causality. The estimated VECM models are listed below (eq10):

$$(1-L)\begin{bmatrix}\ln y_t\\ \ln td_t\\ \ln pc_t\\ \ln hc_t\\ \ln reer_t\end{bmatrix}=\begin{bmatrix}a_1\\ a_2\\ a_3\\ a_4\\ a_5\end{bmatrix}+\begin{bmatrix}b_{11i}b_{12i}b_{13i}b_{14i}b_{15i}b_{16i}\\ b_{21i}b_{22i}b_{23i}b_{24i}b_{25i}b_{26i}\\ b_{31i}b_{32i}b_{33i}b_{34i}b_{35i}b_{36i}\\ b_{41i}b_{42i}b_{43i}b_{44i}b_{45i}b_{46i}\\ b_{51i}b_{52i}b_{53i}b_{54i}b_{55i}b_{56i}\end{bmatrix}\times\begin{bmatrix}\ln y_{t-1}\\ \ln td_{t-1}\\ \ln pc_{t-1}\\ \ln hc_{t-1}\\ \ln reer_{t-1}\end{bmatrix}+\ldots+\begin{bmatrix}b_{11i}b_{12i}b_{13i}b_{14i}b_{15i}b_{16i}\\ b_{21i}b_{22i}b_{23i}b_{24i}b_{25i}b_{26i}\\ b_{31i}b_{32i}b_{33i}b_{34i}b_{35i}b_{36i}\\ b_{41i}b_{42i}b_{43i}b_{44i}b_{45i}b_{46i}\\ b_{51i}b_{52i}b_{53i}b_{54i}b_{55i}b_{56i}\end{bmatrix}$$

$$\times\begin{bmatrix}\ln y_{t-1}\\ \ln td_{t-1}\\ \ln pc_{t-1}\\ \ln hc_{t-1}\\ \ln reer_{t-1}\end{bmatrix}+\begin{bmatrix}\alpha\\ \beta\\ \gamma\\ \delta\\ \phi\end{bmatrix}ECT_{t-1}+\begin{bmatrix}\varepsilon_{1t}\\ \varepsilon_{2t}\\ \varepsilon_{3t}\\ \varepsilon_{4t}\\ \varepsilon_{5t}\end{bmatrix} \quad (10)$$

Here, (1-L) is difference operator and the lagged correction term is ECM_{t-1}. If the coefficient of lagged error correction term is statistical significant, we may say that long run causality exists. Similarly, the existence of a significant relationship in first differences expresses short run causality.

IV. Empirical Analysis and Results Discussion

The analysis of descriptive statistics and pair-wise correlation is represented in Table-2. The results explain that standard deviation of human capital is high by comparing other series. Similarly, the standard deviation of physical capital, exchange rate and GDP per capita is very low. The high standard deviation shows high volatility in data and low standard deviation represents stability in data.

Table-2. Descriptive Statistics and Pair-wise Correlation

Variables	lny_t	lnta_t	lnts_t	lnpc_t	lnhc_t	ln$reer_t$
Mean	6.4793	13.190	3.6246	4.8522	15.382	4.6684
Median	6.4309	13.122	3.5263	4.8353	15.382	4.6480
Maximum	6.7016	13.979	3.9651	5.0141	16.232	4.9177
Minimum	6.2622	12.410	3.0675	4.7190	14.356	4.5403
Std. Dev.	0.1380	0.5026	0.2437	0.0858	0.6237	0.1016
Skewness	0.1627	0.1096	-0.123	0.3007	-0.085	0.5705
Kurtosis	1.6273	1.6431	2.2380	1.8040	1.5515	2.6025
Jarque-Bera	2.2378	2.1252	0.7214	0.4057	2.3930	1.6424
Prob.	0.3266	0.3455	0.6971	0.4057	0.3022	0.4398
Ln y_t	1.0000					
Ln ta_t	0.9844	1.0000				
Ln ts_t	0.9760	0.9588	1.0000			
Ln pc_t	-0.052	-0.166	-0.012	1.0000		
Ln hc_t	0.9800	0.9830	0.9546	-0.137	1.0000	
Ln $reer_t$	-0.701	-0.717	-0.719	0.0450	-0.794	1.0000

The value of Jarque-Bera shows that all series are normally distributed, having zero mean and constant variance. The pair-wise correlation explains that tourism arrive (tourism expenditure) and human capital are positively correlated with economic growth while, physical capital and exchange rate are negatively correlated with economic growth.Similarly, physical capital and exchange rate are negatively correlated with tourism arrive (tourism expenditure) but, human capital is positively linked with tourism arrive (tourism expenditure). However, we noted that human capital and physical capital; and human capital and exchange rate are negatively correlated but, exchange rate and physical capital are positively linked.

The results of NG-Perron unit root test are reported in Table-3. The empirical results suggested that economic growth, tourist arrive, tourism expenditure, physical capital, human capital and exchange rate have unit root problem at level i.e. *I(0)*, but found stationary after taking first difference, i.e. *I(1).*The traditional unit root tests fail to incorporate the issue of structural breaks. To overcome this issue, we apply Perron structural break unit root test by Perron, (1997) because this test is more complete form than Zivot-Andrews, (1992) structural break test. This test helps to analysis the unit root problem in the presence of single unknown structural break. Table-4 explains the results of Perron structural break unit root test. The results suggest that all series are non-stationary at level but stationary at 1st difference in the presence of structural breaks. The structural breaks in 2004, 1998, 2001, 2004, 2010 and 2006 are found for economic growth, tourist arrives, tourism expenditures, physical capital, human capital and exchange rate respectively. Further, to accommodate two unknown structural breaks, we apply Clemente-Montanes-Reyes structural break unit root test. This test has a capacity to identify two structural breaks that are stemming into series at a time.

Table-3.NG-Perron Unit Root Analysis

Unit root analysis without structural breaks.				
Variables	**MZa**	**MZt**	**MSB**	**MPT**
ln y_t	-0.3368(2)	-0.1583	0.4701	16.568
ln ta_t	-4.9323(4)	-1.5678	0.3178	18.460
ln ts_t	-8.3432(1)	-1.9842	0.2378	11.092
ln pc_t	-5.2553(5)	-1.5906	0.3026	17.214
ln hc_t	-9.1418(1)	-1.9740	0.2159	10.556
ln $reer_t$	-5.4098(2)	-1.3370	0.2471	15.867
Δ ln y_t	-23.682(2)**	-3.4354	0.1450	3.8811
Δ ln ta_t	-75.516(2)*	-6.1446	0.0813	1.2072
Δ ln ts_t	-12.493(3)	-2.4941	0.1996	7.3216
Δ ln pc_t	-27.444(2)*	-3.6930	0.1345	3.3849
Δ ln hc_t	-79.102(2)*	-6.2877	0.0794	1.1570
Δ ln $reer_t$	-36.603(2)*	-4.2381	0.1157	2.7022
Note: * and ** show the significant at 1% and 5% level of significance respectively.				

Table-4.Perron, (1997) Structural Break Unit Root Test

Variables	**At level**		**At 1st difference**	
	T-statistics	Time Break	T-statistics	Time Break
lny_t	-4.1810	2004	-6.0247*	2003
lnta_t	-3.8263	1998	-6.4531*	2006
lnts_t	-3.2801	2001	-4.9982***	1993
lnpc_t	-4.5627	2004	-4.7083***	2006
lnhc_t	-2.6346	2010	-4.6133***	2006
ln$reer_t$	-3.7012	2006	-5.7166*	2001
Note: * and *** identify the significant at 1% and 10% level of significance respectively.				

Table-5. Clemente-Montanes-Reyes Structural Break Unit Root Test

Variable	Innovative outliers			Additive outlier		
	T-stat.	DU1	DU2	T-stat.	DU1	DU2
lny_t	-3.261	1997	2002	-5.353***	2002	2006
lnta_t	-1.811	2002	2010	-6.065*	2002	2010
lnts_t	-4.366	2001	2003	-6.599*	2001	2006
lnpc_t	-5.295	1995	2003	-5.103***	2003	2008
lnhc_t	-3.840	1998	2004	-6.886*	1998	2005
ln$reer_t$	-5.264	1997	2010	-5.849**	2000	2008
Note: *, ** and *** show the significant at 1%, 5% and 10% level of significance respectively.						

Table-6. Lag Length Criteria

VAR Lag Order Selection Criteria						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	193.82	NA	1.20e-14	-15.025	-14.733	-14.944
1	324.59	188.30	6.71e-18	-22.607	-20.559	-22.039
2	378.18	51.450*	2.95e-18*	-24.014*	-20.211*	-22.959*
* indicates lag order selected by the criterion.						
LR shows sequential modified LR test statistic (each test at 5% level), FPE represents Final prediction error, AIC signifiesAkaike information criterion, SC indicates Schwarz information criterion and HQ specifies Hannan-Quinn information criterion.						

Table-7: Bayer and Hanck Combined Cointegration

Estimated models	Structural Break	EG-JOH	EG-JOH-BO-BDM	Lags	Cointegration
Model 1					
Ln y_t	2004	57.150*	167.67*	2	Yes
Ln ts_t	2001	55.918*	166.44*	2	Yes
Ln pc_t	2004	11.374	15.709	2	No
Ln hc_t	2010	58.240*	168.76*	2	Yes
Ln $reer_t$	2006	58.780*	169.30*	2	Yes
Model 2					
Ln y_t	2004	56.463*	111.72*	2	Yes
Ln ta_t	1998	62.780*	173.30*	2	Yes
Ln pc_t	2004	10.341	14.997	2	No
Ln hc_t	2010	58.956*	169.48*	2	Yes
Ln $reer_t$	2006	58.616*	169.14*	2	Yes
Significance level					
1%		15.701	29.85		
5%		10.491	19.88		
10%		8.242	15.80		
Note: * represents significant at 1 percent level of significance. Lag length is based on minimum value of AIC.					

Table-5 displays the results of Clemente-Montanes-Reyes structural break unit root test. We notice that series have unit root problem at level but, found stationary at first difference. After confirming order of integration, we may proceed to investigate cointegration among underlying variables. In order to apply cointegration test, it is important to identify an appropriate lag length. It would be helpful for reliable and consistent results in our analysis. For our estimation, we follow Akaike information criterion (AIC) due to its superior properties. Lütkepohl, (2006) identify that the AIC provides better and consistent results as compared other lag length criterion. The results of UECM model for optimal lag length is pasted in Table-6 that showing 2 is optimal lag order. The unique order of integration i.e. *I(1)* leads us to apply newly developed combined cointegration approach, proposed by Bayer and Hanck,

(2013).We have introduced structural yearsas dummy variables while investigating the presence of cointegration between the series using Bayer-Hanck combined cointegration approach. The results are inserted in Table-7. For both models (tourist arrives and tourism expenditures), the results reveal that F-statistics of EG-JOH and EG-JOH-BO-BDM for variables economic growth, tourist arrives (tourism expenditure), human capital and exchange rate exceed the critical values at 1 % level of significance. This indicates that the null hypothesis of no cointegration for combine cointegration is rejected. This infers that long run relationship between economic growth, tourism expenditure, tourist arrives, physical capital, human capital and exchange rate exists.

Table-8. Johansen Cointegration Test

Hypothesis	Trace statistics	Maximum Eigen Value
Model 1		
R=0	172.62*	73.410*
R≤1	100.21*	60.681*
R≤2	39.532**	25.531**
R≤3	14.000	13.830
Model 2		
R=0	169.65*	72.601*
R≤1	97.057*	47.043*
R≤2	50.014*	31.347*
R≤3	18.667**	16.907***
Note: * and ** show the significant at 1% and 5% level of significance respectively.		

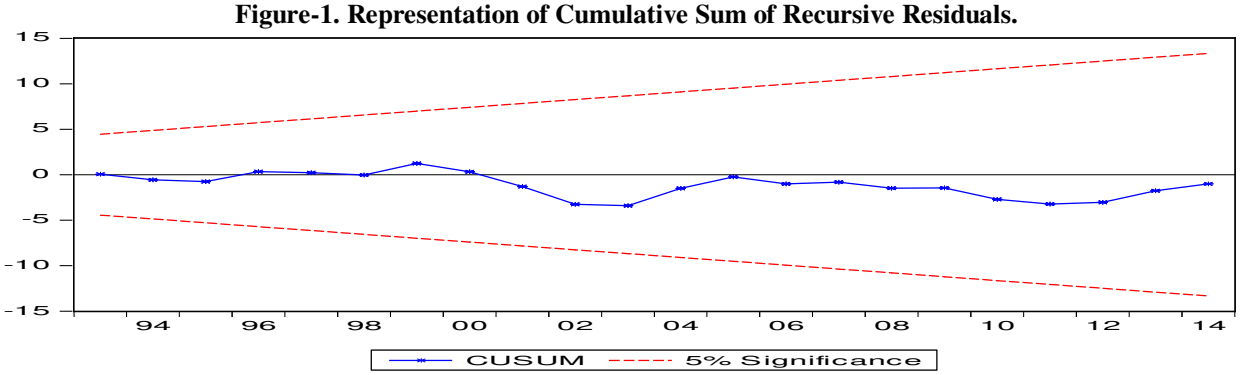
Table-9. Long Run Analysis

Dependent variable: Ln y_t						
Variables	Coefficient	Std. error	T-statistics	Coefficient	Std. error	T-statistics
Model 1				Model 2		
Ln ta_t	---	---	---	0.7532***	0.4109	1.8331
Ln ts_t	0.1647*	0.0416	3.9518	---	---	---
Ln pc_t	0.0984**	0.0349	2.8201	0.1733*	0.0344	5.0259
Ln hc_t	0.1905*	0.4320	10.089	0.1515*	0.0354	4.2715
Ln $reer_t$	0.2564*	0.0451	5.6861	0.2067*	0.0569	3.6273
R-squared	0.9918			0.9903		
Durbin-Watson	1.6710			1.8852		
F-statistics	669.84			564.58		
Prob.	0.0000			0.0000		
Sensitivity analysis:						
	Statistics	Prob.		Statistics	Prob.	
Breusch-Godfrey LM test	0.5119 [1]	0.4822		0.0723 [1]	0.7906	
ARCH test	0.5583 [1]	0.4622		0.4373 [1]	0.5147	
Ramsey RESET test	0.0225 [1]	0.9822		0.1662 [1]	0.8696	
White Heteroskedasticity test	0.7964	0.6562		1.2239	0.3605	
J-B Normality test	0.3344	0.8460		0.6820	0.7110	
CUSUM	Stable	5% level of significance		Stable	5% level of significance	
CUSUM of Square	Stable	5% level of significance		Stable	5% level of significance	
Note: *, ** and *** show the significant at 1%, 5% and 10 % level of significance.						

The robustness of cointegration results are tested by applying Johansen cointegration. Table-8 explains the results of Johansen cointegration. We found that trace statistics show three cointegration vectors for model-1 (tourist spending) and four cointegration vectors for model-2 (tourist arrives) that confirm long run relationship among economic growth, tourist arrives (tourism expenditure), physical capital, human capital and exchange rate. This validates the existence of cointegration among variables in the presence of structural breaks. It concludes that tourism development (tourist arrives & tourist spending) and economic growth moves together in long run for Pakistan.The existence of the long run relationship among variables allows us to examine long run impact of independent variables on dependent variable. The results of long run analysis are pasted in Table-9. The empirical evidence describes that tourism development (tourist arrives and tourism expenditure) has positive and significant impact on economic growth in long run. It shows that 1 % increase in tourist arrives and tourism expenditure are expected to increase in economic growth by 0.75 % and 0.16 % respectively other thing remain constant. These findings are consistent with Brida et al. (2009), Georgantopoulos, (2013), Brida and Risso, (2009), Savas et al. (2010) and Shahbaz et al. (2015). Moreover, positive and significant impact of physical capital on economic growth is found. Hence, 1% increase in human capital leads to increase in economic growth within the range of 0.09-0.17 %. Similarly, impact of human capital on economic growth is found positive and significant. It shows that 1% increase in physical capital causes to increase in economic growth on average by 0.15-0.19 %. These findings are consistent with the findings of Panahi et al. (2015). Further, a positive association between exchange rate and economic growth is noticed. These findings are also linked with Kaplan and Celik, (2008) and Katircioglu, (2011).

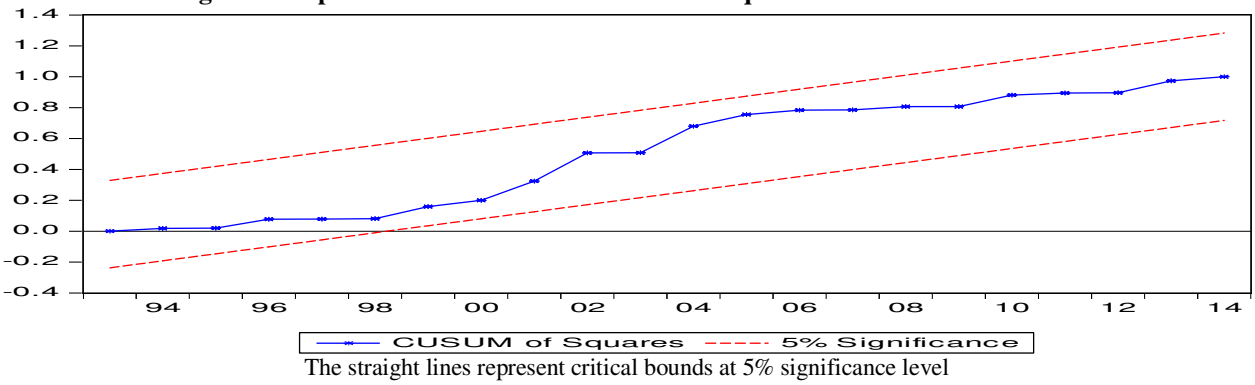
Moreover, the diagnostic statistics such as LM test, ARCH test, Ramsey RESET test and white heteroskedasticity test explain that there is no serial correlation, residual terms are normal distributed, no autoregressive conditional heteroscedasticity and no white heteroscedasticity. The statistics of Jarque-Bera confirms that series are normally distributed with zero mean and constant variance. Further, the stability of parameters is tested by CUSUM and CUSUM of Square suggested by Brown et al. (1975). The plot of both CUSUM and CUSUM of square are presented in figure 1and 2 for model-1 (tourism spending), 3 and 4 for model-2 (tourist arrives). The empirical evidence indicate that parameters are stables in both models (tourism spending and tourist arrives).

Figure-1. Representation of Cumulative Sum of Recursive Residuals.



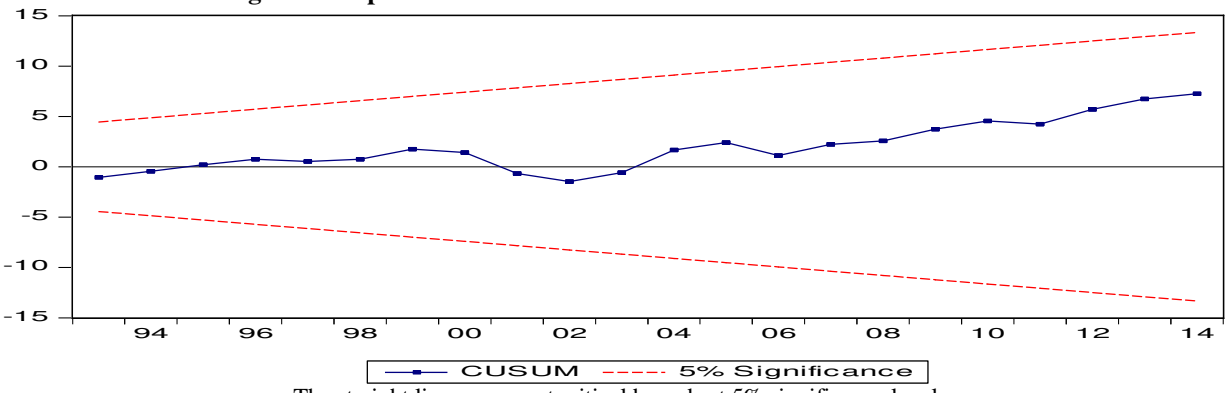
The straight lines represent critical bounds at 5% significance level

Figure-2. Representation of Cumulative Sum of Squares of Recursive Residuals



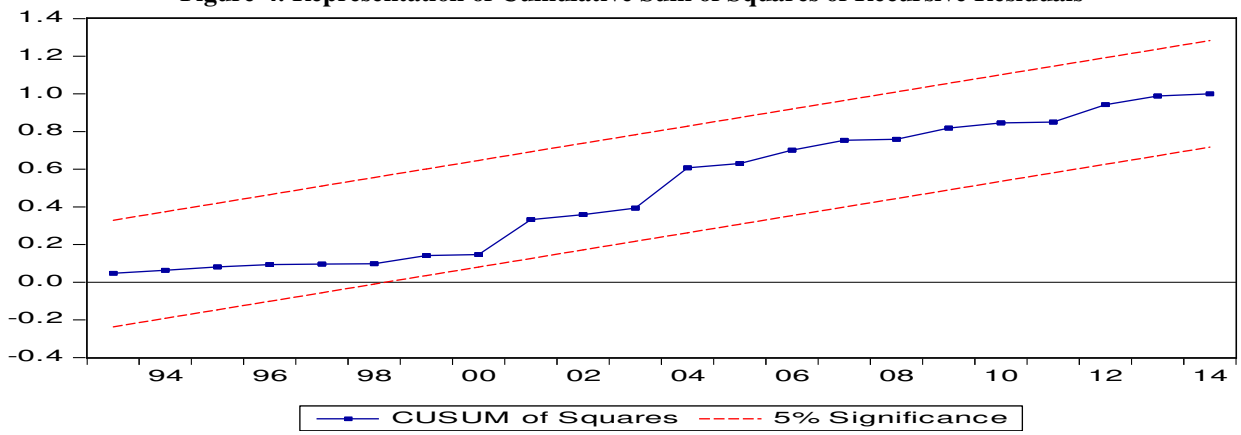
The straight lines represent critical bounds at 5% significance level

Figure-3. Representation of Cumulative Sum of Recursive Residuals.



The straight lines represent critical bounds at 5% significance level

Figure-4. Representation of Cumulative Sum of Squares of Recursive Residuals



The straight lines represent critical bounds at 5% significance level

The short run phenomena are observed by using error correction mechanism and the results are visible in Table-10. We noted that tourism development (tourism expenditure and tourist arrives) has direct and significant linked with economic growth in short run. This indicates that 1 % increase in tourism development (tourism spending and tourist arrives) leads to increase in economic growth by an average of 0.11%. Similarly, positive and significant impact of physical capital has been found on economic growth. Hence, an average 0.17 % increase in economic growth is seems due to 1 % increase in physical capital. Similarly, human capital and exchange rate have been found positive and significant impact on economic growth for model-1 (tourism expenditure) in short run but, they have been found insignificant for model-2 (tourist arrives) in short run. The lagged term of error correction model ECM_{t-1} isstatistical significant at 1 % level of significance and negative as expected for both models (tourism expenditure and tourist arrives). The *ECM* indicates the speed of movement from short run disequilibrium to long run equilibrium. It represents any change in economic growth from short run to long run is corrected by 0.77-0.79 percent in a year. Further, the expected sign of *ECM* confirms the established long run relationship between essential variables. We noticed that short run models pass all the diagnostic test such as LM test, ARCH test, Ramsey RESET test and white heteroskedasticity test.

The plotted CUSUM and CUSUM of square are also lie between critical bounds that confirm the stability of parameters in short run.Engle-Granger, (1987) predicted that if the cointegration exists between variables, there must be causality relationship exists between variables. This relationship can be unidirectional (one variable causes to another variable) or/and bidirectional (both variables cause to each other). Further, this causality relationship has divided into two parts, short run causality and long run causality. In order to obtain the robust and reliable results of Granger causality, it is necessary to examine the properties of inverse roots of AR, auto-regressive (Tang and Abosedra, 2015c). These inverse roots should lie with the circle (positive and negative unit). Figure-5 shows the characteristics of AR inverse roots which certifies that the AR inverse roots are within the boundary.

Table-10. Short Run Analysis

Dependent variable: Ln y_t						
Variables	Coefficient	Std. error	T-statistics	Coefficient	Std. error	T-statistics
	Model 1			Model 2		
Ln ta_t	---	---	---	0.1192*	0.02997	3.9792
Ln ts_t	0.1128**	0.0504	2.2382	---	---	---
Ln pc_t	0.1570*	0.0498	3.1467	0.1979*	0.0464	4.2638
Ln hc_t	0.1123***	0.2478	-3.134	-3.031	0.0598	-0.535
Ln $reer_t$	0.1782**	0.0726	2.4518	0.1125	0.0726	1.5500
ECM_{t-1}	-0.7767*	0.0055	1.1545	-0.7969*	0.0047	2.7211
R-squared	0.5841			0.6202		
Durbin-Watson	1.7970			2.2466		
F-statistics	5.6183			6.5322		
Prob.	0.0021			0.0000		
Sensitivity analysis:						
	Statistics	Prob.		Statistics	Prob.	
Breusch-Godfrey LM test	1.1042[1]	0.3065		1.5746[1]	0.2247	
ARCH test	0.4841[1]	0.4935		0.3427[1]	0.5640	
Ramsey RESET test	0.2669[1]	0.7924		0.1611[1]	0.8737	
White Heteroskedasticity test	0.2672	0.9257		2.0211	0.1192	
J-B Normality test	2.8118	0.2451		3.0789	0.2144	
CUSUM	Stable	At 5% level of significance		Stable	At 5% level of significance	
CUSUM of Square	Stable	At 5% level of significance		Stable	At 5% level of significance	
Note: *, ** and *** show the significant at 1%, 5% and 10 % level of significance.						

Figure-5. Inverse roots of AR characteristics Polynomial

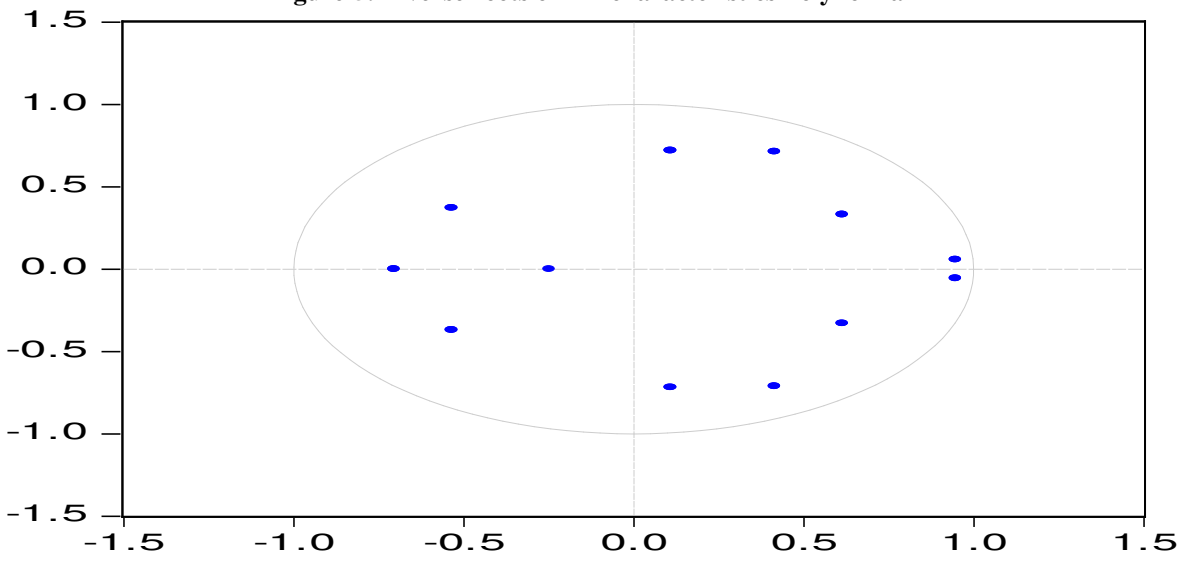


Table-11: VECM Granger Causality Analysis

Variables	Ln y_t	Ln ts_t	Ln pc_t	Ln hc_t	Ln $reer_t$	Break Period.	ECM_{t-1}	χ^2*Normal*	χ^2*ARCH*	χ^2*LM test*	χ^2*REMSAY*
Model 1								Diagnostic statistics			
Ln y_t	**---**	4.9052** (0.0277)	4.2421** (0.0404)	2.1793 (0.1558)	0.2012 (0.8204)	2004	-0.5585*** (0.0991)	0.5901 (0.7444)	0.0040: [1] (0.9498)	1.7333: [2] (0.2258)	0.0586: [1] (0.9543)
Ln ts_t	8.0584* (0.0053)	---	0.5995 (0.5635)	2.0847 (0.1640)	0.0044 (0.9956)	2001	-0.8647* (0.0023)	0.5348 (0.7653)	0.9565: [1] (0.3387)	1.3873: [1] (0.2617)	0.5117: [1] (0.6181)
Ln pc_t	0.8690 (0.4423)	0.2434 (0.7874)	---	0.6127 (0.5568)	0.2725 (0.7657)	2004	**----**	0.6997 (0.7047)	0.0588: [1] (0.8108)	1.3014: [1] (0.2782)	0.5455: [1] (0.5963)
Ln hc_t	2.9336*** (0.0888)	0.7673 (0.4842)	0.7000 (0.5144)	---	1.0053 (0.3927)	2010	-0.7150** (0.0269)	0.7210 (0.6972)	0.0037: [1] (0.9515)	0.1250: [1] (0.7297)	3.2007: [1] (0.0076)
Ln $reer_t$	1.7944 (0.2050)	0.1031 (0.9027)	0.1578 (0.8556)	1.7807 (0.2073)	---	2006	-0.8977** (0.0160)	1.4003 (0.4965)	0.5887: [1] (0.4511)	0.1302: [1] (0.7244)	1.4929: [1] (0.1613)
Variables	Ln y_t	Ln ta_t	Ln pc_t	Ln hc_t	Ln $reer_t$	Break Period.	ECM_{t-1}	χ^2*Normal*	χ^2*ARCH*	χ^2*LM test*	χ^2*REMSAY*
Model 2								Diagnostic statistics			
Ln y_t	**---**	6.0761** (0.0150)	7.6500* (0.0072)	0.0975 (0.9077)	0.7546 (0.4912)	2004	-0.8974** (0.0139)	0.8632 (0.6494)	1.1605: [1] (0.2936)	0.5404: [1] (0.5404)	0.4361: [1] (0.6712)
Ln ta_t	1.8297 (0.1995)	---	0.2752 (0.7637)	10.776* (0.0071)	1.3882 (0.2841)	1998	-0.8462* (0.0003)	1.0726 (0.5848)	0.1230: [1] (0.7291)	0.4797: [1] 0.5017	0.4637: [1] (0.6511)
Ln pc_t	4.7436** (0.0284)	0.9966 (0.3956)	---	0.9250 (0.4211)	0.2148 (0.8095)	2004	**----**	4.8528 (0.0883)	0.4582: [1] (0.5055)	2.2031: [1] (0.1635)	1.8454: [1] (0.0898)
Ln hc_t	1.9334 (0.1871)	2.0709 (0.1688)	2.3144 (0.1412)	---	2.1313 (0.1614)	2010	-0.5219*** (0.0915)	0.8436 (0.6558)	0.1966: [1] (0.6620)	1.7382: [1] (0.2142)	2.6287: [2] (0.1209)
Ln $reer_t$	2.1185 (0.1598)	0.0740 (0.9290)	0.4128 (0.6702)	2.138 (0.1575)	**---**	2006	-0.9526* (0.0067)	0.9619 (0.6181)	0.8699: [1] (0.3611)	0.6418: [1] (0.4386)	1.234: [1] (0.2408)
Note: *, ** and *** represent level of significance at 1 %, 5% and 10% respectively.											

We used VECM Granger causality approachby accommodating structural breaks to understand the direction of causal relationship between underlying variables. The results of VECM Granger causality explain the direction of causality between tourism development (tourist arrives and tourism expenditure), physical capital, human capita and exchange rate. The empirics of VECM Granger causality are pasted in table-11. We find negative and significant value of ECM_{t-1} for all variablesfor both models (tourist arrives and tourism expenditure) except physical capital.In long run, the feedback effect is noted between human capital and economic growth; exchange rate and economic growth; tourism development (tourism expenditure and tourist arrives) and human capital; tourism development (tourism expenditure and tourist arrives) and exchange rate; and exchange rate and human capital. We found bidirectional causality between economic growth and tourism development (tourism expenditure and tourist arrives) in long run, but unidirectional causality running from tourist arrives to economic growth is noticed in short run for model 2. Further, we discovered unidirectional causality running from physical capital to economic growth in long run as well in short run for model 1, but bidirectional causality relationship has seen between physical capital and economic growth in short run for model 2. It is noticed that economic growth also causes human capital in both short and long run. The diagnostics test for VECM indicates that all estimated models satisfy the properties of time series. So we may say that our results are consistent, robust and reliable.

V. *Conclusion and Policy Recommendations*

This research inspects the impact of tourism development on economic growth by using two indicators of tourism development, tourism expenditures and tourist arrives individually in the presence of structural breaks for annual time series data from 1988-2014 for Pakistan. Ng-Perron without structural breaks, Perron, (1997) single structural break and Clemente et al. (1998) double structural breaks unit root tests have used. We found unit root problem in all data series at level but, this problem seems to finish when we take first difference. The combine cointegration approach has applied by incorporating structural years. The findings suggested long run relationship between economic growth, tourism development, human and physical capital and real effective exchange rate. All variables have positive and significant impact on economic growth. The elasticity of tourist arrives and tourism expenditure is 0.75 % and 0.16 % respectively which identifies that 1 % increase in tourism will push us economic growth within the range 0.16%-0.75% in long run. The causality relationship is also examined by applying VECM Granger causality approach by accommodating structural years. We found feedback effect between human capital and economic growth; exchange rate and economic growth; tourism development (tourism expenditure and tourist arrives) and human capital; tourism development (tourism expenditure and tourist arrives) and exchange rate; and exchange rate and human capital. This authenticates that tourism drives economic growth and economic growth also stimulates tourism. These findings are consistent with Khalil et al. (2007) for Pakistan, Kim *et al*. (2006) for Taiwan, Shahbaz et al. (2015) for Malaysia, Lashkarizadeh et al. (2012) for Iran, Tang and Abosedra, (2015b) for Morocco and Tang and Abosedra, (2015c) for Lebanon. Government should develop tourism sector by providing basic facilities such as, roads, infrastructural development, communication sources and good transport system. Tourism contributes in reduction of poverty by generating employment sources. So, government should provide subsidies to tourism industry by reduction in tax ratio and travelling expense. The law and order, and security are other points that government should focus to enhance the economic growth via tourism development. Government policy makers should take some steps to improve skills of people through education and trainings because it causes the domestic and foreign investment as well as tourism. Government should also support domestic institutions for organizing research seminars and international conferences on tourism-growth relationship.

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