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Tourism and Employment Spillovers in a Small Island Developing State: A Dynamic Investigation

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Abstract

Using a dynamic vector error correction model, and catering for dynamism and endogeneity, the present study attempts to address the question on whether tourism development enhances employment in Mauritius using time series data for the period 1988-2014. The results show that indeed tourism expansion has contributed towards boosting direct, indirect and induced employment in both the long run and short run. The findings also demonstrate that investment in the tourism sector positively influences the employment variable. Moreover, a uni-directional causality is found in the investigation running from tourism development to employment creation as a result of the expansion of the tourism sector.

Keywords

Tourism, Employment, VECM

1. Introduction

Small island economies very often rely on the tourism sector for development. The tourism sector generates various benefits in terms of an inflow of foreign currencies and generating economic growth. Importantly, tourism is also labour-intensive and supports a diverse and versatile labour market and also provides small-scale employment opportunities, thereby helping in the promotion in gender equity. Furthermore, there are various indirect benefits of tourism for those down the income ladder, including increased market access for remote areas through the development of roads, infrastructure, and communication networks. Several policies for tourism development have been found to be effective in creating employment and income opportunities for vulnerable groups [1].

Referring to the Mauritian tourism sector, it is regarded as a major GDP contributor for the island. By the end of 2013, it accounted for approximately 7.1 per cent of gross domestic product (GDP) and such a number is expected to grow in the future, even more so in light of the audacious objective of the government to host more than two million tourists by 2015-2016.

While most empirical papers focus on the study of tourism and economic growth, the present paper takes a different approach and attempt to investigate the link between tourism development and employment created due to the tourism industry in the small island developing state, Mauritius. This study thus strives to add on to the literature to address these issues which have been hardly dealt in previous researches. Also, the present paper adopts a rigorous dynamic time series analysis namely a dynamic vector error correction model (VECM) to carry out the proposed investigation. Such a procedure will ensure that the dynamic behaviour of the time series under consideration is properly captured, while simultaneously catering for endogeneity and causality issues. Any feedback and indirect effects which may be present will also be detected within the VECM. The model also allows for the identification of any bi-directional and/or uni-directional causality between the variables of interest.

The rest of this paper is organized as follows: Section 2 discusses the literature while Section 3 defines the methodological approach used and Section 4 discusses the findings and finally the conclusion is presented in Section 5.

2. Literature Review

Tourism is seen to generate important externalities to other sectors of the economy, thereby generating significant benefits to the local economies. This can be explained by the fact that while tourists visits a particular country, the demand for local goods and services increases, mainly by direct spending as well as indirectly through the multiplier effects.

The tourism industry is as well seen as one of the key sectors that enable the creation of jobs in the local economy. However, though tourism is seen to be very important for the economy, rigorous empirical evidence on the contribution of tourism to the local economy is limited.

Several investigations have showed that tourism development has the possible effect of promoting economic growth, creating jobs and generating revenue for the government. Referring to the Tourism Led growth hypothesis which is an analysis of the probable relationship between tourism and economic growth supports a bi-directional relationship between tourism and economic growth [2]. Moreover, tourist spending is regarded as an alternative form of exports which provides much needed foreign exchange earnings for an economy which are used to import capital goods to produce goods and services, which in turn may foster economic growth in host countries [3].

The employment creation aspect of tourism is another vital contributor to promulgating economic growth and development of the host country. For instance, the tourism industry employs local citizens in hotels, restaurants, and entertainment and tourist services which cater directly for tourists or through the multiplier effect [4]. Furthermore, in view of the prevalence of service quality in the tourism sector, there is a constant demand for training which can only serve to upgrade the skills of local employee working in the industry. And in this regard, skill transfers are common practice for international hotels[1].

Crucially also, many developing countries are dependent on the tourism sector as a major source of foreign exchange; even more so since such foreign exchange revenues often serve to contribute towards improving the host countries balance of payments (Belloumi, 2010). In this vein also, Robu and Ballan (2009) suggest that a growing national tourism sector contributes to increased national income and employment which effectively leads to an improved balance of payment situation.

Finally, it may be argued that tourism sector can also potentially contribute towards building and/or reinforcing the positive image of a destination in which they choose to locate. For example, the establishments of foreign hotel chains in a host country can only enhance a destination's positive image. Furthermore, as supported by Kusluvan and Karamustafa [6], the knowledge that familiar hotels exist in particular countries encourages and reduces the search costs for potential tourists.

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[1]However, there are criticisms that in some cases the types of jobs which are created by tourism TNCs for the indigenous labour are mostly at the lower hierarchical level. On the other hand, higher managerial posts are normally given to expatriates who unfortunately tend to limit the career advancement prospects of the local citizens [5].

Finally, an increase in employment as a result of tourism development has the potential to reduce the level of poverty and increase the welfare of the population in the country. Hence, there might result in an increase in income thereby improving the quality of life mainly for those down the income ladder.

3. Empirical Specification & Methodology

3.1. Empirical Specification

The aim of this study is to investigate the relationship between tourism receipt and employment creation in Mauritius over the period 1988 to 2014. An augmented form of the labor demand equation is being adopted (see Kosova, 2013 [7]) to allow for dynamic adjustment of employment. The following econometric model is being used;

$$Emp = f\left(TOU, GDP, INVTT, INF, FIN\right). \tag{1}$$

All the variables have been expressed in their natural logarithm form to reduce the problem of heteroskedascity as well as to ease comparison and offer more meaningful interpretations. This result in the following:

$$\ln EMP_t = \beta_0 + \beta_1 \ln TOU_t + \beta_2 \ln GDP_t + \beta_3 \ln INVTT_t + \beta_4 \ln INF_t + \beta_5 FIN_t + \varepsilon_t \tag{2}$$

where t represents time; ε is the random error term.

Model 1 is used to analyse the impact of tourism on total employment generated by the tourism sector which is measured by EMP and the proxy used is total contribution of travel and tourism to employment.

The total contribution of Travel & Tourism includes its "wider impacts" (*i.e.* the indirect and induced impacts) on the economy. The direct contribution of travel and tourism to employment includes employment by hotels, travel agents, airlines and other passenger transportation services (excluding commuter services). It also includes, for example, the activities of the restaurants and leisure industries directly supported by tourists. The "indirect" contribution includes the jobs supported by: Travel & Tourism. The "induced" contribution measures the jobs supported by the spending of those who are directly or indirectly employed by the Travel & Tourism industry (World Travel and Tourism Council).

The variable tourism receipt as a measure of tourism development in the country is also added in the present model. Tourism development is regarded as a crucial element for creating jobs in the country. Apart from direct employment creation, tourism also has the potential to create jobs in the other sectors as well. Hence, tourism leads to employment spillovers to the economy. In this investigation, tourism receipt is used as a proxy for tourism expansion in the country and data are extracted from the Statistics Mauritius database.

Other variables included in the model are seen to influence employment in one way or another. For instance, economic growth has an important role to play in the creation of jobs in the economy. For instance, economists like Arthur Okun studied the link between economic growth and unemployment levels. The logic behind Okun's law[2] is simple. Output depends on the amount of labor used in the production process, so there is a positive relationship between output and employment. Total employment equals the labour force minus the unemployed, so there is a negative relationship between output and unemployment (conditional on the labor force). Hence, a positive sign is expected for economic growth here. The proxy used to calculate economic growth is real GDP and data are extracted from the Statistics Mauritius.

Moreover, investment in the tourism sector (INVTT) is also included in the model to account for the link between investment in the tourism sector and employment. For instance, the higher the investment in the sector, the more labour will be demanded. Hence, investment in the tourism sector is seen to boost employment and the data are extracted from statistics Mauritius. Another variable included in the study relate to inflation rate.

Analysing the link between employment and inflation, we rather find discussion on unemployment and inflation. A short term trade-off between unemployment and inflation is discussed by economist A. W. Philips [9] showing that when inflation is high, unemployment is low, and *vice versa*. This relationship is known as the Phillips curve. When monetary policy is used to reduce inflation, either by contracting the money supply or by raising interest rates, this reduces aggregate demand, while aggregate supply remains the same. When aggregate demand decreases, prices decrease, but unemployment rises. This link is seen to hold in the short run than the

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[2]Okun's Law: Economic Growth and Unemployment |Investopedia.
http://www.investopedia.com/articles/economics/12/okuns-law.asp#ixzz3zs3gBBVC

long run. Hence, a direct relationship between employment and inflation is expected. The proxy used for inflation is GDP deflator.

Finally, a binary dummy variable for financial crisis is included in the model. Indeed the global financial crisis and the economic downturn have impacted negatively on the Mauritian tourism sector. This will have negative impact on employment in the sector as well.

3.2. Estimation Issues

A VAR approach is used to delineate the relationship between employment in the tourism sector and tourism development. Such an approach does not impose a priori restriction on the dynamic relations among the different variables. It resembles simultaneous equation modeling, whereby several endogenous variables are considered together. Hence, the VECM linking the short term and long term causality between employment in the tourism sector and tourism development is set as follows:

$$\Delta \ln EMP_t = \alpha_0 + \sum_{j=1}^{n} \alpha_1 \Delta \ln TOU_{t-j} + \sum_{j=1}^{n} \alpha_2 \Delta \ln GDP_{t-j} + \sum_{j=1}^{n} \alpha_3 \Delta \ln INVTT_{t-j}$$
$$+ \sum_{j=1}^{n} \alpha_4 \Delta \ln INF_{t-j} + \sum_{j=1}^{n} \alpha_5 \Delta FIN_{t-j} + \eta ECT_{t-1} + \varepsilon_t. \tag{3}$$

The coefficient of the error correction term (ECT_{t-1}) indicates whether there exists a short run relationship among the time series variables.

Furthermore, applying regression on time series data may generate spurious results [8] [9] given the possibility of non-stationarity data. As such, undertaking a check as to the stationarity of data is a prerequisite for applying the co-integration test. As a result, the Augmented Dickey-Fuller (ADF) test (Dickey-Fuller, 1979, 1981) and the Phillips-Perron test [9] were applied.

4. Analysis of Finding

From the application of the augmented Dickey-Fuller (ADF) (1979) and Phillips-Perron (PP) [9] unit-roots tests, we observe that all the variables are integrated of order 1 and stationary in first difference. The Johansen Maximum Likelihood approach is subsequently used to test the presence of cointegration in a vector error correction model in the specification. Trace statistics and maximal eigenvalue confirm the presence of co-integration and it is thus concluded that a long run relationship exists in both above specifications.

4.1. Empirical Results

The long run estimates of equation 2 are reported in **Table 1** below.

The table below displays the long run relationship between employment contribution due to the tourism sector and the main variable of interest, namely tourism development and, the control variables (economic growth, gdp, investment in the tourism sector, INVTT, inflation, INF and the financial crisis dummy, FIN).

Analysing the main variable of interest, which is tourism development, it can be observed that it has positively affected overall employment flowing due to the travel and tourism sector. For instance, one can therefore argue that tourism development has contributed towards boosting direct employment, indirect employment and

Table 1. The long run estimates.

	Model 1	
Dependent variable	**Coefficient**	**P value**
LN_GDP	0.322076	0.0743
LN_INVT	0.059756	0.0255
LN_TOU	0.541948	0.0422
LN_INF	0.012841	0.9526
FIN	−0.082222	0.1493
Constant	6.989410	0.0004

induced employment to the country. Hence, apart from directly creating jobs in the tourism industry, a development in the tourism sector has also led to employment in other sectors of the economy. Hence, there is a positive employment spillover in Mauritius due to tourism development. This result is in line with Serju *et al.*, 2006 [10].

On the other hand, focusing on the GDP variable, the results in the long run are as expected. For instance, a 1% increase in GDP in the country, has led to a 0.32% increase in employment creation due to the tourism sector. Hence, this result reinforces the okun's law postulating a direct relation between output and employment creation. This result is in line with Cook *et al.*, 2012 [11], who found economic growth is a prerequisite for employment creation.

Turning the attention towards the investment in the tourism sector variable, proxied by INVTT, it is noted that this variable is also important in explaining employment creation due to the tourism sector. Hence, as investment increases it creates jobs in both the tourism sector and creates jobs in other sectors as well, such as the construction industry. As far as the other control variables are concerned, such as inflation and financial crisis, an insignificant result is obtained in the long run. For instance, zooming on the inflation variable, it is noted that an increases in prices in the country has not really affected employment created as a result of the development in the tourism sector. Hence, inflation has not really affected the employment variable in this study in the long run. It is also noteworthy that the financial crisis has not really discouraged employment creation due to the expansion of the tourism sector in the long run. Mauritius has been able to shield itself against the effect of the global financial crisis in the long run.

To sum up, the results presented in **Table 1** above suggest that on the whole, employment contribution due to the expansion of the tourism sector is conducive to tourism development in the long run. Results are in line with earlier empirical studies, including Kosova, 2013 [7].

4.2. The Short Run Equations

Since the variables are co integrated, in the short run, deviations from the long run equilibrium will feed back on the changes in the dependent variables so as to force their movements towards the long run equilibrium state. The deviation from the long-run equilibrium is corrected gradually through a series of partial short term adjustments, the co-integration term or the error correction term (ECT). It indicates the speed of adjustment of any disequilibrium towards the long-run equilibrium.

The empirical results of the short run estimates of the VECM are displayed in **Table 2**. **Table 2** is a composite table, where each column can be viewed and analyzed as an independent function, that is, each column in the table corresponds to an equation in the VECM. The variable named in the first cell of each column is viewed as the dependent variable. The estimated coefficient of the explanatory variables is reported in the cells. Our focus will be on the first column.

Analysing the short run estimates of equation two, that is the regression equation with employment as the dependent variable, it can be argued that even in the short run there is a direct link between employment creation due to the tourism sector and tourism development. Another significant variable affecting employment variable in the short run is investment in the tourism industry. However, the other variables have insignificant effect on the dependent variable.

Furthermore and as discussed previously, the VAR/VECM framework allows us to gauge more interesting insights on endogeneity issues and also allows us to detect any potential indirect effects. Whilst, the results show that tourism development influences employment, the results reported in the above table demonstrate that employment created as a result of the tourism sector in the country does not influences tourism expansion. In this regard, and more specifically referring to the employment equation depicted in the fifth column in **Table 2**, it is observed that there is no reverse causation which exist between tourism development and employment creation as a result of tourism expansion. Thus, the results demonstrate that a uni-directional relationship flowing from tourism development to employment creation due to the tourism industry. This is further confirmed by the granger causality test as shown in **Table 3**.

In addition to that, the fifth column further shows that tourism development is enhanced by investment in the sector.

5. Conclusions

This investigation starts by empirically examining the relationship between tourism development and the level

Table 2. Short run dynamics.

Error correction	D(LN_EMP)	D(LN_GDP)	D(LN_INVT)	D(LN_TOU)	D(LN_INF)	D(FIN)
CointEq1	−0.410451[*]	−0.014831[*]	−1.781407[*]	−0.189414[*]	0.061807	0.588423
D(LN_EMP(−1))	−0.690854	−0.048341	−0.142934	0.377107	0.081426[*]	0.413171
D(LN_GDP(−1))	0.563696	0.284305	2.187022	−0.188521	0.022431	1.643779
D(LN_INVT(−1))	0.156256[**]	−0.058360[**]	0.331966	0.006101[**]	0.001488[**]	0.147666
D(LN_TOU(−1))	0.406979[*]	0.241586[*]	−3.378735	0.258945	0.127707	−2.997072
D(LN_INF(−1))	−1.848853	0.880336	−0.544751	0.766838	0.188946	4.020261
D(FIN(−1))	−0.209460	0.018541	−0.243621	0.023731[**]	−0.004513[**]	−0.130121
Constant	0.154188[**]	−0.017198[**]	0.204161	−0.011770[***]	0.032478[***]	−0.118322
R-squared	0.514442	0.258644	0.607537	0.405573	0.592828	0.391015

[*]Significant at 10%, [**]Significant at 5%, [***]Significant at 1%.

Table 3. Pairwise granger causality tests.

Null hypothesis:	F-statistic	Prob.
LN_EMP does not Granger Cause LN_TOU	2.01385	0.1693
LN_TOU does not Granger Cause LN_EMP	4.22830	0.0513

of employment created due to the tourism sector that is the level of direct employment, indirect employment and induced employment created as a result of tourism expansion in Mauritius. A number of major findings were obtained. The first one indicates that in both the long run and short run the employment proxy is conducive to the tourism expansion variable. Results further support that economic growth and investment in the tourism sector are significant variables affecting the level of employment created due to the tourism sector. In addition to that, the results also show that there is a uni-directional causality running from tourism development to employment creation as a result of the tourism sector. Since tourism development is seen to be a crucial element for the economy of Mauritius, additional policies should be implemented to further encourage tourists to come in the country as well as encourage investment in the tourism sector.

For further research, this study can be extended on small island economies and investigate the impact of tourism development of employment spillovers in a panel framework.

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