Economic impact of tourism in the mauritian economy

Sport & Tourism, Ecotourism

4. 1 Introduction

Tourism is a major pillar of the Mauritian economy. According to estimates for 2010, the tourism industry has contributed Rs 39, 456 million to the Mauritian economy and has provided direct employment to 27, 161 workers. The contribution of tourism to GDP at basic price stands at 7. 4% in 2010. This fact is indicative of the importance of the tourism sector to the Mauritian economy.

To evaluate the impact of tourism on economic growth in Mauritius, a log-linear model will be estimated. However, economic growth may not be influenced only by tourism, but there are also other macro economic factors which may have an effect on growth. As such, these factors will be taken into consideration in the model. The model consists of standard variables such as Investment (INV), Exports (EXP) and Inflation (CPI), as well as one variable (TRP) which will be used to quantify the impact of tourism, such as tourism receipts. Real GDP per capita is used as a reference variable in order to demonstrate the impact of tourism on economic growth.

4. 2 Types of Data

4. 2. 1Primary Data

Primary data is collected on source and is not been subjected to processing or any other manipulation. The most common methods to collect primary data consist of surveys, interviews and focus groups. As such, primary research entails the use of immediate data and is collected by the researcher particularly to meet up the research objective of the subsisting project.

Making use of primary data implies that researchers are collecting information for the specific purposes of their study. As such, the questions the researchers ask are tailored to extract the data that will help them with their study. However, it is time consuming and costly to collect such data.

4. 2. 2 Secondary Data

Secondary data consists of pre-existing information which is not gathered for the purpose of the current research. Secondary data is readily available and inexpensive to obtain. In addition, such data can be examined over a longer period of time. Secondary data includes information from the census, a company's financial position and safety records such as their injury rates, or other government statistical information such as the number of workers in different sectors.

In secondary data, information relates to a past period and as such, it lacks aptness and has unsatisfactory value. The drawback is that often the reliability, accuracy and integrity of the data is uncertain. However, it is easier to collect such data and longitudinal study may be possible.

4. 3 Model Specification

A simple log-linear Cobb-Douglass production function is used to measure the impact of tourism on economic growth in Mauritius. The equation is as follows:

GDP = f (INV, TRP, CPI, EXP)

Consider the following model, known as an exponential regression model:

$GDP_t = \beta_0 INV_t^{\beta_1} TRP_t^{\beta_2} CPI_t^{\beta_3} EXP_t^{\beta_4} e^{\varepsilon_t}$ (4. 2. 1)

which may be expressed alternatively as

$\ln GDP_t = \ln\beta_0 + \beta_1 \ln INV_t + \beta_2 \ln TRP_t + \beta_3 \ln CPI_t + \beta_4 \ln EXP_t + \varepsilon_t$ (4. 2. 2)

where ln is the natural log (i. e log to the base e, and where e = 2. 7183)

Equation 4. 2. 2 can be written as:

$\ln GDP_t = C + \beta_1 \ln INV_t + \beta_2 \ln TRP_t + \beta_3 \ln CPI_t + \beta_4 \ln EXP_t + \varepsilon_t$ (4. 2. 3)

where $C = \ln\beta_0$

Therefore, the transformed model is:

$\ln GDP_t = C + \beta_1 \ln INV_t + \beta_2 \ln TRP_t + \beta_3 \ln CPI_t + \beta_4 \ln EXP_t + \varepsilon_t$

Where ln GDP: Log of real gross domestic product per capita

ln INV : Log of investment

ln TRP : Log of tourism receipts per capita

ln CPI : Log of consumer price index used as a proxy for inflation

ln EXP : Log of exports

C : Constant term

εt : White noise disturbance term

In the above log-linear model, the dependent variable, GDP, is expressed as a linear function of four other independent variables, also known as the explanatory variables, namely INV, TRP, CPI and EXP. It is often assumed for such log-linear model that the causal relationships which may exist, flow only in one direction, namely from the explanatory variables to the dependent variable.

The parameters of the model can be estimated by using the Ordinary Least Square method, if the assumptions of the classical linear regression model are fulfilled. As such,

$$GDPt^* = C + \beta 1\ INVt^* + \beta 2\ TRPt^* + \beta 3\ CPIt^* + \beta 4\ EXPt^* + \varepsilon t$$

where $GDPt^* = \ln GDPt$, $INVt^* = \ln INVt$, $TRPt^* = \ln TRPt$, $CPIt^* = \ln CPIt$, $EXPt^* = \ln EXPt$

The coefficient of each of the four explanatory variables measures the partial elasticity of the dependent variable GDP with respect to that variable. As such, each of the partial regression coefficient β1, β2, β3 and β4 are the partial elasticities of GDP with respect to variables INV, TRP, CPI and EXP respectively.

4. 4 Explanation of Variables

4. 4. 1Gross Domestic Product (GDP)

Gross Domestic Product is used to assess the market value of all final goods and services produced during a given period of time within an economy. It also measures the total income of an economy and as such, it is often correlated with standard of living. GDP is used as a reference variable in order to assess the impact of tourism on economic growth in Mauritius. GDP is an important factor used to analyse the development of the tourism sector. As such, in case the tourism sector brings huge foreign earnings, there will be an increase in GDP, suggesting that the economy is flourishing. The GDP figures that are used for the regression have been adjusted for inflation using the GDP deflator.

4. 4. 2 Investment (INV)

Investment, which is a major component of the gross domestic product of an economy, refers to the acquisition of new capital goods. A positive change in investment may lead to a positive change in income and output of an economy in the short run. Higher level of investment may contribute to aggregate demand while higher level of income may indirectly impact on consumer demand. Investment, which is an injection in the circular flow of income, is a useful tool to analyse the impact of tourism on the economy of Mauritius.

Investment is expected to have the same impact on economic growth as propounded by empirical literature, such as Sargent and James (1997) who found a positive impact of physical capital and investment on growth in Canada over the period from 1947 to 1995.

4. 4. 3 Tourism Receipts (TRP)

Tourism receipt is a major indicator of the contribution of the tourism sector to the local economy. Tourism receipt represents an inflow of foreign currency in the economy. Such receipts account for a major contribution to the gross domestic product of the Mauritian economy. As such, an increase in tourism earning is expected to have a positive impact on GDP.

Most governments in developing countries encourage international tourism because such tourists bring capital to the country. Earnings of currencies permit governments to finance, at least in part, their development efforts.

Tourism receipt is expected to impact positively on economic growth as postulated by Balaguer and Cantavella-Jorda (2002) or Dritsakis (2004) who claimed that economic growth and tourism are interrelated and established tourism as a driver of economic growth.

4. 4. 4 Inflation (CPI)

Inflation is defined in economics as a rise in the general level of prices of goods and services in an economy over a period of time. As such, it is a sustained increase in the price level and it may be the consequence either of constant falls in aggregate supply or recurring increases in aggregate demand. As a result, inflation erodes the purchasing power of money, that is, there is a loss of real value in the internal medium of exchange and unit of account in the economy.

An important measure of price inflation is the inflation rate, which can be calculated by taking the annualised percentage change in a general price index over time. This is referred to as the Consumer Price Index (CPI). In Mauritius, the Consumer Price Index is measured by computing the average change over time in the cost of a fixed basket of consumer goods and services. It represents changes over time in the general level of prices of goods and services acquired by Mauritian consumers. Inflation is then calculated by comparing the average level of prices during a 12-month period with the average level during the preceding 12-month period.

One of the most fundamental objectives of macroeconomic policies of many countries, whether industrialised or developing, is to sustain high economic growth together with low inflation. Inflation can bring about uncertainty about the future profitability of investment projects particularly when high inflation is also linked with increased price variability. This would in turn generate more conservative investment strategies, which would ultimately result in lower levels of investment and economic growth.

Inflation is expected to have a negative effect on growth as claimed by Barro (1995) who explored the inflation-economic growth relationship using a large sample covering more than 100 countries from 1960 to 1990.

4. 4. 5 Exports (EXP)

Export entails the sale of goods and services produced in one country to other countries. There are two types of exporting: direct and indirect. For national accounts statistics, exports consist of transactions in goods and services from residents to non-residents. As such, an export of a good represents a change of ownership from a resident to a non-resident; this does not necessarily imply that the good in question physically crosses the frontier; while an export of services consists of all services rendered by residents to non-residents.

The relationship between export growth, foreign direct investment and economic growth in both developed and developing countries is a question that continues to be of considerable interest. Cross-country trade and capital flows and interpreting the significance of these activities towards economic growth lie at the heart of the debate on economic development policy since the early literature on export and economic growth.

Export is expected to impact positively on growth as postulated by Feder (1982), who mentioned that exports contribute to economic growth in a variety of ways: economies of scale and incentives for technological improvement. Thus, marginal factor productivities are expected to be higher in export industries than in non-export industries.

4. 5 Data Sources

For the purpose of this study, time series data has been used. A time series is an ordered chain of values of a variable at equally spaced time intervals. Time series analysis is used for economic and sales forecasting, budgetary analysis, inventory studies or stock market analysis. It encompasses techniques to investigate data in order to extract meaningful statistics and other characteristics of the data.

A time series model indicates that observations close together in time will be more closely correlated than observations further apart. As such, time series models use the natural one-way ordering of time so that values for a given period can be expressed as deriving in some way from past values.

Data has been collected for the period 1976 to 2009. Figures for the explanatory variables namely investment and exports and that for the dependent variable real gross domestic product were obtained from the Central Statistical Office. Data for inflation and tourism receipts was obtained from annual reports of the Bank of Mauritius.

4. 6 Software

The analysis of data will be done using the Microfit 4. 0 software. Before carrying out the regression, the stationarity of the variable should be tested in order to avoid spurious results and invalidity of the model. The ARDL model will be evaluated. Furthermore, a co-integration test shall be performed to determine if an Error Correction Model (ECM) must be used.