

TOURISM DEMAND FUNCTION FOR PAKISTAN

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Abstract. *Tourism is a good contributor to the services sector as well as the overall economic growth of a country. With the help of Auto Regressive Distributed Lag (ARDL) model this study attempts to estimate the tourism demand function in context of Pakistan and to explore, why tourism is not flourishing in Pakistan. Time series data were used for the duration of 26 years ranging from 1984 to 2010. The study analyzes the prevailing law and order situation, internal and external conflicts and the ethnic tensions prevailing in the country impacts the tourism demand negatively whereas a better socioeconomic condition are favorable for the international tourism. Exchange rate that captures the prices factor have negative contribution in the demand function whereas, the income of the tourist has statistically significant positive impact on demand for tourism in both the short and long run.*

Keywords: Tourism, Pakistan, Economic growth, Socio economic, Exchange rate.

Introduction

The 20th century has witnessed tourism as one of the most important and growing sectors of the global economy. In the recent time economists considered international tourism an important contributor to economic growth (Fayissa and Nsiah 2007). The basic cognitive process of touristy as associate “industry,” and as a theme price of study by economists, has been slowed by the very fact that the tourism sector is primarily associate accumulation of accommodation-predicated activities that have unfold across an enormous form of industrial relegations and shopper expenditure classes that usually don't seem to be otherwise sorted along.

Tourism is not a sole industry. It directly links widely disparate organizations and firms from many other industries which accommodate

customers with a variety of incomes, tastes, and objectives. It manages town and country scenes of huge decent variety, and administration offices with an extensive variety of inspirations and interests.

The purchasers, the providers, and the administration offices are the real on-screen characters and components that shape the tourism business. In any case, numerous districts and nations have understood that tourism has turned into an overwhelming segment, now and then the prevailing area, frequently supplanting extractive, producing, horticultural, or circulation-based exercises as a noteworthy wellspring of employment creation and income age. In numerous urban areas with maturing or outdated mechanical focuses, locales initially made for such businesses have been changed into traveler offices, with suitable inns, shops, eateries, shows, and other tourism facilitations. In such situations, the activity classifications of stevedores, press mongers, colliers, and teamsters have been supplanted by work area assistants, visit guides, travel operators, and mentor drivers.

Tourism is key role in the economy development, a country like Pakistan can have a solution for rural urban relocation as it will give generously compensated occupations to individuals residing in those zones; it can cultivate development in the regressive territories of the country.

Objective of the study

The Objective of the study is to estimate the tourism demand function in case of Pakistan and to find out the factors that are hindrance in the flow of tourism to Pakistan. As tourism has a good contribution in the services sector of developed countries like USA, France etc. and even in developing countries like Malaysia turkey etc., but in case of Pakistan this contribution is missing, and the theme of this research is to fill this gap by analyzing the main variables that are parallel to the tourism inflows in to Pakistan

Significance of the study

Tourism is a critical and fundamental, wellspring of wage for some nations and its importance was identified in the Manila Declaration on World Tourism of 1980 as "An action basic to the life of countries in view of its immediate effect on the financial, social and instructive parts of national level and on their worldwide relations. Tourism gets a lot of wage into a nearby economy as installment for good and administrations required by vacationers, representing 30% of the world's trade in services, and 6% of all exports of goods and services (WTO, 2016). It withal engenders opportunities for

employment in the accommodation sector of the economy. The accommodation industries which benefit from tourism include conveyance accommodations (airlines), local convey accommodations and hospitality accommodations (hotels) and regalement venues, (theatres, music venues, shopping center, markets and parks). Keeping in mind all the significance of tourism industry this study is focusing on the factors that are important in attracting as well as repelling the international tourists to Pakistan and on the basis of such analysis a comprehensive policy measure can be taken to fill the gap in this sector.

Literature review

Number of researchers worked on the topic of “Tourism” and some researcher worked on the connection between tourism and its activities with financial development and they found critical positive connection among tourism and monetary development. Then again, a few investigations have been done on the connection among fear-based oppression and tourism exercises and closed the negative and huge impact of psychological warfare on tourism exercises.

In Pakistan, last thirty years, the normal tourism has fundamentally expanded. In the 1980's, the normal tourism receipt was 41 million, in the 1990's it was 45 million and in the last ten years the normal tourism receipt was 196 million. Conversely, fear-based oppressor exercises have likewise expanded in most recent three decades. In the 1980's, the normal psychological militant exercises were 27, in the 1990's it was 163 and in the most recent decade it was 251 (WTO, 2016).

Some of the studies which were reviewed for our research are as follows:

Jorda and Balaguer (2002) investigated the tourism contribution in the development of Spanish economy. They identified that the last 30 years, economic magnification has been practical to assiduous growth of international tourism. They also observed multiplier effect of this outcome and also empirically identified positive income effect by using co-integration and causality testing.

The relation between economic growth and tourism has also been examined by Gunde (2005). They examined the interaction between the two by conducting a bootstrap causality test with leveraged adjustments as

introduced by Hacker and Hatemi-J (2005). In this study they give special attention to the choice of optimal lag order of the empirical model. They concluded that the tourism led growth hypothesis is supported empirically in case of Turkey

Another study on the relationship between real collective tourism receipts and real GDP for Korea was conducted by Chi ok oh (2005). By using Engle and Granger two-stage approach, Granger causality test and Bivariate vector auto-regression model. The empirical findings of the study reveal that Korea only attracts international tourist and there is rapid economic expansion only in short run.

Kim et al; (2006) conducted a study on Taiwan to check the relationship between real economic growth and tourism. By employing Granger causality test, Augmented Dickey-Fuller test. They came up with the findings that there exists a long run equilibrium relationship between tourism receipts and real GDP, furthermore there is bidirectional causality between the two variables. Khalil (2007) using the methods of co-integration and Granger causality test, to examine the causal relationship between economic expansion (GDP) and tourism earning for Pakistan. He suggested that the short run active relations as well as the long run equilibrium conditions.

Tourism growth influences economic growth in the short run and the combination of results pointed to two-way causality for economic growth and tourism growth that economic expansion is necessary for tourism development in the country. Sequeira and Nunes (2008) used panel data approach to investigate the effect of tourism on poor countries and small countries with a very large sample. They concluded that tourism specialization is a good option to promote economic growth in poor countries. Tsui and sheng (2009) investigated the outcomes of tourism (externalities) for Macao. Their variables include imports, real estate transactions, noise complaints, traffic accidents, CPI, crime and respiratory mortality and by using Modified simple general equilibrium mode, they analyzed that the true benefits received by a destination experiencing rapid tourism growth may be much less than the apparent increase in its nominal GDP. After subtracting various types of externalities, they argued that excessive, uncontrolled and too rapid tourism growth has many explicit and hidden externalities that undermine the sustainable development of the destination.

Khan and Hye (2013) estimated the long run relationship between the income from tourism and the economic growth of Pakistan by using the

annual time series data of 1971-2008. They used Johansen Juselius co-integrations, autoregressive distributed lag model and rolling windows bounds testing approach and confirmed the long run relationship tourism receipts and economic growth and explained that income from tourism has led to economic growth in Pakistan. Chou (2013) studied the causal relationships between tourism spending and economic growth for ten transition countries (Slovakia, Cyprus, Bulgaria, Poland, Czech Republic, Latvia, Estonia, Slovenia, Hungary and Romania,) for the period 1988-2011. He empirically analyzed the direction of causality and 3 out of 10 (Bulgaria, Slovenia and Romania) are consistent with neutrality hypothesis. The growth hypothesis holds for Cyprus, Slovakia and Latvia while he analyzed empirically the reverse relationship Poland and Czech Republic. The feedback hypothesis also holds for Hungary and Estonia.

Morley (1994) studied the impact of tourism prices on the demand. In his study he took the consumer price index as the proxy for tourism prices. He investigated the ten important tourist destination price relation and found high correlation with the destination prices. i.e. Australia. He analyzed the importance of price factor in the international tourism demand function.

Vita (2014) studied the tourist arrivals on a panel data of 27 OECD and non-OECD countries with system generalized method of moments (SYS-GMM) for the period 1980-2011. He identified multiple exchange rate regime effect and fortified the paramouncy of maintaining a relatively stable exchange rate to magnetize the international tourist advents.

Data and Methodology

Theoretical Framework

Export demand refers to the requirement of foreign countries for goods and service engendered domestically. Ultimately, these goods are exported to peregrine residents. Tourism is one of such service which is being exported to the foreign visitors and their demand is being affected by various factors like transportation cost or price of the tour, their income, infrastructure in the destination country, socioeconomic condition of the destination country and law and order situation etc. In this study we estimate the demand function by considering the tourism receipts as the dependent variable and independent variables include global GDP, real exchange rate, risk and socioeconomic factor and infrastructure in the destination country.

Our model specifications are as:

THE MODEL

We used following model in this study.

$$TR = \alpha + \beta ER + \sigma GDP + \theta IF + \lambda RF + \Psi SF + \epsilon t \dots \dots (1)$$

Where α , β , σ , θ , λ and Ψ are the coefficient of the variables of the dependent variable with respect to the independent variable.

The log form of the equation will be as

$$\text{Log}TR = \alpha + \beta \log(ER) + \sigma \log(IS) + \lambda \log(RF) + \Psi \log(sf) + \epsilon t.. (2)$$

Where TR denotes the tourism Receipts of travel, ER is the real exchange rate (dollar to rupee), GDP is the world gross domestic product at constant prices, IS represents the infrastructure variable, RF is the risk factor index variable, SF is the socioeconomic variable and ϵt is the error term.

$$\begin{aligned} \Delta Tour = a_0 &+ \sum_{i=1}^n \beta_i \Delta Tour_{t-j} + \sum_{i=0}^n \phi_i \Delta GDP_{t-j} + \sum_{i=0}^n \lambda_i \Delta Exch_{t-j} \\ &+ \sum_{i=0}^n \beta_i \alpha \Delta Infra_{t-j} + \sum_{i=0}^n \theta_i \Delta Risk_{t-j} \\ &+ \sum_{i=0}^n \rho_i \Delta Socioeco_{t-j} + b_1 tour_{t-1} + b_2 GDP_{t-1} \\ &+ b_3 Exch_{t-1} + b_4 Infra_{t-1} + b_5 Risk_{t-1} \\ &+ b_6 Socioeco_{t-1} + e \dots \dots \dots (3) \end{aligned}$$

Whereas a_0 , β_i , ϕ , λ , α , θ and ρ are the short run coefficients while b_1 , b_2 , b_3 , b_4 , b_5 , b_6 are the long run coefficients of the model.

The equation for the ECM of the ARDL model will be as

$$\begin{aligned} \Delta tour = a_0 + & \sum_{i=0}^n \beta_i \Delta Tour_{t-j} + \sum_{i=0}^n \phi_i \Delta GDP_{t-j} + \sum_{i=0}^n \lambda_i \Delta Exch_{t-j} \\ & + \sum_{i=0}^n \beta_i \alpha \Delta Infra_{t-j} + \sum_{i=0}^n \theta_i \Delta Risk_{t-j} \\ & + \sum_{i=0}^n \rho_i \Delta Socioeco_{t-j} + ECT_{t-1} \\ & + et. (Eq 4) \end{aligned}$$

Methodology

The econometric methodology is the most important while conducting an empirical analysis. Once the literature is reviewed thoroughly then a researcher can come up with a clear empirical methodology to carry out his study. In this study we will estimate the demand function by finding the short run and long run relationship amongst the variables.

The variables data collected from various sources will be checked for the unit root test. We employ the Increased Dickey Fuller unit root test to check the stationarity both in level and difference form. The entire variable follows the order of integration I (1) except the infrastructure variable which is the integrated of order I (0). Now for further estimation of long and short run relation we use the Auto Regressive distributive lag (ARDL) model suggested by Pesaran et al (2001). The ARDL is more significant approach in determining the co-integrating relationships in small samples while Johanssen co-integration requires larger samples to get valid results.

Tourism contributes significantly to economic growth. In this study we model tourism as demand for tourist services by the foreigners by focusing on the variables that are important in determining the demand for tourism for Pakistani resorts internationally.

Tourism = f (Exchange rate, Global GDP, Infrastructure, Socioeconomic factor, Risk factor)

We used secondary time series data of Pakistan for the period of 26 years i.e. 1984-2010, obtained from various national and international sources including, 50 Years of Pakistan’s Statistics by Pakistan Economic Survey, Pakistan Bureau of Statistics, State Bank of Pakistan, World Bank,

international financial statistics and various other archives. one of the limitations of the study is the non-availability of current data of Tourist arrivals, there for the current study has included available data of 26 years. We define variables used in the study and their proxies with brief justification below.

Tourism

Tourism is a relative term but generally it can be defined as “tourist betokens a person who undertakes touring for the purposes of trekking, mountaineering, recreation, sports, business and includes religious pilgrimage”. Different studies have taken different proxies for tourism. Some of the studies have taken no of arrivals of visitors from abroad as tourists while other taken as the receipts from foreign visitors as tourism. In my study I took tourism receipts as the proxy for tourism the statistics were collected mostly from national sources i.e. Pakistan Bureau of statistics and Pakistan economic survey and World Bank (WDI) can also be approached regarding tourism data.

Exchange Rate

One of the important variables that effect the tourist’s decision to visit a country is the value of the currency and the price of travel and goods and services. In the studies of tourist demand it is the most repeatedly variable. In my study I collect the nominal exchange rate from State bank of Pakistan and later on converted it in to real exchange rate by using the following formulae.

$$Er = En * [(CPI)f / (CPI)d]$$

Where E_r shows the real exchange rate, E_n is the nominal exchange rate, CPI_f is the inflation for foreign county and CPI_d is the destination country inflation. As Demand is the function of income and price and incase of our demand function the price factor is being captured by this real exchange rate.

GDP

The gross domestic product is another main independent variable of our model which captures the income effect of our demand model. Real GDP data at constant prices are been taken from world development indicators website from the time period 1984 to 2010.

Infrastructure

Infrastructure is another major determinant of the demand for tourists. The connection between infrastructure and tourism is accentuated in numerous professional studies, which underline, on the one hand, the special role of tourism development in the infrastructure's modernizing, and on the other hand the inversion direction, the generation of multiplication effects of infrastructure development upon tourism. In my study I took the transport storage and communication both the public and private sector as the proxy for infrastructure and the data has been taken from International country risk guide (ICRG)

Risk factor

Risk is the most influential factor, which has a negative impact on the tourist decision. A risk index has been developed by international country risk guide (ICRG) and we apply the index to capture the risk factor impact in our study. The score for Risk ranges from 0 to 12. The proxy score approaching zero is considered to be the highest risk while that approaching to 12 is considered to be the lowest or stable in other words. In my index the total points are 48 and each of the components are scored out of these 48 points. The maximum the proxy scores the less of the risk component it has and vice versa. The Risk factor has been sub divided in to four categories which are, internal conflicts, external conflicts, law and order and Ethnic tensions. The data has been taken from the period 1984 to 2010 from the international country risk guide (ICRG) and then applied to my model for further estimation.

Socio economic factor

A country having a stable socio and economic conditions can attract maximum no of tourist as compared to those having poor in social and economic performance. This is an assessment of the socioeconomic pressures at work in society that could constrain regime action or fuel gregarious dissatisfaction. It is withal an index developed by the International country risk guide (ICRG.) The peril rating assigned is the sum of three subcomponents, each with a maximum score of four points and a minimum score of 0 points. A score of 4 points equates to Very Low Risk and a score of 0 points to Very High Jeopardy.

DISCUSSION AND ANALYSIS

There are possibilities of spurious results when time series data is used in non-stationary form or when the variables are in their level form. To overcome this situation the variables used in the process should be taken in differenced form which is stationary. In case of differenced form, the long-term relationship properties of variables no longer remain as it and only give the short-term relationship or behavior of the variable. For this reason, the long-term relationship of the variable is needed to be checked. In case of time series data, the Co-integration test is used for the purpose.

ADF Test for Stationarity

To check the stationarity of variables augmented Dickey Fuller (ADF) test is used. The null hypothesis of the test is: there is unit root and the variables are not stationary while the alternate hypothesis is: there is no unit root and the variables are stationary. If t value is greater than the ADF value, then the null hypothesis cannot be rejected while if the t value is less than the ADF critical then the null hypothesis is rejected.

Table 1 Unit Root Test Results

variables	ADF test statistics	
	Level	First Difference
Tour	-0.168	-4.160*
Exchange rate	-1.050	-3.828*
Infrastructure	-1.253*	-
Risk factor	-2.019	-3.459*
Socio economic factor	-2.341	-4.315*

Note *sign implies significant at 5% level

In the Table 1, we have the results of unit root test in which we incorporate the augmented Dickey-Fuller test for the stationarity of our data. All our variables tourism, exchange rate, infrastructure, risk factor and socioeconomic factor are non-stationary at the level form hence by applying this test, in the difference form all our data got stationary, means their means and variance would be constant over time

Auto regressive distributive lag (ARDL) model

Once our data is stationary, we then find the short and long run dynamics from the Auto regressive distributive lag (ARDL) technique. The reason why we use this technique is that our sample size is small as that of 26 observations and by using VECM technique we might face degree of freedom issue and secondly the order of integration is not same. Some of the variables are integrated of order (0) and some are of (1). Hence for this purpose Pesaran et al. (2001) suggests the technique that can be applied to variable of different integrated levels even. Another justification for using ARDL technique is that it more preferred for short data.

The first step in ARDL method is to find out if there is any long-run relationship between the variables. The Wald or bounds test is applied to find out the possibility of long run cointegration between the variables. The results are acceptable only when the calculated value of bound test is greater than the upper bound and lower bound series, thus, we reject the null hypothesis and we accept that there is long-run cointegration between the study variables.

The ARDL model is used to find out the combined short and long run dynamics of the variables. Table 1 highlights the relations between tourism, GDP, exchange rate, Infrastructure, risk factor and socioeconomic factor. Akaike information criterion is used to check the lag structure.

The exchange rate shows a negative but insignificant impact on the tourism receipts in short run but in the long run it has significant negative impact on the tourism receipts. It means when exchange rate increases the value of our currency increase in real terms of the other currency, which would be costly for the visitors hence there will be negative impact on their demand as our results concludes too why insignificant in the short run and significant in the long run. The risk factor has both positive impacts in both long run as well as in short run. The positive sign means that the index value of risk factor approaches to 12 showing the least risk level in the destination country, and their demand will not be effect and thus it will add to the tourism receipts. Infrastructure has positive and significant relation with the tourism receipts in both long and short run. In the literature many of the studies shows that infrastructure is the one of the major components to determine the foreign tourist demand and hence it will increase the tourism receipts (note: give

some citations, also describe the channels through which the independent variables transformed into the dependent variables.).

Table 2. OLS Based ARDL long run results

Variables	t -stat	P-value ($\alpha=0.05=5\%$)	
C	3.8196	0.0234	
GDP	5.495657	0.0054**	
EXCH	-1.92976	0.0764	
RISK	2.502322	0.0044*	
INFRA	3.31571	0.0056*	
SOCIOECO	0.850652	0.0877	
Model Summary			
R2	0.97116	Jarque-Bera	0.48874 (0.78319)
Adjusted – R2	0.96357	ARCH	0.137626 (0.7107)
F-Stat	127.9747	L-M	5.060972 (0.0965)

The demand equation will be incomplete if income factor is excluded hence in our study the global GDP captures the income factor and from our result it has positive effect both in short as well as in long run. It means that the income of the visitor’s increases, their demand for tourism will also increase and they will not hesitate to fulfil their leisure activity.

Socioeconomic factor which captures the unemployment, poverty and consumer confidence is yet another variable that can have an effect in the decision making of the foreign visitors. But still out of the other variable mentioned it is comparatively less of importance. Our analysis shows that in the short run it is insignificant, but it has a positive and significant impact in the long run. It implies that when the social and economic situations are better off in a country there will be a welcoming environment in that country for international visitors and thus their expenditures will add to the tourism receipts.

Then we can estimate the error correction mechanism of the ARDL version that needs the residuals series of the long run by simple OLS method and then incorporate with the long variable series to get the error correction term. The residual series once regressed with the short-term lag variable we will find the Error correction term of the ARDL model. The table 3 shows the error correction mechanism of the Auto regressive distributive lag model and

the negative sign shows reversions to the equilibrium and the coefficient of the ECT show the speed of adjustment. In our study it shows the 57% of the errors can be adjusted in the 1st year period with convergence to the equilibrium.

The ECT term shows the adjustment within the system and its coefficient shows the speed of adjustment within the model. It should be negative in sign and the negative sign indicates that whenever there is shock or disequilibrium in the model, it would be reverted to the equilibrium position. In our findings the ECT has t-stat as (-2.0349) and its coefficient value is (-0.576332), it means that our system has the potential that it can converge to the equilibrium by 57%.

Table 3. Error Correction Model (ECM) Estimates

Variable	Coefficient	t-stat	P-value
C	-0.11090	-4.3126	0.007
Δ TOURt-1	0.339425	1.2238	0.065
Δ GDP	1.825007	2.6617	0.0045
Δ GDPt-1	0.344203	0.4321	0.267
Δ EXCH	-0.165671	-4.1417	0.034
Δ EXCHt-1	-0.003193	-0.0089	0.876
Δ RISK	0.001469	0.0078	0.768
Δ RISKt-1	0.123751	4.1250	0.0076
Δ INFRA	0.44721	3.6453	0.0567
Δ INFRAt-1	0.971157	1.1206	0.78
Δ SOCIOECO	0.071516	4.0374	0.007
Δ SOCIOECOt-1	0.072119	0.3389	0.876
ECTt-1	-0.576332	-2.0349	
ECM Model Summary			
R2	0.899610	Jacque Bera	0.3894 (0.8230)
Adjusted R2	0.875708	ARCH	1.6411 (0.2002)
F-stat	37.63688	L-M	7.6426 (0.2011)

To check the parameter constancy, CUSUM and CUSUM sum of squares are been applied and figure 1 and Figure 2 shows us that in the long and short run our parameters are consistent, and model is stable.

Figure 1 CUSUM

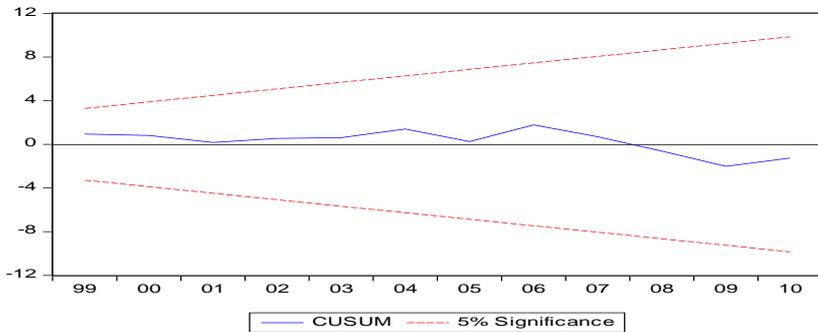
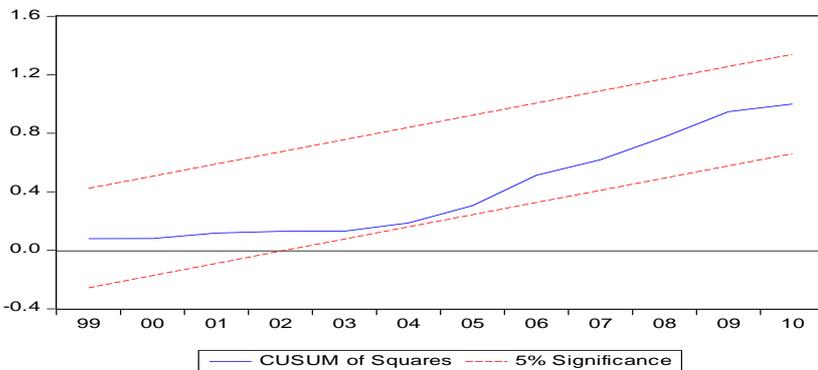


Figure 2 CUSUM of Square



Conclusion

Tourism is one of the most rapidly growing industries in the world and is a paramount denotes of income generation, job engenderment, impecuniosity reduction, peregrine exchange earnings and promotion of cross-cultural understanding and cooperation. In this study we have profoundly analyzed the important variables and investigated how they have

their impact on the demand of international tourism. The empirical analysis is carried out using time series data for all these variables from the time period 1984 to 2010. There was positive and significant relationship found between tourism, infrastructure and socioeconomic scenario of a country while negative significant negative impact of risk factor and exchange rate on the tourism demand.

In our analysis we have found significant relationship between the global GDP and tourism receipts as the income of the visitors increases, they expenditures also increases, and they spent on their luxury activates like tourism which add to the tourism receipts in the destination country. Exchange rate as captured the price effect of the model, when increases tend to reduce the tourism receipts as per demand theory, when price of a commodity or service increase will have negative impact on the demand of that very commodity or service.

The paramount impact of tourism on Pakistan economy justifies the indispensability of public intervention aimed, on the one hand, at promoting and incrementing tourism demand and, on the other hand, providing and fostering the development of tourism supply. Furthermore, the economic expansion in an economy affects the tourist's advents, (tourism magnification) which are reflected by the development in infrastructure and tourism resorts.

Policy recommendations

On the basis of result of the study the following policy implication is suggested. Firstly, the prevailing law and order situation in the country that has sketched a very negative image of Pakistan globally and visitors hesitate to travel here. The security of the people should be ensured by the state and no one should be weighted above the law. Law and order should be improved. Ethnic tensions and internal conflict prevailing in our country should be controlled and by sound foreign policy, the external conflicts should be resolved so that that country can create a clear picture in the globe. Secondly if socioeconomics situations in the country are better off meaning that unemployment level is controlled, poverty be reduced to the lowest level and economic indicator showing positive signs, we can have maximum tourism revenue by attracting more of the visitors.

Financial stability yet is another important aspect in which the exchange rate plays important role in demand analysis. Exchange rate of the destination country should not be fluctuating very much. Stable exchange would play important role in attracting foreign tourists.

By executing the above recommendations, the ignored tourism industry can achieve the goals in short span of time and will add to the economic growth and development of the country.

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