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THE ECONOMIC SIGNIFICANCE OF TOURISM: CASE STUDY OF AN ASEAN COUNTRY

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Abstract

This study aims to observe the short- and long-term relationships between selected macroeconomic variables and tourism which is linked to economic growth. This research particularly performs a triangular Granger relationships analysis of the variables and Granger causality test under VECM. Apart from tourism variables, the current research proposes a few macroeconomic variables, such as exports, human capital and physical capital as the control variables, for determining the nature of causality of these variables with economic growth. Not many studies have been published on governments' tourism expenditure and tourism income or receipts under the neoclassical exports and growth model, and the available empirical findings are mixed and inconclusive. The time series data of 28 years from 1989 to 2017 is used for the analysis. As the economy grows, all the gross domestic product components, such as human and physical capital, government spending, and exports also expand. With time, these variables exhibit some upward moving patterns. Tourism receipts are found to have bidirectional causality with economic growth in Thailand in the long run. Granger causality from economic growth to physical capital is also found in the short run, suggesting that Thailand should strive to achieve robust economic progress in the first place in the short-term. In general, although this study does not differentiate between the value of capital stock for the private and public sectors, the study is able to obtain a fairly reliable measure of the trend in fixed investment in Thailand.

Keywords: Tourism, Economic Growth, ASEAN, Thailand

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Background

The tourism industry is the world's biggest industry, and it is able to generate significant tax revenues, reduce the domestic tax burden and promote infrastructure construction which can benefit all rather than tourists alone (Khan & Mendes, 2018; Billee et al., 2019). From UNWTO/OMT 2009, international tourist arrivals have continued to grow. In 1950, it was 25 million, growing to 277 million 30 years later, and again increased to 438 million in 1990, and increased another 246 million to 684 million in 2000. By the year 2008 it had risen to 922 million. By 2020, international tourist arrivals were expected to achieve 1.6 billion, and generate approximately US$2 trillion in international tourism receipts (UNWTO, 2020). Generally international tourist arrivals and international tourism receipts move in parallel. When there is an increase in international tourist arrivals, it will lead to a rise in tourism receipts. Travel and tourism play an important role in any country's economy. Besides generating income, tourism generates a large number of jobs as it is a labor-intensive industry. As a country becomes wealthier, almost all of the components of gross domestic product (GDP) or macroeconomic aggregates exhibit an upward trend. The movement of the variables over time could display some sort of behavior or pattern. Thailand's economy also follows the same trends. Tourism in Thailand has increased over the last 16 years as is evident in Figure 1.

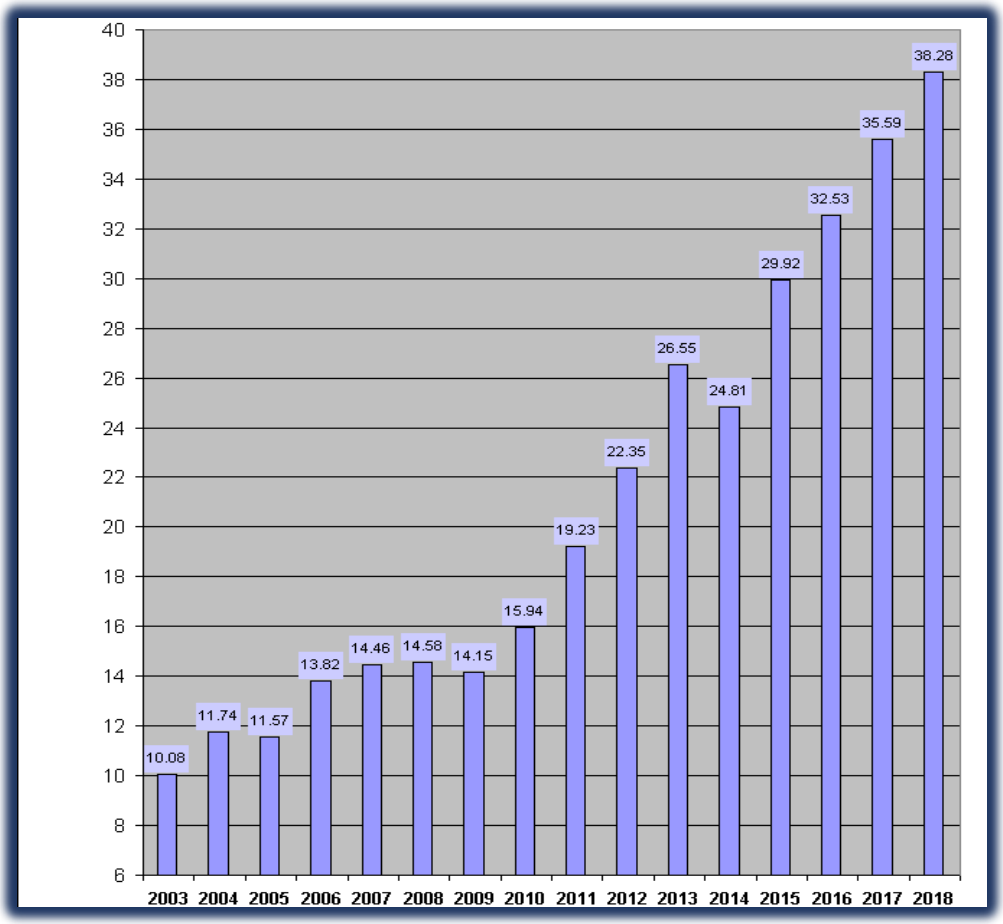

Figure 1 Yearly tourist arrival (millions) in Thailand

Tourism contributes to economic growth (RGDP) due to its exports service in terms of receipts, which generate foreign exchange earnings and leads to more tourism-led growth, growth-led tourism or both. Though this topic (tourism receipts) is relatively new and had been initiated only several years ago by Tang & Abosedra (2016), the recent empirical studies are becoming

increasingly common. A few of the most recent studies are Phiri (2016) for Pakistan and Mérida & Golpe (2016) for Turkey, for Thailand, etc. Nevertheless, the findings from the empirical studies are mixed and inconsistent (Tang & Abosedra, 2016) and are still being debated (Dogru & Bulut, 2018). Moreover, referring to the more specific empirical findings between government tourism expenditure (GTEx) and RGDP, in the present study's observation, only a few empirical studies were identified. Among them are Sharif et al. (2017) who support the bidirectional relationship in ASEAN and the latter supports GTExs leading to income growth in Cyprus.

Keeping in view the contribution of tourism to the world economy and as a potential RGDP variable, the current study aims to investigate the supply-side association among RGDP, tourism receipts, and GTEx, since there are relatively few studies available in this area (Kreishan, 2015). The extent of GTEx and tourism receipts on Thailand's RGDP is empirically investigated, using standard production function of neoclassical growth theory. Exports and other neoclassical variables can also be included to avoid serious misspecifications in measuring the productivity of factors and their contribution to RGDP. In addition, this study makes it possible to estimate the triangular relationships between tourism receipts, selected macroeconomic variables and growth in Thailand. The empirical findings could later be used as a parameter for assessing the selected macroeconomic variables and tourism's impact on the overall economy.

Literature Review

Having looked at the rise of production in the neoclassical growth model above, this section discusses the evolution of studies of tourism and exports to RGDP and incorporating the neoclassical growth model in tourism and exports variables to determine the causality relationships. There are two areas of theoretical literature explaining the relationship between tourism and growth. One is based on aggregate demand as stated in Keynesian theory where tourism through the multiplier process generates a positive effect on income and employment in a country in the short-term. The other one is incorporating the tourism sector into the trade and endogenous growth theories. This approach has prompted the pioneer work of Jayaraman et al. (2018) who examined how tourism connects to maximizing the growth rate by applying Saidu et al. (2018) two-sector endogenous growth model to the tourism industry. They reveal that the major seed of growth is productivity given that the two measuring goods are not close substitutes to each other. Proposed the idea of tourism led growth (TLG) hypothesis was derived directly from the export led growth (ELG) hypothesis; the latter means that exports expansion contributes instantly to the RGDP (Bojanic & Lo, 2016).

Theoretically, it has been argued that exports contribute positively to the RGDP through foreign exchange earnings, enhancing efficiency through competition, exploiting economies of scale and promoting the spread of technical knowledge (Tanna et al., 2018). Much research has used the ELG hypothesis for both developed and developing countries: Habibi et al. (2018) on Greece; Tang & Abosedra (2016) on Jordan; and Jouini (2015). There are two branches of the ELG hypothesis in tourism literature. One is known as Tourism Capital Imports to Growth (TKIG) (Du et al., 2016) and the other one is recognized as the TLG hypothesis. The former asserts that increase in quantity inputs lead to RGDP and is empirically tested in Spain. This is confirmed by Sokhanvar (2019) whereby Spain's tourism receipts enabled the imports of capital goods for economic development and industrialization since the early 1960s. For the latter (TLG) standpoint, it is very similar to the ELG hypothesis. The TLG hypothesis simply means tourism as a nontraditional export apparently causes long run RGDP. Consequently, the overall RGDP is triggered by tourism activities. On the other hand, the rapid RGDP of an economy is said to be able to attract domestic and foreign tourists which in turn triggers growth-led tourism. Even though TLG is directly derived from the ELG hypothesis, the studies on this

subject are rather limited, such as Kreishan (2015) who investigated the relationship between tourism and RGDP. As mentioned previously, thus far there is little theoretical literature on the TLG hypothesis but on the other hand more empirical papers are evident (Dogru & Bulut, 2018). Tang & Abosedra (2016) were the first to examine the TLG hypothesis, followed by Chang & Lee (2017) on Hatemi-J (2016). Whether it is tourism growth causing RGDP or conversely, RGDP leading to tourism expansion is still debated currently (Dogru & Bulut, 2018).

From the long-term perspective, the ELG hypothesis supports tourism in the sense that the latter would also lead to the long run growth based on several contentions. First, foreign exchange earnings from tourism activities can be used to import capital goods or raw materials as inputs for the local production leading to RGDP. This is proven in Tunisia where capital accumulation has greatly helped its economy. Second, the increase in international tourism has stimulated the local industry to increase efficiency in order to compete with enterprises from other countries, thus leading to increasing income and RGDP. Third and lastly, the tourism industry enables local firms to tap economies of scale (Hatemi-J, 2016), thus leading to higher production, cost efficiency and RGDP. In the context of neoclassical theory, an initiator who incorporated production function to investigate ELG and TLG on Mauritius. Hatemi-J (2016) uses variables such as physical and human capital, and disaggregated exports in his study. The other researchers who follow his footsteps are Dogru & Bulut (2018) and Kreishan (2015). Shafiullah et al. (2017) incorporate the production function framework in the model to investigate which three components of exports, namely manufacturing, semi manufacturing and primary exports contribute to RGDP in Pakistan from 1972-2005. They run Johansen cointegration, ECM and Toda and Yamamoto Granger causality. Semi-manufactured exports and manufactured exports are found to have long run and contemporaneous effects on RGDP in the Johansen cointegration tests. ECM results show that manufactured exports are more responsible for generating growth in the short run in Pakistan.

Scholars have studied whether any causality exists between real exports (RX), human development (HD), RGDP (RGDP), and real physical capital (PC) in Pakistan during 1970-2009, using Augmented Granger causality and ARDL framework to assess trivariate, bivariate and tetravariate causality. Results of the ARDL approach show that the use of HD index may enhance the robustness of the regression model. Empirical findings suggest that export-led growth does not exist in Pakistan but instead, exports are found to be driven by the level of growth. The study also reported a human-based endogenous growth in the long-term. The causality test shows that RGDP Granger cause RX, whereas for HD and RDGP's causal relationship, the trivariate, tetravariate and bivariate tests indicated the acceptance of the null hypothesis, thereby suggesting that there is no causal relationship running from HD to RDGP. For tetravariate causality among RX, HD, RGDP and PC, the results reveal that a causal relationship exists from PC to RGDP. Thus, the empirical findings mean a rejection of the human capital and export-led growth hypothesis. Instead, exports in Pakistan are found to be driven by economic growth.

The Cobb-Douglas production function can be developed by adding tourism, government expenditure, and exports into the model as additional variables, where tourism is a non-standard type and export is a standard type. This function has also been expanded by Tang & Abosedra (2016) for the purpose of integrating tourism with the standard production inputs, i.e. human capital and physical capital. In this regard, Brida et al. (2016), proposed an empirical perspective, i.e. the Cobb-Douglas function, which is distinguished by returns to scale, is a simple theoretical framework for empirical research. Therefore, this study intends to measure the causality between neoclassical production function, RGDP and tourism in the context of Thai economy.

For a very long time, the developed as well developing economies' policymakers and economists have been anxious about the contribution of government expenditure to RGDP. There are two fundamental arguments, and the first one is that government spending is a national income outcome and is an endogenous factor. This perspective is referred to as Wagner's Law. The second is the Keynesian perspective which asserts that government spending contributes to the RGDP and is viewed as an exogenous factor. Thus, the Keynesian theory and Wagner's Law are the two fundamental arguments regarding the direction of government spending and RGDP relationship. One of these economic theories, either the Wagnerian and Keynesian variant, holds in this study. According to Aregbeyen & Kolawole (2015), if the causal relationship runs from national output to government spending then government tourism spending tends to play a passive role in the economy. Conversely, if the causal relationship runs from government spending to national output, then government expenditure is deemed to be a significant policy variable.

For a very long time, no specific model has been identified for determining the RGDP and government spending relationship. Adam Smith and a few other classical economists directed their attention to the inclination of long-term government expenditure trends, but no effort has been made to develop a general theory for measurement. After hundred years, a German economist, initiated and formulated a simple model for estimating government spending. In Wagner's view, government spending is a growth outcome and is an endogenous factor. With an increase in per capita income, the significance of the public sector also increases, which implies that inevitable features of a growing state are of significant importance (Simon, 2019). Wagner was a pioneer in identifying a positive relationship between the size of government and level of economic development. Thus, the formulation of Wagner's view makes Wigner's Law which was first introduced in the late 19th century. The major contribution of Wagner's law is its generalization about government spending, by making direct inference based on the historical evidence. According to this law, there is a long-run tendency of public spending to growth in comparison to national income or GDP. Wagner's law has also been supported by several time series analyses and other empirical evidence.

Keynesian theory is very different to Wagner's law and the former is based on the role of government in response to aggregate demand, during the period when an economy is experiencing stagnation or decline. Hein (2015) believed that government spending has the ability to significantly contribute to the RGDP by increasing the aggregate demand. Resultantly, the use of expansionary fiscal policy increases incomes and economic activities and reduces unemployment. According to Hein (2015), an increase in government spending will trigger an increase in national income. Thus, the direction of the causal relationship in Keynesian theory is from government expenditure to national income. Government expenditure acts as a significant tool for stimulating the process of RGDP and is an important exogenous factor. However, it is not a government growth theory, but instead an appropriate economic stabilization theory. Several developing countries' experiences have supported the Keynesian proposition about RGDP, which occurred as a result of these countries' implementation of expansionary fiscal policy and by analyzing the trends of RGDP. However, this theory is not necessarily applicable to all economies at all times - only to a few developing economies.

Tourism's Impacts and Economic Significance

The tourism industry employs many different segments of the population and it provides a significant value to economic activities. Since tourism is well integrated into the economy (Liu et al., 2017), it is said to have close connections with other economic activities, is able it to stimulate the global economic system via tourism economic impact multipliers. The tourism economic impact multiplier starts with the expenditures of tourists for goods and services such as accommodations, food and beverage, and shopping in an itinerary that shows direct

contribution to the hotel, restaurants and retail stores (referred as direct impact). These tourism direct related sectors will then pay workers' salaries and wages for the supply of services and purchasing of merchandise from other business sectors in the economy to be used in the businesses (indirect impact). The workers who receive the money from tourism directly related sectors then purchase goods and services with the income. The business enterprises which get the money from tourism direct related sectors, on the other hand, would purchase the supplies from other business sectors which is not related directly to the tourism activities in the region (induce impact), thus creating a chain effect in the economy. The cumulative result is the impact of tourist expenditures in the economic system (Berzina & Lauberte, 2018). When additional money is brought in by tourists to the host area, it induces extra business activities in the area and creates more activities such as sales, employment, income, and government revenue in terms of taxes in the area. This process will lead to the multiplier effect in the economy.

The main economic significance of the tourism multiplier effect on the host in the tourists' itineraries is whereby the tourists use their monies earned at the place of origin and spent in the places they visited in the form of tourist expenditures. The flow of money from tourist expenditures is recycled and respect in their itineraries, thus results in the income increases by a greater amount than itself, this is known as the multiplier effect. The size of the multiplier effect depends on how much and how many times the original income is re-spent at each stage as well as the level of savings and imports as leakages through purchases (Holden, 2016).

In terms of tourism contribution, it can generate effects to the macro and micro economic. One of the significances of the tourism industry is to provide jobs to the local residents. Tourism creates jobs not only for its own sector but also for the other sectors in the economy as it is interdependent with other services sectors such as hotels and restaurants, wholesale and retail trade, transport, etc. Besides, being sources of income and employment generation (Dodds & Ko, 2016), transportation systems, shopping and entertainment facilities, and also other public facilities. Therefore tourism enable not only the places of destinations to enjoy extra source of income, favorable balance of payment, job employment, infrastructure and amenities (Pillmayer & Scherle, 2014), better and higher standard of living.

Government Expenditure and Tourism

It is unavoidable to engage tourism with public economics and environmental economics due to market failures in the industry because it relies, to a great extent, on natural or man-made environments. This is where the government comes in. The role of the government is important as it ascertains that the country achieves prosperous RGDP and is always in a state of stability. Specifically, government plays an important role in the development of tourism Nawaz & Hassan (2016) as it recognizes the crucial function of tourism towards an economy and therefore is trying to exploit its potential (Brida & Zapata-Aguirre, 2010). This includes preparing efficient transportation infrastructure; safeguarding the country's political stability to guarantee tourists safety; providing conducive environment for private sectors to grow and flourish as well as formulating effective tourism strategies and planning for the development of the sector. Loutfi et al. (2000) find that in the competitive world, the most crucial features for a country to fight for in order to get the market share are the infrastructure and resources. That is why one must not forget that to develop tourist attraction area, as according to author, requires a significant budget from the government to provide basic facilities and infrastructures in the first place. Government in practice finances a large part of infrastructure required for tourism (Rasoul, 2017).

There are many economic factors that encourage government to support and finance tourist related activities such as favorable balance of payment, regional development, diversifying the economy, higher income levels, increased government revenue (taxes) and new job opportunities (Pearce, 1991). For instance, direct involvement of the government in setting up

tourism and hospitality facilities in Kenya in the 1970s and the 1980s has resulted in the speeding up of the development of that industry (Nawaz & Hassan, 2016).The basic behavior of government in its public finance or fiscal policy is that initially it spends money and collects it back as revenues later. However, the government does more than spend and collect tax.
Researchers examine Wagner's law and Keynesian approach based on annual data from 1970-2006 in Thailand by using Auto Regressive Distributed Lag (ARDL). They use both bivariate and multivariate models to study two scenarios: one relating aggregate government expenditure and GDP and another relating government spending on education and GDP. Bivariate reveals Wagner's law is supported while in multivariate framework, Keynesian hypothesis is suggested. They conclude that omitted variables bias can significantly change the validity of Wagner's law. Incorporating two dimensions of government namely size proxied by government expenditure and quality proxied by government in neoclassical production function, Cooray (2009) intended to determine the role of government in RGDP on a cross section of 71 countries ranging from developed, developing and transition nations between 1996-2003. He found that both the size and quality of government are crucial for economic expansion. In other words, the increase of government expenditure and good governance can lead to RGDP. Besides, human capital is also found to be of positive statistically significant affecting RGDP. Employing Douglas production function, scholar measure the effect of capital formation on RGDP in western China and make comparison with eastern and central regions. They adopt variables closely related to capital formation such as local fiscal expenditure, central government investments, loans, equity financing, FDI and private investment. Prior to OLS approach, they examine the data from 1992 to 2006 using unit root and cointegration tests to avoid spurious regression.

Model Specification

With respect to chronology, the pioneer outstanding paper in growth theory was written by Ramsey in 1928 dealing with utility function and individual inter-temporal optimization. After Ramsey, late in 1950s, Nilofer & Qayyum (2018) and Greiner et al. (2005) appeared to relate Growth Theory with Keynesian analysis. Their contribution seemed to be appreciated by the economists of the post Great Depression era, but the current literature does not take into account this approach. The most significant contribution to the growth literature was developed by Aniket (2018), though in the same year they were independent of each other and the models were published in different journals. The former was in the US and the latter was in Australia. They observed that growth relied on labour and capital which in turn determined technological change. In the growth literature, their models are said to be the most outstanding which involve neoclassical production function with constant saving rate, constant returns to scale, diminishing returns for inputs such as labour and capital, and positive substitution rate between inputs. After Aniket (2018), the next model developed in growth theory was known as the Diamond model. They adapted Ramsey's analysis and accounted saving as internal in the model. This model makes sure that the worker and capital's productive factors are rated based on their marginal products, this is very much similar to decentralized competitive structure. The next model involved in Growth Theory was introduced by Teece (2018) about increasing return to scale generated by production and investment. The ideas arose based on the learning by doing concept which stemmed from innovation that spilled over to the rest of the economy. Ramlan & Ram (2018) and Saidu et al. (2018) entered with their reinvented RGDP theory with their short run macroeconomic problem investigation, long run growth, and replaced 'new growth theories with internal technological developments' with 'neoclassical growth models with external technological developments'. In the early 1970s, the growth models had been ignored due to the models undertaken technically and therefore the connection with empirical studies stopped. Meanwhile, the short run macroeconomic fluctuations became the focus of attention. The breath of growth models were shaped by Ramlan & Ram (2018) and Saidu

et al. (2018). The models did not regard technological change, treated growth as infinite as there were new types of capital involved and these new factors of production did not work according to the law of diminishing returns. Between 1987 and 1990, Romer was involved in research and development (R&D) and imperfect competition in the growth models. In addition, Kung & Schmid (2015) had also contributed R&D factors to the models that brought forth monopolistic power. It is said that positive long run growth would hold if the innovation and creative information goes along in the economy. This study relates Cobb Douglas Production Function with growth theory from Aniket (2018), Hamdan (2016) and Chow (1993). In economics, the function that explains the relationship between an output and inputs can be represented by Cobb-Douglas production function. Initially, Knut Wicksell (1851-1926) proposed this function and later in 1900-1928, Charles Cobb and Paul Douglas tested it with statistical evidence. For the empirical specification, the first model, neoclassical aggregate production function is used as a platform to show that physical capital, human capital and labour enter as inputs in the general production function as:

$Y_t = A_t f(PK_t^{\alpha}, HC_t^{\beta}, L_t^{1-\alpha\beta})\ldots$ (1)

where Y denotes the real GDP, PK denotes domestic physical capital, HC is human capital, L is labour force and A is measure of Hicks-neutral technological progress that also represents multifactor productivity.

$\frac{Y_t}{L_t} = A_t(\frac{PK_t}{L_t})^{\alpha} * (\frac{HC_t}{L_t})^{\beta}$ ……. (2)

$y_t = A_t pk_t^{\alpha} hc_t^{\beta}\ldots$ (3)

where yt is the output per labour, pk_t^{α} is physical capital per labour and hc_t^{β} is human capital per labour. The second model is the framework from Feder (1983). According to Feder (1983), the economy consists of two sectors such as export (X) and non-export (N) and each of the sectors has different production function, which requires both the capital (PK) and labour (L) to produce the output as shown in (4) and (5) respectively

$N = Af(PK_N, L_N, X_N)\ldots\ldots$ (4)

$X = Af(PK_N, L_N)\ldots\ldots$ (5)

The study extends the existing literature by building on Feder's model on export (X) and non-export (N) sectors. The model is then written as:

$y_t = Af(pk, hc, X, N)$ …..… (6)

This study sees tourism receipts (TR) as a non-export item and substitutes TR with N in equation (7) to become:

$y_t = Af(pk, hc, X, TRC)$ …..… (7)

A few researchers have attempted to trace and capture this phenomenon by integrating tourism into aggregate production function (Dogru & Bulut, 2018; Kreishan, 2015). Thus, TLG hypothesizes that tourism expansion provides a significant contribution to RGDP. The relationship between government spending and RGDP in this study is based on a framework analogous to Ram (1986). His two-sector production function is based on original Feder (1983) exports and RGDP model. Ram (1986), followed models who assumes that the economy consists of a government (GOV) and a non-government (NGOV) sector:

$NG0V = NGOV(PK_N, L_N, GOV)\ldots\ldots$ (8)

$GOV = GOV(PK_N, L_N)\ldots\ldots$ (9)

GTEx (denoted as GTEx) is added as another independent variable while human capital, on the other hand, is further divides into government expenditure on education (GEEx) and health (GHEx). When taking all the mentioned variables into consideration and arranging according to the priority, the model of the study becomes:

$Y_t = \emptyset_0 + \emptyset_1 TRC_t + \emptyset_2 GTEx_t + \emptyset_3 GEEx_t + \emptyset_4 GHEx_t + \emptyset_5 X_t + \emptyset_6 PK_t + \varepsilon_t$ …..… (10)

To determine the RGDP with respect to a linear logarithmic production function is used. Thus model (3.9) has becomes (3.10) as follows:

$$GDP_t = \emptyset_0 + \emptyset_1 \beth TRC_t + \emptyset_2 \beth GTEx_t + \emptyset_3 \beth GEEx_t + \emptyset_4 \beth GHEx_t + \emptyset_5 \beth X_t + \emptyset_6 \beth PK_t + \varepsilon_t \ldots\ldots (11)$$

Research Methods

Measurement

RGDP (Y) is specified using Real GDP per capita as a proxy for economic expansion. It is one of the most used macroeconomic indicators for measuring growth (Barro & Sala-i-Martin, 2004; Mankiw et al., 1992) Tourism Receipts (TR): Real tourism receipts (TR) is used as a proxy of tourism growth (Adamou et al., 2010; Dogru & Bulut, 2018). TR is preferred as compared to tourist arrivals because it is a universal measured consistent index collected by national and international agencies. In addition, it contains monetary transaction values well corresponding with GDP. A positive sign for TR is expected since it is a nonstandard type of export which contributes to tourism receipts from foreign tourists. Government Tourism Expenditure (GTEx) is proxied by real GTEx. A positive sign is expected in G since government earnings are injected into the economy as government expenditures.

Physical Capital (K): Real gross fixed capital formation per labour is used as a proxy of physical capital (K). Real gross fixed capital formation measures both private and public national investment (Carbonell & Werner, 2018). It has been used in the study by Makhetha & Rantaoleng (2017) and Sakyi et al. (2015). The expected sign for K is positive since based on the Neoclassical Growth Theory, K is the important determinant of growth. Human Capital (H): In this study, human capital investment is proxied by government operating expenditure on education (He) (Ramlan & Ram, 2018); as well as government total expenditure on health (Hh) Ramlan & Ram (2018). The rationale is that an increase in government spending on human capital development such as education and health is expected to increase the output in the economy since they increase the productivity of the workers. For instance, spending on education on one hand, enable the national to acquire skills to become knowledgeable nation; spending on health on the other hand will lead to healthy and fit labour forces to increase the higher level of productivity (Mostepaniuk & Parish, 2019).

Exports (X): Real manufacturing exports are used as a proxy of exports (X). This variable has been used in the studies by Shafiullah et al. (2017) and Kreishan (2015) among the few. The expected sign of X is positive since X is a standard type of export of goods contributing through foreign exchange, production efficiency through competition and economies of scale.

Method

Many economic time series are non-stationary but there may still exist the long run relationship between those non-stationary variables. According to Asteriou & Hall (2015), cointegration means non-stationary variables are integrated in the same order with residual stationary. Having tested the series for unit root and identify the order of integration, Wang et al. (2016) is employed for the studies when testing more than two series. This multivariate approach is the most popular in cointegration methods as it is able to estimate several cointegration relationship at a time. Johansen cointegration method is of great importance to time series data because it is capable to test for the number of cointegrating vectors (r) existing between a number of time series (n) as well as it permits the researchers to test on these vectors based on selected restrictions. In other words, by using this method, researchers are able to perform a few tasks at once from a set of non-stationary series, i.e., besides estimating and testing the equilibrium relationship, the researchers can also abstract short run deviations from the equilibrium. As for the long run relationship, it would appear between a set of *I*(1) variables with one or more cointegrating vectors Wang et al. (2016). The following methods are used to test the cointegration long run relationship between GDP, tourism receipts, government revenue, physical capital, education, health and exports. Two non-stationary variables are said to be cointegrated if they are integrated in same order plus the existence of one or more linear combinations between them are stationary. Since the two series are cointegrated, they are

prevented from drifting away from one another in the long run and there is a pressure to converge them into long run equilibrium. If cointegration is found in the series, then one should apply VECM to test for the Granger causality to avoid misspecification problems (Granger, 1988). The VECM is a multivariate dynamic model that comprises a cointegrating equation. If the variables are stationary but not integrated, VECM should not be applied but instead Vector Autoregressive (VAR) model should be used to examine the dynamic relationship between the variables. VECM imposes cointegration on its variables which is a special case of VAR that enables the researchers to differentiate between short run and long run Granger causality. To refrain from misspecification and neglecting the important constraints, relevant error correction terms (ECTs) must be included in the VAR. n the case where cointegration is nonexistence, the standard first difference vector VAR model is adopted. The VAR models will be the same as the above except that ECT must be eliminated from both the equations. This indicates that only short run causality information can be checked.

$$\Delta GDP_t = \emptyset_{01} + \sum_{i=1}^{p} \emptyset_{11i}\Delta GDP_{t-1} + \sum_{i=1}^{p} \emptyset_{21i}\Delta TRC_{t-i} + \sum_{i=1}^{p} \emptyset_{31i}\Delta GTEx_{t-i} + \sum_{i=1}^{p} \emptyset_{41i}\Delta GEEx_{t-i} + \sum_{i=1}^{p} \emptyset_{41i}\Delta GHEx_{t-i} + \sum_{i=1}^{p} \emptyset_{41i}\Delta X_{t-i} + \sum_{i=1}^{p} \emptyset_{41i}\Delta PK_{t-i} + u_{uit} \ldots\ldots (12)$$

$$\Delta TRC_t = \emptyset_{01} + \sum_{i=1}^{p} \emptyset_{11i}\Delta GDP_{t-1} + \sum_{i=1}^{p} \emptyset_{21i}\Delta TRC_{t-i} + \sum_{i=1}^{p} \emptyset_{31i}\Delta GTEx_{t-i} + \sum_{i=1}^{p} \emptyset_{41i}\Delta GEEx_{t-i} + \sum_{i=1}^{p} \emptyset_{41i}\Delta GHEx_{t-i} + \sum_{i=1}^{p} \emptyset_{41i}\Delta X_{t-i} + \sum_{i=1}^{p} \emptyset_{41i}\Delta PK_{t-i} + u_{uit} \ldots\ldots (13)$$

Research Results

The calculated t-statistic of ADF test is higher than the critical value of ADF test statistic at 1 per cent level of significance, this implies that the null hypothesis of unit root for GDP, TRC, GTEx, GEEx, GHEx, X, and PK cannot be rejected at 1 per cent level of significance for constant. 1st difference tests results from ADF indicating that GDP, TRC, GTEx, GEEx, GHEx, X, and PK are stationary after first differencing at order one.

Table 1 Lag Length Selection Criterion

Lag	LogL	LR	FPE	AIC	SC
0	-730.929	NA	4.05e+12	46.058	46.332
1	-624.659	166.047*	5.24e+10*	41.667	43.590*
2	-585.566	46.418	5.58e+10	41.473*	45.046

To answer the second research objective, the results of short run Error Correction Model for RGDP are presented in.

To establish the existence of long run relationship among these variables, a cointegration test by Johansen with two test statistics, namely trace statistic and maximum eigenvalue statistics are performed. The null hypothesis indicates the variables in the study are not integrated. To reject the null hypothesis requires the cointegration test of trace and maximum eigen values to be greater than at least one from the critical values. Thus, failing to accept the null hypothesis of no cointegration draws the conclusion that the long run equilibrium relationship between RGDP and its explanatory variables over time does exist. Moreover, the p-value is 0.09 which is greater than the 5 per cent level.

Table 2 Johansen cointegration test

	Model 1	**Model 2**
GDP_{t-1}	0.0177***	0.0089**
	(2.321)	(4.244)
TRC_{t-1}	0.0198**	0.0170
	(3.421)	(3.149)
$GTEx_{t-1}$	0.0254**	0.0243**
	(4.321)	(3.071)
$GEEx_{t-1}$	0.0222***	0.0284*
	(2.921)	(4.075)
$GHEx_{t-1}$	0.2138**	0.0633**
	(3.721)	(3.098)
X_{t-1}	0.0254**	0.3214*
	(4.371)	(4.075)
PK_{t-1}	0.0222***	0.4633**
	(2.0112)	(3.098)

Conclusion and Discussion

Tourism receipts results in a double effect in Thailand where it is not only contributing to tourism-led growth but also the multiplier effect in the country. For instance, when tourists pay for goods and services such as accommodations, food and drinks, and shopping in a destination, the money is directly contributed to the hotel, restaurants and retail stores (direct impact). These tourism direct related sectors then pay the workers' wages in payment for the supply of services, besides paying for the merchandise purchased from other business sectors in the economy to use in their businesses (indirect impact).

In relation to government operating expenditure on tourism, it shows that tourism attractive policies to enhance RGDP implemented at present are effective. Moreover, according to Osoba & Tella (2017), operating expenditure contribute more than capital expenditure. Thus, channeling funds to this sector should not be stagnant but to continue and increase further as the country's RGDP does not come from physical capital, human capital or exports alone, as shown in the findings, it also stems from GTEx. The efficient utilization of government budget to promote RGDP is an important policy objective (Chirwa & Odhiambo, 2016). This may further suggest that the government should continue with the improved tourism policies with more budget allocation to attract and meet the demand from the international tourists in order to enhance further growth. For instance, more funds should be injected into tourism to promote Thailand to other countries, and to support the attractive tourism activities and packages.

Developing efficient physical capital is important to a country. This is seen in the Granger causality results from physical capital to RGDP in both the short and long run. This implies that the government and private sectors have to play an important role by providing more funds to the development of physical capital to support the economic activities in Thailand. To secure a sustainable long run RGDP, the only method is to manage the development of sustainable infrastructure in the right way. This is because the amount of capital invested by the government and private sectors permit greater production, efficient transportation, industrialization, greater markets as a result of population expansion, more favorable terms of trade and technical progress to occur. Therefore, higher capitals facilitate greater RGDP. On the other hand, Granger causality from RGDP to physical capital is also found in the short run, suggesting that Thailand should strive to achieve robust RGDP in the first place in the short run. In general, though the study does not differentiate the value of capital stock between private and public sectors, the study is able to obtain a fairly reliable measure of the trend in fixed investment in Thailand.

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