7th International Economics & Business Management Conference, 5th & 6th October 2015

Are Shadow Economy and Tourism Related? International Evidence

Badariah H. Din[*a], Muzafar Shah Habibullah[b,c], A.H. Baharom[d], and M.D. Saari[b,c,e]

[a]College of Law, Government and International Studies (COLGIS), Universiti Utara Malaysia
[b]Financial Economics Research Centre (FERC), Faculty of Economics and Management, Universiti Putra Malaysia
[c]Department of Economics, Faculty of Economics and Management, Universiti Putra Malaysia
[d]Taylor's Business School, Taylor's University
[e]Institute of Agricultural and Food Policy Studies, Universiti Putra Malaysia

Abstract

The present study attempts to investigate whether shadow economy and the tourism sector are related. In the European countries, Schneider reported that 20 to 25 per cent of the shadow economy is represented in the tourism-related industries – wholesale and retail, automotive and motorcycle sales and maintenance; transportation, storage and communications; and hotels and restaurants. For the tourism sector, the services given by operators (unregistered and/or underreporting) operate in the shadow economy will ultimately wiped off the map of high quality tourist destinations and destroyed the development of the tourism industry itself. This study examines the short-run and long-run relationships between international tourism receipts and shadow economy for 149 countries over the period 1995-2008. We use a generalized one-step error-correction model (ECM) in combination with a system Generalized Method of Moments (GMM) to explore the long-run relationship between these two variables. Our results suggest that tourism receipts and shadow economy are cointegrated. This implies that shadow economy and the tourism industry worldwide are related in the long-run. The long-run elasticities indicate a negative impact of the shadow economy on the tourism sector suggesting that increase in shadow economy activities will adversely affecting the tourism industry.

Keywords: Tourism, Shadow economy, Governance, Error-correction, System GMM

* Corresponding author. Tel.: +604-9287922; fax: +6049284205.
  E-mail address: badariahdin@uum.edu.my

1. Introduction

The tourism sector is an important driver for economic growth by contributing foreign exchange earnings, increasing wealth and provides employment and business opportunities for the communities. The tourism industry can also play a leading role in the alleviation of poverty particularly in the developing economies. The World Travel and Tourism Council (WTTC, 2014) reports that the tourism industry contributed 9.5 per cent of the global gross domestic product, 8.9 per cent of the worldwide total employment and 5.4 per cent of the world's export in 2013. During the same period, the tourism sector, in terms of international tourist arrivals have reached a record 1.1 billion arrivals worldwide, with USD1160 billion in international tourism receipts. International tourism receipts are the earnings generated in destination countries from expenditure on accommodation, food and drink, local transport, entertainment, shopping and other services and goods. Europe share the largest number of international tourist arrivals (563.4 million) followed by Asia and the Pacific (248.1 million), the Americas (167.9 million), Africa (55.8 million) and the Middle East (51.6 million). In terms of growth, the Asia and the Pacific recorded a 6 per cent increase in international tourist arrivals, followed by Europe and Africa (5.4 per cent), and the Americas (3.2 per cent).On the other hand, the Asia and the Pacific region (+8 per cent) recorded the largest increase in international tourism receipts, followed by the Americas (+6 per cent) and Europe (+4 per cent). However, for the year 2013, the Middle Eastern countries experienced a decrease in both international tourist arrivals (-0.2 per cent) and international tourism receipts (-1.9 per cent)(WTO, 2014).

Tourism has become one of the largest and fastest growing industries (UNEP, 2013). The importance of tourism is not only limited to its contribution to the nation's income, job and business opportunities, but it is also importance as it involves diverse tourism-related industries as well. The tourism value chain incorporates many sectors of the economy through both the backward and forward linkages: tourism needs the development of basic infrastructure services such as energy, telecommunications and environmental services; agriculture, manufacturing and other support services; and the tourists need supplying services from the financial, telecommunications, retail, recreational, cultural, personal, hospitality, security and health services, among others (UNEP, 2013). However, it has been recognized that the prevalence of the shadow economy can be an obstacles that can limit and disrupt the development of the tourism industry (Smith, 2011).

As pointed out by Webb et al. (2013), Armbrecht and Carlback (2011) and Smith (2011), shadow economy will affect competition and progress in the tourism sector; loss of revenue since tax evasion is prevalence in the shadow economy and fund cannot be plough back into the tourism sector, thus impairing the industries potential for growth and development; avoid labour, health and environmental regulations – with untrained staff without any social security and with working conditions that does not follow any health and safety regulations, and using harmful fuels, chemicals and other raw materials creating negative externalities to the environment and local communities. Armbrecht and Carback (2011) stress that "the unfair competition due to tax evading activities potentially affects serious businesses' possibilities to stay on the right side of the law and consequently the tax morale in the industry and in the country". Furthermore, less investment and new talent could then speed up the downward spiral of the tourism industry.

The purpose of the present study is to investigate the long-run relationship between tourism and the shadow economy in 149 countries for the period 1995-2008, by using the error-correction model combined with the system Generalized Method of Moment estimator.

The paper is organized as follow. In the next section we discuss some related literature relating tourism, crime and shadow economy. In section 3 we present the method used in the analysis. Section 4 elaborates the results, while the last section contains our conclusion.

2. Tourism, crime and the shadow economy

The number of tourist arrivals has been linked to the level of safety of the destination countries. It has been pointed out that the developing countries and particularly the least developed countries suffers from law and order problem and therefore a risk to potential tourists (Levantis and Gani, 2000; Perry and Potgieter, 2013; Moyo and Ziramba, 2013). Altindaq (2014) point out that besides terrorism and war, countries with higher crime rates will receive fewer visitors from abroad. The negative impact of terrorism on international visitor demand are supported by Fleisher and Buccola (2002), Smyth et al. (2009), Feridun (2011), and Drakos and Kutan (2003). On another note, organized crime

also plays a part in the tourism industry. According to Mekinc et al. (2013) tourism is appealing to organized crime because poses opportunities to invest illegally gained money into hotels and other tourism related facilities and activities. Prostitution, gambling, drug trafficking, and illegal migration are typical activities involving organized crime. Thus, by investing criminal proceeds into tourist infrastructure is one way to launder illegally gained money.

Terrorism, organized crime, illegal market activities has been linked to underground or shadow economy (Warde, 2014; Schneider and Enste, 2000). The broad definition of the shadow economy would include both legal and illegal market activities, monetary and non-monetary transactions that are not included in the calculation of the gross domestic product. Studies have indicated that the existence of the shadow economy has been a major obstacle for the development of the tourism sector. Shadow economic activities has been detected to be associated with tourism-related activities and facilities such as wholesale and retail, hotels and restaurants, and transportation and communication industries. Schneider (2009, 2013) reports that in Turkey, Spain, Italy, Germany and Poland; the shadow economy comprises 25 to 35 percent of the tourism-related industries - wholesale and retail, hotels and restaurants, and transportation and communication industries. In Croatia, Radnic and Ivandic (cited in Bicanic and Ott, 1997) reported that the shadow economy in tourism and the hotel and catering industry was 22 percent. On the other hand, Schneider (2010) reports that the shadow economy in the tourism sector in Greece is 22 percent of the official economy. The UNCTAD Secretariat (2013) point out that "The majority of tourism-related business in developing countries, particularly in least developed countries (LDCs), tends to be small, medium-sized and micro enterprises, many of which are operating in the informal economy."

The negative impact of the shadow economy on the tourism sector has been reported by Pavicevic (2014). Pavicevic point out that the development of the Montenegrin tourism has been halted as a result of the uncontrolled activities in the shadow economy. The uncontrolled huge number of unregistered informal sector on the Montenegrin coast beds in private accommodation, holiday houses and apartment would compromise the high quality tourist destination and destroyed the development of the basic industries in the Montenegro Gori. On extreme case, shadow economy forms a major component of the 'real economy' in Mindanao, Philippine. Mindanao's shadow economy include the proliferation of illegal firearms, kidnapping for ransom, informal land markets, cross-border trade, informal credit provision and illegal drug markets (Schoofs and Lara Jr., 2014). Shadow economy that are outright criminal in nature, such as illegal drug trafficking or kidnap for ransom will shy away tourists. According to Sonmez and Graefe (1998) the risk of terrorism directly influences tourist's decisions.

3. Methodology

To examine the long-run as well as the short-run dynamics of the relationship between tourism and the shadow economy, we employ the popular error-correction model. Banerjee et al. (1993, 1998) has criticized the two-stage error-correction models of giving substantial small-sample bias compared to the one-step error-correction model, where the long-run relation is restricted to being homogenous. In this study, following Bond et al. (1997) and Yasar et al. (2006) the generalized one-step error-correction model (ECM) is estimated using the system GMM estimator.

We define the following autoregressive distributed lag model:

$$receipts_{it} = \delta_1 receipts_{it-1} + \delta_2 receipts_{it-2} + \alpha_0 shadow_{it} + \alpha_1 shadow_{it-1}$$
$$+\alpha_2 shadow_{it-2} + \beta_0 governance_{it} + \beta_1 governance_{it-1} + \gamma_t + \mu_{it} \qquad (1)$$

with $\mu_{it} = \varepsilon_i + \tau_{it}$ and $i = 1, ... N, t = 1, ..., T$, and i is the cross-sectional units, and t is time periods. $Receipts$ is our measure of tourism sector proxy by the international tourism receipts; $shadow$ is the size of the shadow economy; $governance$ is a measure of safety of tourist destination countries. The time-specific effect γ_t, is included to capture aggregate shocks, which can appear in any year. Assuming fixed effects, the cross-section error term, μ_{it}, contains the following two effects: unobserved time-invariant, country effects, ε_i, and a stochastic error term, τ_{it}, which vary across time and cross section.

Following Banerjee et al. (1993, 1998), equation (1) can be transformed into the following one-step ECM equation that provides an explicit link between the short-run effects and long-run effects:

$$\Delta receipts_{it} = (\delta_1 - 1)\Delta receipts_{it-1} + \alpha_0 \Delta shadow_{it} + (\alpha_0 + \alpha_1)\Delta shadow_{it-1}$$
$$+\pi(receipts_{it-2} - shadow_{it-2}) + \theta shadow_{it-2} + \beta_0 \Delta governance_{it}$$
$$+(\beta_0 + \beta_1)governance_{it-1} + \gamma_t + \mu_{it} \tag{2}$$

with $\theta = \alpha_0 + \alpha_1 + \alpha_2 + \delta_1 + \delta_2 - 1$ and $\pi = \delta_1 + \delta_2 - 1$. Parameter π, the coefficient of the error-correction term, $(receipts_{it-2} - shadow_{it-2})$ gives the adjustment rate at which the gap between tourism and shadow economy is closed. If π is negative and significant, then we conclude that the relationship between tourism and shadow economy exists in the long-run. The sum of the changes in the contemporaneous and one-period lagged *shadow* captures the short-run dynamics. To calculate the true long-run relationship (elasticity) between tourism and shadow economy, we subtract the ratio of the coefficient of the scale effect (two-period lagged value of the *shadow* variable) to the coefficient of the error-correction term, from 1; that is, $1 - (\hat{\theta}/\hat{\pi})$.

For consistent and efficient parameter estimates of equation (2), we apply the system GMM approach proposed by Arellano and Bover (1995) and Blundell and Bond (1998). This estimation procedure is especially appropriate when: N is large, but T is small; the explanatory variables are endogenous; and unobserved country-specific effects are correlated with other regressors. Under the assumption that μ_{it} are serially uncorrelated and that the explanatory variables are endogenous, the lagged values of endogenous variables dated $t - 2$ and earlier are valid instruments for the equation in first differences.

To determine whether our instruments are valid in the system GMM approach, we apply the Hansen test, a test of over-identifying restrictions, to determine any correlation between instruments and errors. Failure to reject the null hypothesis could provide evidence that valid instruments are used. Further, we also test whether there is second-order serial correlation with the first differenced errors. The GMM estimator is consistent if there is no second-order serial correlation in the error term of the first-differenced equation.

3.1 The data

This study uses unbalanced panel data on 149 countries for the period 1995-2008. Data on international tourism receipts are taken from World Development Indicator available from the World Bank database. For the measurement of shadow economy, we used the estimates of the shadow economy by Elgin and Oztunali (2012) which provides estimates of the shadow economy until 2008. In this study, six governance measures – voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption were used which was based on the database - World Governance Indicators provided by the World Bank (Kaufman et al., 2008). The indicators were constructed by Kaufman and his colleagues based on several different sources and using the linear unobserved components model to aggregate those various sources into one aggregate indicator. Kaufman et al. (2008) define governance as, "Governance consists of the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them." All variables were transformed into natural logarithm except for the governance indicators.

4. Results and discussions

Equation (2) was estimated using the two-step system GMM, and the results are presented in Table 1. Equation (2) was estimated for each of the six governance indicators – control of corruption, government effectiveness, political stability and absence of violence, rule of law, regulation quality, and voice and accountability in column 2, 3, 4, 5, 6, and 7, respectively. In rows 11 and 12 we calculate the short-run and long-run elasticities of the response of the tourism sector to changes in the shadow economy. In rows 12-14, we report the Hansen test for the test of over-identifying restrictions; and the autocorrelation of the order one and two.

Table 1: Estimated generalized one-step error-correction model: long-run and short-run dynamics of shadow economy on tourism

Independent variables	Dependent variable, $\Delta receipts$					
	Corruption	Government effectiveness	Political stability	Rule of law	Regulation quality	Voice & accountability
$\Delta shadow$	1.9024	0.4249	7.9392	12.897	-3.8749	8.2967
	(12.357)	(9.7108)	(22.066)	(19.966)	(9.5829)	(8.2715)
$\Delta shadow_{t-1}$	-2.6750	-1.5677	-8.6809	-11.533	2.3292	-8.2105
	(11.502)	(8.9792)	(19.740)	(18.372)	(8.4849)	(7.7350)
$shadow_{t-2}$	-0.0344	-0.0333	-0.0186	0.0491	-0.0232	-0.0242
	(0.0322)	(0.0410)	(0.0206)	(0.0955)	(0.0309)	(0.0151)
$receipts_{t-2} - shadow_{t-2}$	-0.0168	-0.0185*	-0.0075	0.0060	-0.0215*	-0.0183
	(0.0129)	(0.0104)	(0.0125)	(0.0282)	(0.0114)	(0.0081)
$\Delta receipts_{t-1}$	0.1199	-0.1344	0.4003	1.1647	-0.3228	0.0072
	(0.5890)	(0.3855)	(0.6762)	(1.1450)	(0.4215)	(0.3542)
$\Delta governance$	-0.2550	-0.3417	-0.2105	2.3074	0.2601	-0.1457
	(0.5376)	(1.0367)	(0.3238)	(3.0334)	(0.5673)	(0.6980)
$governance_{t-1}$	-0.0140	-0.0179	-0.0161	0.0238	-0.0144	-0.0134
	(0.0159)	(0.0237)	(0.0163)	(0.0516)	(0.0141)	(0.0100)
$constant$	-0.0145	-0.0215	-0.0296	-0.1573	-0.0564	-0.0605
	(0.1028)	(0.1495)	(0.1635)	(0.4497)	(0.1189)	(0.0655)
Summation:						
Short-run elasticities	-0.7226	-1.1428	-0.7417	1.3640	-1.5457	0.0862
Long-run elasticities	-1.0476	-0.8000	-1.4800	-7.1833	-0.0790	-0.3224
Hansen test (*p*-value)	0.552	0.334	0.429	0.782	0.495	0.745
AR1 (*p*-value)	0.296	0.328	0.179	0.112	0.441	0.194
AR2 (*p*-value)	0.796	0.747	0.423	0.193	0.488	0.971
No. of instruments	24	24	24	24	24	24
No. of countries	149	149	149	149	149	149
Observations	1304	1304	1304	1304	1304	1304

Notes: Estimation using two-step system GMM, with asymptotically robust standard errors reported in the parentheses. The Hansen test is a test of over-identifying restrictions. The null hypothesis states that the instruments used are not correlated with the residuals. AR1 and AR2 are tests for first- and second-order serial correlation in the first-differenced residuals. The null hypothesis for the second-order serial correlation test states that the errors in the first-differenced regression do not show second-order serial correlation. Lagged levels of shadow and receipts, and receipts-shadow differential (as well as the governance indicators) (dated t-3 and earlier) in the first-differenced equations, combined with lagged first-differenced of shadow and receipts, and receipts-shadow differential (as well as the governance indicators) (dated t-3 and earlier) in the level equations are used as instruments. Constant and year dummies are included in each model but are not reported here. Asterisks (*),(**),(***) denote statistically significance at 10%, 5% and 1% respectively. Figures in brackets are standard errors. All variables are in natural logarithm except for governance indicators.

Results in Table 1 suggest that only in the cases of government effectiveness and regulation quality that cointegration can be found between the tourism sector and shadow economy. Our result shows that the error-correction coefficients is significant and exhibit negative sign. For these estimated equations, the Hansen tests cannot reject the null hypothesis that the instruments are valid. The AR2 test for the second-order serial correlation clearly suggests that the null hypothesis that the errors are serially uncorrelated cannot be rejected. The estimated error-correction models suggest that shadow economy and international tourism receipts are cointegrated. This implies that there is long-run relationship between the shadow economy and the tourism sector (proxy by international tourism receipts).

In other words, the tourism sector and the shadow economy is related in the long-run. The long-run elasticity is -0.80 for equation with government effectiveness, and -0.08 for equation with regulation quality. For example, a 10 per cent increase in the share of shadow economy will have an 8 per cent decline in the tourism sector. Our results further indicate that, in the short-run shadow economy show adverse effect on the tourism sector and the impact is much greater than the long-run. Nevertheless, none of the governance indicators are significant suggesting that there is no role of the good governance impacting the tourism sector.

5. Conclusions

In this study, we investigate the short-run and long-run dynamics of the relationship between the tourism sector and the shadow economy for 149 countries for the period 1995-2008. A generalized one-step error-correction model

is estimated using a system GMM estimator to obtain consistent and efficient estimates of the short-run and long-run relationships between tourism and shadow economy. Generally, we conclude that the temporary (short-run effect) and permanent (long-run effect) shocks of the shadow economy adversely impacted on the tourism sector. We conclude that there is long-run relationship between the shadow economy and the tourism sector worldwide, in other words, shadow economy and tourism are related worldwide. One policy implication of this study is that mitigating shadow economy can enhance the growth in the tourism sector.

References

Altindaq, D.T., 2014. Crime and International Tourism, AUWP 2014-01. Auburn University, USA.

Arellano, M., Bover, O. 1995. Another Look at the Instrumental Variable Estimation of Error Components Models. Journal of Econometrics 68, 29-52.

Armbrecht, J., Carlback, M., 2011. The shadow economy: Its effects on the competition in the Swedish restaurant industry. In "Proceedings of the International Conference on Tourism (ICOT 2011): Tourism in the era of uncertainty". In: Andriotis, R., Theocharous, A., Kotsi, F. (Eds.). International Association for Tourism Policy, Greece, pp. 28-47.

Banerjee, A., Dolado, J.J., Galbraith, J., Hendry, D.F., 1993. Cointegration, Error Correction and the Econometric Analysis of Non-stationary Data. Oxford University Press, Oxford.

Banerjee, A., Dolado, J.J., Mestre, R., 1998. Error-correction Mechanisms Tests for Cointegration in a Single-equation Framework. Journal of Time Series Analysis.19, 267-284.

Bicanic, I., Ott, K., 1997. The Unofficial Economy in Croatia: Causes, Size and Consequences. Occasional Paper No.3, Institute of Public Finance, Croatia.

Blundell, R., Bond, S.R., 1998. Initial Conditions and Moment Restrictions in Dynamic Panel Data Models. Journal of Econometrics 87, 115-143.

Bond, S.R., Elston, J., Mairesse, J., Mulkay, B., 1997. Financial Factors and Investment in Belgium, France, Germany and the UK: A Comparison Using Company Panel Data. NBER, Cambridge, MA.

Drakos, K., Kutan, A.M., 2003. Regional Effects of Terrorism on Tourism in Three Mediterranean Countries. Journal of Conflict Resolution 47, 621-641.

Elgin, C., Oztunali, O., 2012. Shadow Economies around the World: Model Based Estimates. Working Papers 2012/05, Bogazici University, Turkey.

Feridun, M., 2011. Impact of Terrorism on Tourism in Turkey: Empirical Evidence from Turkey. Applied Economics 43, 3349-3354.

Fleisher, A., Buccola, S., 2002. War, Terror and the Tourism Market in Israel. Applied Economics 34, 1335-1343.

Kaufman, D., Kraay, A., Mastruzzi, M., 2008. Governance Matters VII: Governance Indicators for 1996-2007. World Bank Policy Research June 2008. The World Bank, Washington, DC.

Levantis, T., Gani, A., 2000. Tourism Demand and the Nuisance of Crime. International Journal of Social Economics 27, 959-967.

Mekinc, J., Kociper, T., Dobovsek, B., 2013. The Impact of Corruption and Organized Crime on the Development of Sustainable Tourism. Varstvoslovje. Journal of Criminal Justice and Security 15(2), 218-239.

Moyo, B., Ziramba, E., 2013. The Impact of Crime on Inbound Tourism to South Africa: An Application of the Bounds Test. African Security Review 22(1), 4-18.

Pavicevic, R., 2014. Tourism Destroys the Shadow Economy. CG Ekonomist online. Retrieved November 3, 2014 from http://www.cgekonomist.com/?broj=12&clanak=641&lang=en

Perry, E.C., Potgeiter, C., 2013. Crime and Tourism in South Africa. Journal of Human Ecology 43(1), 101-111.

Schneider, F., 2013. The Shadow Economy in Europe. In Kearney, F.

Schneider, F., 2010. The Influence of the Economic Crisis on the Shadow Economy in Germany, Greece and the other OECD-countries in 2010: What Can Be Done? Johannes Kepler University of Linz, Austria.

Schneider, F., 2009. The Shadow Economy in Europe. In Kerney, A.T.

Schneider, F., Enste, D., 2000. Informal Economies: Size, Causes and Consequences. The Journal of Economic Literature 38(1), 77-114.

Schoofs, S., Lara Jr, F., 2014. Mindanao's Shadow Economies. Policy Brief. International Alert, United Kingdom.

Smith, A., 2011. Obstacles to the growth of alternative tourism in Greece. African Journal of Hospitality, Tourism and Leisure 1(3), 1-8.

Smyth, R., Nielsen, I., Mishra, V., 2009. 'I've Been to Bali Too' (and I Will be Going Back): Are Terrorist Shocks to Bali's Tourist Arrivals Permanent or Transitory? . Applied Economics 41, 1367-1378.

Sonmez, S.F., Graefe, A.R., 1998. Influence of Tourism Risks on Foreign Tourism Decisions. Annals of Tourism Research. 25, 112-144.

United Nations Conference on Trade and Development (UNCTAD) Secretariat. 2013. Sustainable Tourism: Contribution to Economic Growth and Sustainable Development. Document TD/B/C.I/EM.5/2. United Nations.

Warde, I., 2014. The War on Terror, Crime and the Shadow Economy in the MENA Countries. Mediterranean Politics 12(2), 233-248.

Webb, J.W., Bruton, G.D., Tihanyi, L., Ireland, R.D., 2013. Research on entrepreneurship in the formal economy: Framing a research agenda. Journal of Business Venturing 28, 598-614.

World Tourism Organization (WTO), 2014. UNWTO Tourism Highlights. World Tourism Organization, Madrid.

World Travel and Tourism (WTTC), 2014. WTTC Economic Impact 2014. WTTC, London.

Yasar, M., Nelson, C.H., Rejesus, R.M., 2006. The Dynamics of Exports and Productivity at the Plant Level: A Panel Data Error Correction Model Approach. In B. Baltagi (Ed.). Contribution to Economic Analysis. Elsevier, Amsterdam.