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The Employment Effect of Tourism: A Dynamic Analysis

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ABSTRACT: The tourism industry can bring various positive economic developments on Gross Domestic Product, employment opportunities, national income and international trade throughout the economy. In recent years, the tourism industry has attracted the attention of most governments including the Sri Lankan government as the most promising sector to be a potential tool for generating income and employment. In this line, it has proficient to create both direct and indirect employment for skilled workers and unskilled workers as well. This study attempts to investigate the relationship between tourism and employment creation in Sri Lankaduring the period of 1977-2017by employingeconometric techniques namely the Johansen cointegration test, Vector Auto-Regressive (VAR) analysis, and Granger-causality test. Johansen Cointegration test was used to find the long-term association between tourism and employment creation and found that the absence of a long-run relationship between two indicating tourism would not determine the employment creation in the long-term. Furthermore, the Granger causality test was employed for investigating the short-term relationship and it confirmed the existence of unidirectional causality between tourism and employment creation showing that the tourism industry of Sri Lanka would lead to employment generation in the short term.

KEYWORDS: *Employment creation, Granger causality tests, Tourism, Vector Auto Regressive*

I. BACKGROUND OF THE STUDY

In developing countries, the tourism sectors have been one of the foremost sectors of the economy as it contributes to generate national income and create enormous employment opportunities. The tourism industry has the potential to create both direct and indirect employment for skilled workers and unskilled workers as well [1]. Increasing tourism trends can bring various positive economic developments throughout the country, essentially on Gross Domestic Product, employment opportunities, national income, and international trade. Beyond that, direct effect in the travel and tourism sector generates associated employment opportunities because of its indirect and induced effects on various sectors which being as supportive sectors of tourism [2].

According to the World Tourism Organization [3], the tourism sector being a cluster of production units in diverse industries, which make available goods and services characteristically demanded by the tourist. Such industries are known as tourism industries as tourist accomplishment characterizes by a considerable share of supply of goods and services, which are absent among them, representing the existence of a meaningful quantity of such these goods and services.

The tourism development, and its contribution to national economics through generating tourist receipt, employment opportunities and the like, have created the general recognition of tourism as the main job creator. Meanwhile, most of the countries generally accepted whether the tourism sector is a leading employment generator since there are numerous reasons rooted in such a prominent image. Since it is generally accepted that, the tourism sector is a regionally miscellaneous industry generating job opportunities in several areas where traditional economic activities are vacillating. Secondly, tourism facilitates the employment opportunity for unemployment prone groups including youth, low-skilled workers, unskilled workers, and women. The third reason is, being a labour-intensive industry engaging with a wide range of skills, which is crucial to alleviate poverty. At last, the huge numbers of posts are employed from the local markets resulting, the tourism sector generates opportunities for many small and micro-entrepreneurs, both in the formal and informal sector [3].

According to [4], tourism is seen to generate major impacts on other sectors of the economy, in that way generating substantial benefits to the local economies. This can be explicated by the fact that when tourists visit a specific country, the demand for local goods and services rises, predominantly by direct spending as well as indirectly through the multiplier effects.

The tourism industry generates employment opportunities in the tertiary sector and also induces the growth of both primary sector secondary sector as well. This consequence called a multiplier effect which is being as the

simplest form shows that how many times money spent by tourist circulates throughout the country's economy. For instance, money spent in a hotel by the tourist helps to generate job opportunity directly in the hotel, but it also generates employment indirectly elsewhere in the economy [5].

Thus, the multiplier effect in tourism refers to the final change in output in an economy as a result of the initial change in tourist expenditure [6]. This multiplier effect is the chain effect since the effects of tourist expenditure are not limited to a specific supplier or any travel agency where the money is directly spent as the total *tourist* product encompasses an amalgamation of *all* the *elements*, which a tourist consumes during their tour. Similarly, other specific productsare components of the total tourism product and those can be supplied as individual offerings include transport, accommodation, attractions and other amenities [7]. Therefore, expenditure spending by a tourist in a specific tourist area has an impact in throughout the economy through of the process of spending.

Frequently, tourism multipliers can be divided into five different sorts of categories namely income multiplier, transaction multiplier, government revenue multiplier, output multiplier and employment multiplier [6]. Among them, income and employment multipliers are both being essential in the perspective of developing countries since both income and employment multipliers provide opportunities to reduce prevalent unemployment and to improve their people's wellbeing to these in these countries [8].

In this line, the tourism income multiplier is an additional income generated by an increase in tourism spending. The generated income in the tourism industry can be taken into the economy in the form of wages and salaries, rent, interest and profits depending on the status of the recipient. Similarly, tourism employment multiplier attends to increase the number of employment opportunity generated by an additional unit of tourist expenditure [8].

The outcome of tourism on both income and employment generation is can be at three various levels namely direct effect, indirect effect and induced effect [9]. Tourism can create income and employment directly into sectors that are associated with the supply of tourist' goods and services. These effects are known as direct effects and primary effects as well. Besides, generated income as a result of direct effect can be used to buy inputs or any other materials on order to produce and satisfy the demand created in the tourism industry, this effect also known as an indirect effect of tourism. Likewise, induced effects are caused through the income generated in the tourism industry, utilized to buy goods and services other than tourism-related goods and services, because of income generated is not all spent for producing goods and services and a portion of it is used by households for their personal needs. Thus, in addition to the primary effect of tourism, both indirect and induced effects of tourism are also identified as secondary effects of tourism [10]. As aforementioned, money spent in a hotel by the tourist, helps to generates job opportunity directly in the hotel, but it also generates employment indirectly elsewhere in the economy. While the hotel has to purchase other goods from associated suppliers, for instance, buy food from local farmers who may spend a proportion of this money to buy seeds or cloths. Moreover, the demand for local product increases as a tourist often purchase mementoes resulting increase in secondary employment. Thus, the multiplier effect can be continued until the money leaks from the economy through imports the purchase of goods from other countries [5].

As aforementioned, the tourism industry is a diverse industry than other sectors, tourism sector encompasses various sorts of suppliers for both good and services. And most notably the tourism industry also contributes to other sectors namely agricultural production, handicrafts, fishing, retailing, and cultural related industries in crucial manners. Further, the proportion of youth employment in the tourism sector is higher than in other sectors and the trend accompanying the demand for unqualified workers. The evidence has also shown that in most countries like Canada, Austria and France youth employees are occupied in the tourism sector than others. Similarly, a larger proportion of women also engages in the tourism sector, the information also accompanying with unqualified workers. The evidence reveals that similar to youth employees, in many countries the higher rate of women also employs in the tourism industry [11].

Conversely, it generally believes that seasonal fluctuation of tourism sector leads to the irregular potential of workforce resulting in seasonal unemployment and it also causes a seasonal local shift of working area. Another thing is part-time job can bring fluctuation in this way that low weekdays demand and higher demands on weekends among the tourism businesses. This fluctuation makes them facilitate employment opportunity on a full-time basis for their part-time employees [11]. Tourism employment regulations also can be a retraction creating employment opportunities in various countries as some countries special license need to conduct businesses like gaming licence, food-safe handling certificate, hunting guide licence and like them licence [11].

In Sri Lanka, the tourism industry has been experiencing with the increasing tendency of the number of international tourists and receipts of tourism as well [12]. Correspondingly, it is now evidence that international tourism arrivals grew significantly from 28,272 in 1968 to 2,116,407 in 2017. Likewise, in 2017, tourist receipt increased to 3,924.90 million US$ from 1.8 million US$ was registered in 1968 [13]. Earnings from tourism industry continued with increased average spending and duration of stay by tourists all over the year despite a moderate growth of tourist arrivals was recorded in 2017. Accordingly, the tourism industry was able to remain its rank as the third-largest source of Foreign Exchange Earner of the Sri Lankan Economy in 2017. In this

manner, generated employment in the tourism sector has been increased from 335,659 in 2016 to 359,215 in 2017 with a growth rate of 7 per cent [14]. The tourist arrivals in Sri Lanka tend to be increased tremendously thereby it is expected to generate direct employment opportunity and indirectly as well.

According to the Central bank annual report (14), promisingly the employed population in Sri Lanka has been increased by 3.3 per cent with the growth of the labour force, consequently, the unemployed population has been declined favourably, showing an increase in employment opportunities in the economy of Sri Lanka. In this context, generally, policymakers believe that the effect of tourism on employment creation is most promising. Therefore, in recent years, tourism has attracted the attention of the Sri Lankan government in developing the tourism industry as a demanding sector through special economic development policies and institutions. However, it can be explained by address the question of whether tourism enhances employment.Therefore, the present study attempts to investigate the relationship between tourism and employment created due to the tourism industry in Sri Lanka.

II. THE OVERALL TENDENCY OF EMPLOYMENT CREATION IN THE TOURISM INDUSTRY

According to the Statistical Report of Sri Lanka Tourism Development Authority [13], from 1970 up to 2017, tourism industry created 359,215 new jobs incorporates both direct employment and indirect employment within the Sri Lankan economy. The following table shows the volume of employment generated in the tourism industry of Sri Lanka. Current estimates were that 156,369 Sri Lankans are directly employed in the tourism industry as compares to 146,115 in 2016. Further, the total number of establishments covered in 2017 amounted to 3,634 among which Hotels and Restaurants, Travel Agents and Tour Operators, Airlines, Agencies Providing Recreational Facilities, Tourist Shops, Guides, National Tourist Organization and State sector are being the most important category of establishment in Sri Lanka. Direct employment was increased by 7.01 % and such a significant increase was recorded in all categories of establishments of the tourism industry in Sri Lanka. Among them Hotels and Restaurants accounted for 81.52%, Travel Agents & Tour Operators amounted for 6.36%. Besides, 4.81%, 3.18%,1.71%,1.30%, 0.64%, 0.47% of employees were employed in Airlines, Guides, State Sector, Tourist Shops, the Agencies providing Recreational Facilities and the National Tourist Organization respectively. Moreover, classification of the total number of employments by broad occupational categories shows that 14.33% belonged to managerial, scientific and professional grades, 50% belonged to technical, clerical, allied and supervisory grades and 35.76% belonged to manual and operative grades.

Similarly, indirect employment generated by tourism sector that tourist spending can generate in ancillary industries namely the handicraft trade, gems and jewellery shops, liquor shops laundries, etc. The total number of indirect employments accounted to 202,846 in 2017 relatively it was 189,544 in 2016.

Beyond that, the Labour Demand Survey by the Department of Census and Statistics studied the demand for labour within tourism sector as a subsector covering the service industry for accommodation and food, as well as transportation providers. Accordingly, a total of 6,757 jobs were in demand in 2017 in which 21.47% of large demand was for waiters and waitresses (service providers) in the food & beverage industry. Likewise, demand for cooks, chefs, bartenders and kitchen helpers recorded to 11.01%, 9.04 %, 8.81% and 5.90%. respectively. Furthermore, the aforementioned studied noted that higher labour participation was required to fill vacancies under cleaning and housekeeping services in the tourism-based establishments, for both levels of supervisor positions and cleaners. As well as job vacancies for accounting associates, stall and market salespersons and drivers also were in the tourism-based industry.

Table 2.1: Employment in the Tourism Industry

Year	Direct employment	Indirect employment	Year	Direct employment	Indirect employment
1970	5138	6940	1994	33956	47538
1971	6397	8640	1995	35068	49095
1972	7040	9500	1996	31963	44748
1973	7134	10780	1997	34006	47608
1974	8551	11550	1998	34780	48692
1975	10148	13700	1999	36560	51184
1976	11752	15900	2000	37943	53120
1977	13716	18520	2001	33710	47194
1978	15404	20795	2002	38821	54349

1979	18472	24937	2003	46761	65465
1980	19878	28022	2004	53766	75272
1981	23023	32232	2005	52085	72919
1982	26776	37486	2006	55649	77909
1983	22374	31234	2007	60516	84722
1984	24541	34357	2008	51306	71828
1985	22723	31810	2009	52071	72899
1986	22285	31199	2010	55023	77032
1987	20338	28473	2011	57786	80899
1988	19960	27944	2012	67862	95007
1989	21958	30741	2013	112550	157600
1990	24964	34950	2014	129790	170100
1991	26878	37629	2015	135930	183506
1992	28790	40306	2016	146115	189544
1993	30710	42944	2017	156369	202846

Source: Statistical Reportof Sri Lanka Tourism Development Authority(2017)

III. METHODOLOGY

The study is employed with annual time series data, which are obtained from the annual statistical report of Sri Lanka tourism development authority between 1977 and 2017. To investigate the link between tourism and employment creation in Sri Lanka, the study uses dynamic time series analysis by employing econometrics models namely Johansen cointegration test, Vector Auto-Regressive (VAR) analysis and Granger-causality test. To carry out the proposed analysis, variable namely tourist arrivals is regarded as tourism growth measure and the number of employments in tourism industry is employed as total employment which was generated by the whole tourism industry in Sri Lanka. In this dynamic analysis, employment generated by the tourism industry can be seen as a function of selected variables.

The following econometric model is being used in this study.

$lnEmp_{t=} \beta_0 + \beta_1 lnTour_t + \varepsilon_t$

Where EMP is employment creation of tourism industry which indicates the dependent variable of this model to investigate whether tourism generates employment opportunities. Similarly, Tour is tourist arrivals, β0 is intercepting parameter and ε is the error term.

As an initial step of the analysis, time series values are to be converted into their logarithms before the analysis to interpreting the elasticity of the variables. Then, to establish the order of integration of the variables, the Augmented Dickey-Fuller unit root test is to be utilized using the following the regression model.

$\Delta Yt = \beta_1 + \beta_2 t + \delta Yt_{-1} + \alpha_i \Sigma\Delta Yt_{-i} + \varepsilon t$

Where εt is a white noise error term and $\Delta Yt_{-1} = Yt_{-1} - Yt_{-2}$ and so on are the number of lagged difference term which is empirically determined.

If the selected variables are being non-stationary, it follows to find the existence of a co-integrating relationship using the Johansen co-integrationtests which can be used to establish the existence of the long-term relationship between the two variables in this study [1Likewisearly, to find the short-term relationship between the selected variables, the Granger-causality test is to be used in this study. There are three different sorts of the situation in which a Granger-causality test can be applied. In this line, Granger-causality can also be tested in a VAR framework, where variables are not co-integrated in the long term.

In this study, a two-variable VAR model is to be employed in which selected variables are endogenous. By developing a VAR model, a short-run dynamic relationship can be examined over the VAR estimation as long-run equilibrium did not exist between the two time-series variables. Because of the linear combination of the time series was not stationary, first differencing is appropriate and error correction terms are not proper in the VAR model as well [16]. To test the relationship between tourism and employment creation in Sri Lanka, a two-variable VAR model can be developed as follows:

$\begin{pmatrix} \Delta Tour\ t \\ \Delta Empt \end{pmatrix} = \alpha_0 + \alpha_1 \begin{pmatrix} \Delta Tour\ t-1 \\ \Delta Empt\ -1 \end{pmatrix} + \alpha_2 \begin{pmatrix} \Delta Tour\ t-2 \\ \Delta Empt\ -2 \end{pmatrix} + \dots + \alpha_p \begin{pmatrix} \Delta Tour\ t-p \\ \Delta Emp\ t-p \end{pmatrix} + \alpha_{p+1} \begin{pmatrix} Dt-4 \\ Dt-4 \end{pmatrix} + U_t \dots (3)$

where *α0* indicating a vector of the constant term, *α1* is the matrix of parameters and Ut representing the innovation term.

Furthermore, in order to develop a VAR model, the selection order criteria to decide on a -causality functional lag length of VAR is essential due to the fact that choosing a higher-order lag length rather than the true lag

order increases the mean square forecast errors of the VAR model, and selecting a lower lag order than the true lag lengths usually causes autocorrelated errors [17]. For that reason, the accuracy of VAR models highly relies on selecting the true lag lengths. Hence, varsoc command is to be employed to run lag-order selection diagnostics in the study.

Granger in a VAR framework indicates a correlation between the present value of a variable and the past values of another variable. The Granger -causality two-stage method is performed by two equations separately:

$Emp_t = \beta_0 + \beta_1 Tour_t + \beta_2 D_{t-1} + e_t$

$Tour_t = \delta_0 + \delta_1 Tour_t + \delta_2 D_{t-1} + e_{t,}$ .... (1)

$\Delta \hat{e}_t = \alpha 1_{\hat{e}t-1} + \varepsilon_t$

$\Delta \hat{e}_t = \alpha 1 \hat{e}_{t-1} + \Sigma \alpha_i +_1 \Delta \hat{e}_{tt-i} + \varepsilon_t$ .... (2)

Eventually, the developed model of Granger causality test in a two-variable VAR framework, can be expressed as follows:

$\binom{\Delta Tour\,t}{\Delta Empt} = \alpha_0 + \alpha_1 \binom{\Delta Tour\,t-1}{\Delta Empt\,-1} + \alpha_2 \binom{\Delta Tour\,t-2}{\Delta Empt\,-2} + \ldots\ldots + \alpha_p \binom{\Delta Tour\,t-p}{\Delta Emp\,t-p} + \alpha_p +_1 \binom{Dt-4}{Dt-4} + U_t \ldots$ (3)

$\Delta Tour_t = \alpha_1 + \sum_{p-1}^{1} \beta_{1p} \Delta Emp_{t-p} + \sum_{p-1}^{1} \delta_{1p} \quad \Delta Tour_{t-p} + \Box y_1 D_{t-1} + \varepsilon_{1t,}$ .... (4)

$\Delta Emp_t = \alpha_2 + \sum_{p-1}^{1} \beta_{2p} \Delta Emp_{t-p} + \sum_{p-1}^{1} \delta_{2p} \quad \Delta Tour_{t-p} + \Box y_2 D_{t-1} + \varepsilon_{2t,}$ .... (5)

Where Emp indicating employment creation of the tourism industry and Tour representing tourism growth via tourist arrivals.

Because of that, the present study employs with VAR model to find the short-term relationship between tourism and employment creation by employing Granger causality tests while Johansen co-integration test is to be employed to find the long-run relationship between tourism and employment creation in the industry of tourism in Sri Lanka.

IV.   RESULTS

4.1 Results of Unit Roots Test
To build an appropriate VAR model, the unit-root test is essential as the all-time series data that are utilized in the study must be stationary. The ADF test is utilized to check whether the selected time series is stationary or not, and the results of the ADF unit roots test are presented in the following table

Table 4.1: Results oftheAugmented Dickey Fuller Test

Variables	Test statistics	Order of Integration	MacKinnon p-value
D.lnemployment	-4.971	I(1) ***	0.0000
D lntourist arrival	-4.128	I(1) ***	0.0009
*** indicates one percent significant level			

Source: Author's computation by STATA

The results indicate that variables incorporated in the study are stationary in the order I (1). After first differencing employment creationand tourist arrival are found to be stationary at the at one percent significant level, implying that these variables are integrated of order 1 that is indicated by I (1).

4.2 Results of Lag-order Selection
At the second step, the study utilized the **varsoc** command to run lag-order selection diagnostics to decide on a functional lag length of the VAR model.

According to the varsoc results, maximum lag should be lag (1). A sequence of the likelihood ratio (LR) tests statistics for all the full VAR of the order less than or equal to the highest lag order is also reported in the same table.

Table 4.2: Results of Lag-order Selection

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-17.6968				.010239	1.09421	1.12491	1.18218
1	53.5674	142.53*	4	0.000	.000244*	-2.64264*	-2.55052*	-2.37872*
2	56.5143	5.8938	4	0.207	.00026	-2.58413	-2.4306	-2.14426
3	60.0863	7.1438	4	0.128	.000268	-2.56035	-2.34541	-1.94453
4	63.3527	6.5329	4	0.163	.000282	-2.5196	-2.24325	-1.72784

'*' indicating the optimal lag selection of VAR

Source: Author's computation by STATA

According to the result (LR), the likelihood-ratio tests selected a model with lag 1. Further, AIC and FPE have both selected a model with lag 1, whereas SBIC and HQIC have also both chosen a model with lag 1. The obtained results permit to reject the null hypothesis is that all the coefficients on the pth lags of the endogenous variables are zero. As a result, we can conclude that both the likelihood ratio test and other criterions recommend one is the optimal lag and lag 1 has been selected to build the appropriate VAR model in the study. Respectively, the results from the table 4.2 recommend that the appropriate model for our selected time series is VAR (1) because all test results indicated lag 1 as an optimal lag selection for the VAR model.

4.3 Results of Johnsen co intergration

The cointegration method is appropriate to estimate the long-run relationship between the selected variables namely tourist arrivals and employment creation since the variables are considered to be I (1). Johansen test is utilized in this study for the cointegration test which explores the number of cointegrating vectors. To explore the number of cointegrating vectors, Maximal Eigenvalue and Trace statistics both have been used in this study. According to the estimated results, at first level (Max rank 0) where the null hypothesis is there is no cointegration between tourist arrivals and employment creation. From the results, we can accept the null hypothesis since trace statistics are lower than 5% critical value.

Table 4.3: Results ofJohansen cointegrationtests

Maximum rank	Parms	LL	Eigenvalue	Trace statistic	5% critical value
0	6	54.808199		10.2425*	15.41
1	9	59.883235	0.23441	0.0924	3.76
2	10	59.929436	0.00243		

Source: Author's computation by STATA

In the second level, (Max rank 1) in which the null hypothesis is there is no one cointegration between the variables, accordingly the estimated results also reveal that trace statistics are lower than 5% critical value consequently we accept that there is no one cointegration implies there is no long-run relationship between the selected variables. Similarly, the rest of the max rank (2) results also found that there are no two cointegrations. Therefore, the Johansen tests of cointegration found that the selected variables are not cointegrated since all trace statistics are lower than 5% critical value showing there is no long-run relationship between the variablesshowing tourist arrivals would not determine the employment creation in the long-term.

Further, the result indicates that a linear combination of two series is not cointegrated in the long-run. Subsequently, the VAR model needs to comprise the first differenced series and no error correction terms are contained in the model. Accordingly, the present study employs with VAR model to find the short-term relationship between tourism and employment creation by employing Granger causality tests as the selected model variables are not cointegrated in the long run.

4.4 Results of Vector Auto Regressive (VAR)

The model estimation results from the VAR model are presented in the following tables henceforth of the model estimation process.

Table 4.4.1: Results of VAR

Equation	Parms	RMSE	R-sq	chi2	P>chi2
Tourist arrival	3	0.178089	0.9149	419.0374	0.0000
Employment creation	3	0.114254	0.9613	969.3852	0.0000

Source: Author's computation by STATA

The present study looks down the coefficients, standard errors, Z values, and *p*-values in the following tables. The test results for tourism variable show that apart from the constant term, first lag of tourist arrival is statistically significant in terms of p-value whereas the coefficient of employment creation is not significant in this tourist arrival equation.

Table 4.4.2 Coefficient Estimates of VAR for tourist arrivals

	Coefficient	Std.Error	Z value	P value
Tourist arrivals(L1)	0.9539205	0.1516668	6.29	0.000
Employment creation (L1)	0.0660771	0.1553841	0.43	0.671
Cons	-0.0884329	0.64694	-0.14	0.891

Source: Author's computation by STATA

When we look at the coefficients for the employment creation's equations in the table 4.4.3 apart from the constant term, mostly coefficients of each variable are significant in terms of corresponding probabilities values, noteworthily its first lag of each variable has a statistically significant effect in this equation.

Table 4.4.3: Coefficient Estimates of VAR for employment creation

	Coefficient	Std.Error	Z value	P value
Tourist arrivals (L1)	0.1859554	0.0973026	1.91	0.056
employment (L1)	.832836	.0996875	8.35	0.000
Cons	-0.4441731	.4150476	-1.07	0.285

Source: Author's computation by STATA

The best model is the one that leads to the optimal criterion value of the study [17]. The study also attempts to checks the VAR model to find whether the selected model has satisfied all the assumption or not, using diagnostic checking (LM Test) and Jargue-vera test. Diagnostic checking is employed to check residual autocorrelation and Jargue-vera test is employed to find whether residual is normally distributed or not as well.

The following table shows the results of the LM test. Accordingly, we assume that null hypothesis is there is no serial correlation at lag order in this VAR model, and the results found that at their lag p- values are 0.54314 and 0.59659 implies at both level of lags, we cannot reject the null hypothesis, therefore, the results indicates that there is no serial correlation as a whole.

Table 4.4.4: Results of the Lagrange multiplier test

lag	Chi2	df	p-value
1	3.0863	4	0.54341
2	2.7725	4	0.59659

Source: Author's computation by STATA

Similarly, the following table shows the output of Jargue-vera test in which the null hypothesis is residuals are normally distributed. The results reveal that the residuals are not normally distributed for the variable of employment creation, in contrast, residuals are normally distributed for the variable of tourism. On the whole, out of two one model for tourism is normally distributed. Therefore, we can conclude that the VAR model is normally distributed in this study.

Table 4.4.5: Results of the Jargue-Vera test

equation	Chi2	df	p-value
Employment creation	257.066	2	0.00000
Tourism	0.100	2	0.95107
ALL	257.167	4	0.00000

Source: Author's computation by STATA

According to the two tests, the study confirmed that the VAR model has satisfied both assumptions as the model passed both diagnostic testing and second assumption.

V.   RESULTS OF GRANGER CAUSALITY TESTS

Johansen test of cointegration exposes the long-run association of tourist arrivals and employment creation while Granger causality test reveals the short-run relationship of them. The output of the Granger causality test of this analysis is represented in the following table includes the statistics of chi2, df and probability value.

Table 5: Results of the granger causality test

Equation	Excluded	chi2	df	Prob > chi2
lntouristarrivals	Lnemploymentcreation	0.18084	1	0.671
lntouristarrivals	ALL	0.18084	1	0.671
lnemployment creation	lntouristarrivals	3.6523	1	0.056
lnemployment creation	ALL	3.6523	1	0.056

Source: Author's computation by STATA

In the interpretation of the Granger causality test, Null hypothesis is lagged value of employment creation does not cause tourist arrivals, the alternative hypothesis is employment creation does cause tourism growth. Accordingly, in the first segment of rows of the above table indicates that lagged values of employment creation do not lead tourist arrivals due to that null hypothesis cannot be rejected as p-value is 0. 671. In the second part of the table shows that lagged values of tourist arrivals cause employment creation as p-value is being a significant level (0.056).

Further, Granger causality test confirmed the existence of unidirectional causality between tourist arrivals and employment creation as the results reveals that tourist arrivals would generate employment in the tourism industry conversely employment creation would not increase tourist arrivals.

VI.   CONCLUSION

The main objective of this study is to examine the relationship between tourism and employment creation in Sri Lanka using time series data over the period 1977-2017. Econometric techniques namely Johansen cointegration test, Vector Auto-Regressive (VAR) analysis and Granger-causality test have been utilized appropriately to establish the relationship between tourism and employment creation in both long term and short-term. Johansen Cointegration test was used to find a long-run association between tourist arrivals and employment creation and found that the absence of a long-run relationship between two indicating tourist growth would not determine the employment creation in the long-term in Sri Lanka.

Additionally, Granger causality test was employed for investigating the short-term relationship and it confirmed the existence of unidirectional causality between tourist arrivals and employment creation as the results reveals

that tourist arrivals would generate employment in the tourism industry. On the whole, two principle results revealed from this study. First, the results of a cointegration test indicate that there is no long-run equilibrium relationship between two series namely tourism and employment creation. Second, the outcomes of the Granger causality test found the one-way causal relationship of tourism growth is driven employment creation in Sri Lanka.

According to the results, in Sri Lanka, the selected variables namely tourism and employment creation have a relationship in the short – run but not in the long- run. Therefore, the study can conclude that increasing tourism growth would create employment in the short run in Sri Lanka while tourist arrivals would not generate employment in the long term. Absence of long-run relationship between tourism and employment creation may occur as the seasonal fluctuation of tourism sector leads to the irregular potential of employees consequently it would lead to seasonal unemployment. Hence, the study suggests strategies and effective national policies should be made in such a way to sustain the existing good inflow of tourist arrivals, accelerate tourism investment and easing appropriate inducement to generate employment opportunities in the tourism industry even if the country encounter unexpected crises like a terrorist attack. Beyond that, the industry can attract foreign investments and ensure tourism policies are based on the local communities, all of which will generate employment.

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