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Contribution of tourism to economic growth in Iran's Provinces: GDM approach

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ABSTRACT

The aim of this paper is to present a methodology for the decomposition of economic growth by industry which allows between provinces comparisons in Iran. The authors use the growth of real GDP per capita as a measure of economic growth and disaggregate it into economic growth created by tourism and economic growth created by other industries. A Growth Decomposition Method (GDM) is used for measuring the contribution of tourism to an economy's growth for Iran from period 2005–2014. The results show that the impact of tourism on economic growth is positive. Thus, for Iran it appears that tourism on the whole support the growth of the general economy. Results of the average contribution of tourism to economic growth in provinces in Iran show that, khorasan razavi had the highest contribution to economic growth, Gilan took the second place and Ardabil was third with more than 1% and further 28 provinces it still had a positive contribution although less than 1%.

Introduction

Tourism is frequently viewed as an important engine for the economic growth and development of countries (Brida & Risso, 2009; Tang & Tan, 2013), helping to increase the economic welfare of local populations. Research into the measurement of tourism's contribution to economic growth has developed rapidly in the last decade. International tourism is recognized to have a positive effect on the increase of long-run economic growth through different channels. First, tourism is a significant foreign exchange earner, allowing paying for imported capital goods or basic inputs used in the production process. Second, tourism plays an important role in spurring investments in new infrastructure and competition between local firms and firms in other tourist countries. Third, tourism stimulates other economic industries by direct, indirect and induced effects. Fourth, tourism contributes to generate employment and to increase income. Fifth, tourism can cause positive exploitation of economies of scale in national firms (Schubert, Brida, & Risso, 2010). The consumption and purchase of goods and services by tourists can affect many sectors such as accommodation, transport and tour operators, tourism related retail businesses (such as restaurants and souvenir retailers), and attractions (which include natural, cultural/historical and developed sites). Other economic benefits derived from tourism activity include tax revenues, employment and additional sources of income (Archer, 1995; Khan, Seng, & Cheong, 1990). Therefore, tourism should have an impact on the frequently used quantitative measure of economic development, gross domestic product (GDP). Though, measuring the economic impact of tourism requires a wider view on the analysis of the interaction among tourism and GDP (Ivanov & Webster, 2007).

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According to the expenditure approach, GDP includes final consumption, gross fixed capital formation, government expenses and net export (export minus import) (SNA 2008). When international visitors spend money their expenditures are included in the net export, tourist companies' investments are part of the gross fixed capital formation, the expenses of tourism employees and domestic visitors are accounted in the households' final consumption, while government budgets for travel are part of the government's final consumption part of the GDP. Any change in tourism GDP elements influences directly country's GDP. Therefore, tourism always has impact on economic growth, although this impact might be positive in some years and negative in others, or higher or lower than the contribution of other industries (Ivanov and Webster, 2008).

The economic evaluation of tourism is not an easy task. A global analysis instrument developed for this purpose is the Tourism Satellite Accounts (TSA) promoted by the World Tourism Organization (WTO). The TSA provide a total measurement of tourism's economic relevance through macroeconomic indicators such as its contributions to the GDP. There are still no regional TSA in Middle East, in spite of being one of future's most promising sectors, and Iran is no exception. The lack of a feasible statistical system for tourism prevents the direct analysis of the demand of goods and services, a component that could be related to tourism within the economy, as well as the observation of the supply of tourism goods and services within the same economy as a reference (Rodriguez, Martinez, & Pawlowka, 2012). The direct contribution of tourism to the rise of regional Gross Value Added (GVA) can be measured by following the growth decomposition methodology presented by Ivanov and Webster (2007). This technique has been mostly used at the national level. It has only been used on a regional scale by Brida, Punzo, and Risso (2011). Our aim is to apply this technique to measure the contribution of tourism to the economic growth of the Iran's Provinces.

Contribution of tourism to Iranian GDP

The significant role that tourism plays in the Iranian economy is obvious in the considerable contribution on GDP, foreign exchange earnings and employment. In Iran, in line with the country's economic structural change, where services have overtaken Oil and Gas industry as the biggest sector and contributor to the GDP, the tourism industry has also grown concurrently. Based on the information from Iran with data available, the World Travel & Tourism Council (WTTC) estimated that tourism's contribution directly to Malaysia gross domestic product (GDP) was US$ 31.5 bn in 2016 and its forecast to US$ 44.9 bn in 2027. Also, total contribution to employment, including jobs indirectly supported the industry was 6.5% of total employment (1,624,500 jobs). This is expected to rise by 6.2% (1,964,000 jobs) in 2027. Travel & Tourism investment in 2016 was US$ 3.5 bn. It should rise by 5.3% over the next ten years to US$ 6.2 bn in 2027 (WTTC, 2017). The horizon of the future outlook of the Islamic Republic of Iran in 2025, Iran, will become one of major tourist destination in the world. The goals and visions of the country in 2025 in the tourism sector, the entry of 20 million international tourists, US$ 36 bn tourist receipts and 4 million job creation (direct or indirect) has been targeted. That is the reason why the Regional Strategic Programme for Iran seeks to turn Iran into a competitive and sustainable destination in order revitalize the regional economy by 2025 (future outlook of Iran, 2017).

Since tourism affects transportation, hotels and lodging, food & beverage, cultural and entertainment, banking & finance and promotion and publicity services, tourism's contribution to employment tends to be slightly higher. Therefore, the tourism sector has boosted the physical capital investment of Iran (airport, hotels, railway, etc.) and has been a leading source of foreign currency. Nevertheless, Iran still has many infrastructure shortages and inadequacies to overcome as well as environmental and based heritage limitations to manage in order to overcome the negative impacts of tourism.

Despite the enormous and rapidly accelerating accumulation of literature on tourism's impacts on economic growth, we can identify three major gaps in much of what has been written on the topic. Firstly, few attempts have been made to investigate the issue on the regional. Secondly, most of existing research focuses on determining whether there is cointegration and causal relationship between tourism development and economic growth, but does not determine the actual per capita economic growth that is generated by tourism. Finally, the review of existing literature reveals that the factors influencing tourism's actual contribution to per capita economic growth have not been empirically studied. In this regard, the Purpose of this paper is to demonstrate a growth decomposition methodology (GDM) to evaluate the impact of tourism on economic growth for provinces in Iran, based on disaggregating economic growth into two parts economic growth generated by tourism and economic growth generated by other industries.

The rest of the paper is organized as follows: Section 2 reviews the literature. Section 3 focuses on methodology and data. Section 4 presents the empirical results. Conclusion and policy implication are presented in Section 5.

Impact of nuclear agreement on tourism industry in Iran

Last January, the nuclear agreement between, Iran and the five permanent members of the UN Security Council (US, China, France, Russia, UK), plus Germany and the EU became effective. Once approved and implemented, the JCPOA is expected to provide relief from sanctions in four broad areas: (1) export and transportation of hydrocarbon and hydrocarbon-related products; (2) banking and other financial services and transactions, including restored access to the international payment system (SWIFT); (3) access to foreign financial assets; and (4) the sale, supply of parts, and transfer of goods and services to the automotive and air-transportation sectors (tourism), and associated foreign investment. The post-sanctions growth dividend will also depend on the domestic macroeconomic policy response and the pace and content of structural reforms following the removal of the sanctions. Structural reforms of the business climate and labor and financial markets could play a key role in this respect. Macroeconomic policies will also need to be adjusted in the years ahead so that the authorities can achieve their goals of single-digit inflation, a competitive real exchange rate, and sustainably higher inclusive growth. In particular, additional fiscal consolidation would help contain the appreciation of the real exchange rate and support monetary policy in containing demand and achieving the desired

reduction in inflation.

The simple response is that the nuclear agreement is necessary but not sufficient for Iran to attract FDI for promote tourism industry. Today, the rivalry for International FDI is more intense than ever before, due to stagnation in advanced economies and deceleration in emerging economies. As a result, Iran must push investment promotion, upgrade competitiveness, improve the business environment, and communicate its unique advantages, and so on. Iran's economy has grown not only through sanctions but also enjoyed growth has been negative and even negative growth rate. Real GDP growth could rise up to 5/5 percent in 2016/17 and 2017/18, while hovering around 3/5 - 4 percent annually in the years after. The most important driver of growth in the short term would be a recovery in oil production and exports, projected to increase by about 0.6 million barrels per day (mbpd) in 2016 and by about 1.2 mbpd over the medium term. Higher oil output would contribute about three quarters and two-thirds of the estimated economic growth in 2016/17 and 2017/18, respectively.

Literature review

Today, tourism is one of the largest world industries, and is still growing. It is labour intensive and known to have a great potential to attract foreign and public investment, particularly in infrastructure. It also contributes to economic growth (Sequeira & Nunes, 2008). Given these features of the tourism sector, it seems to offer the prospect of simultaneously increasing employment and growth, two of the main long-run policy goals. Tourism provides advantages in overcoming the region of a country in three ways. First, it provides the volume to overcome insufficient market demand enabling greater efficiency and providing economies of scale for more goods and services which decreases the unit costs of production. Second, it increases competition by encouraging new entrants in the market place, which provides a positive impact on the price level of goods and services. Third, tourism, by providing scale and competition together with greater consumer choice and trade openness, can raise the standard of living and thus improve the quality of life in the region a country (Schubert, 2011).

It is usually believed that tourism has contributed positively to economic growth as exports have strongly triggered economic expansion. The international trade theories are supportive of a positive relationship between export and economic growth (Thornton, 1997; Xu, 1996; Ahmed & Kwan, 1991; Jin, 1995). Some of the studies including Marin (1992) indicate that a unidirectional influence of exports growth on economic expansion in developed countries such as United States, Japan, United Kingdom and Germany. Moreover, export promotion and economic growth have considerably reinforced each other in South American and African (Jin, 1995; Bahmani-Oskooee and Alse, 1993). In addition Kulendran and Wilson (2000) and Shan and Wilson (2001) found that a strong reciprocal relationship between international trade and international travel in Australia and China. Theoretical models that regard a causal relationship between non-traded goods, such as Tourism, and economic growth are recent phenomenon (Kim, Chen, & Jang, 2006). In a recent study of the economic growth some researchers show that tourism has a long-run economic growth effect (Lanza, Temple, & Urga, 2003; Balaguer & Cantavella-Jorda, 2002, Tang & Jang 2009; Hye and Khan, 2013, Katircioglu, 2009; Oh, 2005; Ridderstaat et al., 2014), and some of them indicate that reciprocal causality relationship between tourism growth and economic development (Kim et al. 2006; Dritsakis, 2004; Durbarry, 2004; Kumar & Kumar 2012, Lee & Chang, 2008). The tourism-led growth literature claims that tourism specialization spawns economic growth (Algieri, 2006; Perez-Dacal et al., 2014; Ridderstaat, Croes, & Nijkamp, 2016). The growth potential of tourism is revealed through increased terms of trade (ToT). The empirical evidence corroborates these theoretical propositions because small islands, despite the pessimistic predictions of the endogenous growth theory, were able to grow (Brau, Lanza, & Pigliaru, 2007; Croes, 2013; Holzner, 2011).

Fayissa, Nsiah, and Tadasse (2008), this study investigate the Impact of tourism on economic growth in Africa using Using panel data of 42 African countries for 1995 to 2004. The results show that receipts from the tourism industry contribute significantly both to the current level of gross domestic product and to the economic growth and do investments in physical and human capital. The authors' findings imply that African economies could enhance their short-run economic growth by strengthening their tourism industries strategically.

Ecotourism will be positioned as a premier segment of the tourism industry by leveraging biodiversity assets through extensive protection and conservation, supported by targeted branding and promotion activities. Ecotourism products will be developed along the value chain of high-yield tourism by attracting reputable investors who are competent in the conservation and preservation of nature and wildlife. Experience-enriching elements, such as tourism facilities, interpretive centres, safety measures, and communications, will be strengthened. The development of ecotourism will also offer greater opportunities for local communities to participate in related income-generation activities to raise living standards. Azam, Mahmudulalam, and Hafeez (2018), this study examine the effect of tourists' arrivals on environmental pollution caused by Carbon Dioxide emissions in Malaysia, Thailand and Singapore over the period of 1990–2014. The empirical results reveal that tourism has a significant positive effect on environmental pollution in Malaysia. However, an inverse relationship between tourism and environmental pollution is observed in Thailand and Singapore. Empirical findings suggest that sustainable economic growth and development should be ensured by implementing prudent public policy where host governments must strive to promote socially and environmentally responsible tourism industries in their respective countries.

Habibi (2017), this study investigate the economic and non-economic determinants of international tourist flows to Malaysia using the generalized method of moment (GMM) during the period 2000–2012. The Results indicate that the estimated coefficients of substitute tourism price in the model is negative. This implies that the five alternative destinations are complementary destinations to Malaysia. In addition, the dummy variable for Visit Malaysia Year in 2007 and SARS in 2003 had a positive and negative impact on tourism demand for Malaysia, respectively.

Kusni, Kadir, and Nayan (2013) investigate the effect of economic and non-economic factors on tourism demand of OECD

countries for the period 1995–2009. The results imply that tourists from OECD countries are sensitive to the price changes and Singapore is a substitute destination for Malaysia. Also, the spread of SARS and global economic crises are significant effects on tourism demand. Kadir, Nayan, and Abdullah (2013) investigate of inbound tourists from ASEAN countries to Malaysia using panel data for period of 1994–2009. The results indicated that the relative price of tourism in substitute destination, the Asian financial crisis and the spread of the SARS are the significant effects on tourism demand.

Rodríguez et al., (2012) investigate the term academic tourism to describe such a form of tourism using a generalized method of moments (GMM). The results imply that academic tourism depends mainly on determinants that are not strictly economic; namely, the importance of the habits and preferences of foreign students (which are generated every year by various means, such as agreements between universities, the reputation of the institutions receiving these students, or word-of-mouth), the ease of mobilization of Erasmus programme and the differential attractiveness of the University of Santiago de Compostela. Massidda and Etzo (2012) investigate the main determinants of Italian domestic tourism demand using GMM panel data. The results indicated that southern tourists appear more responsive to income variations, and less sensitive to price differentials than their northern counterparts. In addition, southern tourists seem to be more influenced by environmental attributes while northern tourists are more sensitive to cultural activities.

Literature on the subject provides a wide range of instruments intend by measuring the economic impacts of tourism. The Tourism Satellite Account (TSA), Computable General Equilibrium (CGE), and Input-Output technique (I-O) can be applied to estimate the impact of tourism on economic growth (Parrilla, Font, & Nadal, 2007). latest trends in this area encourage measuring its importance on the basis of macroeconomic information provided by national accounts under the Tourism Satellite Accounts scheme (Holz-Eakin 2001; Mak 2005; Suich 2002) and computable general equilibrium models (Adams and Parmeter 1995, 1999; Blake, Sinclair, & Sugiyarto, 2003; Blake, 2004; Dwyer, Forsyth, & Spurr, 2006; Narayan, 2004).

Tourism yield

Yield concepts classified in terms of which level of activity is affected. The impacts of extra tourism on a firm, on the tourism industry as a whole, or the economy will be of interest to different stakeholders. Thus a firm will be interested in the impact on its profit and employment, while a government will be interested in the impact on profit and employment in the economy as a whole. This classification concerns who is affected by additional tourism (Dwyer & Forsyth, 1997). The economic impacts refer to the effects of tourist expenditure on economic variables, such as output and employment. The expenditure of tourists stimulates economic activity, and creates additional business turnover, employment, household income and government revenue in the host destination (Dwyer & Forsyth 2005).

Out of the 5.5 million tourist arrivals into Iran in 2017, more than 70% came from short-haul markets especially from neighbouring countries. In regional scale, the country is ranked first with regard to the predicted growth of the sector's direct contribution to employment (4.9%) in 2016, more than double the Mideast and global average (both at 2.1%). Domestic travel spending generated 79.8% of direct Travel & Tourism GDP in 2016 compared with 20.2% for visitor exports. Leisure travel spending (inbound and domestic) generated 92.3% of the industry's direct contribution to GDP, compared with 7.7% for business travel spending. Foreign visitor expenditure made up 20.2% of the sector's direct contribution to GDP (WTTC, 2017).

The yield per tourist in Iran is also relatively low at US$ 1200. This indicates that most of the international tourists are amongst the lowest income level. They are looking for the lowest budget destination and seek for local home stay and budget motel instead of five star hotels, local food stall instead of expensive restaurants.

The reasons for low yield per tourist in Iran include:

- **Lower average length of stay:** Long-haul tourists currently spend 4 nights in Iran,
- **Lower spend per day:** Tourists to Iran currently have a lower spend per day,
- **Dependence on arrivals from short-haul markets:** Iran is highly dependent on tourists from the short-haul markets.

Effects of disaster and political instability

Rawls (1999) suggests that political stability leads to safety and security in democratic countries and has the potential for tourism to continue to prosper. Naturally, tourists are sensitive to events of political violence in their holiday destination. On the other hand, if the country is perceived to be unstable, potential tourists may cancel their reservations or change to other destinations. Thus, national tourism industry needs a stable political, legal and financial system within which it can operate, which will give tourism activities legitimacy (Ingram, Tabari, & Wattahanakhomprathip, 2013).

International tourist become more anxious about the safety and security while there holiday rather than domestic tourist since there not belong to country they visit. From a CNN global study in 2013, 67 percent of respondents more worries about the safety and security of a destination rather than its cost and reputation. Natural disaster causes the declination of tourist arrivals in effected area and created the negative image to the visitor and pushing them away from the destination (Zhang, 2005).

Political instability is very important in tourism. There are few studies that have demonstrated the negative impact of terrorism on tourism (Enders & Sandler, 1991; Hall, 1994; Wall, 1996; Wahab 1996; Drakos and Kutan, 2003). Eilat and Einav (2004) found that political instability has a significant impact on tourism demand in both developed and developing countries. In particular, Sequeira and Nunes (2008) investigated the effect of country risk on tourism demand using GMM. The results indicated that tourism in countries with less risk variability is not harmed by the risk. On the other hand, risk influences arrivals in poor and rich countries, but

its impact on returns in rich countries is more than poor ones. Their results showed that risk increase in poor countries leads to a decline in international tourists, but it seems that returns remain unaffected. Teresa and Martin (2007) studied tourism demand for the Balearic Islands. The results of their research indicated that after the terrorist attacks of September 11, long-haul destinations were changed for short-haul ones and car travel was preferred over air travel.

Methodology and data

Tourism creates positive impacts on the economic growth in the destination country. The positive contributions that tourism can creates flow of foreign currency into the economy of a destination country which may help to improve a gap in foreign exchange and finance imports of capital goods, increases in income, creates employment, and higher tax revenues (Lee & Chang, 2008).

Thus, economic growth should increase the welfare of the local population, although certain sections will benefit more than costs. A simple characterization of economic growth is that it is the growth of GDP in constant prices. The disadvantage of such a simple definition and measurement approach is that it ignores the growth of population size and the welfare effects of economic growth. Ideally, economic growth should increase the welfare of local population in order to be considered an economic benefit. In this regard, we use the growth of real GDP per capita g_r as a measure of economic growth in line with other publications in the field (Ivanov & Webster, 2007; Lopes et al., 2002; Plosser, 1992).

This current paper builds on the growth decomposition methodology initially proposed by Ivanov (2005) for measuring the impact of tourism on economic growth in Iran's provinces. The methodology was further developed and refined by Ivanov and Webster (2007) and applied to the tourism sector in Spain, Greece and Cyprus. More recently, the discussed methodology was adopted to evaluate the contribution of tourism to economic growth in Bulgaria (Ivanov and Webster, 2008), Argentina, Brazil, Uruguay, and Mexico (Brida et al., 2007), Spain, France, Italy, the UK and USA (Brida et al., 2008), and Columbia (Suich, 2002; Brida, and Aguirre, 2010). In this paper we generalize the methodology for every type of industry/region and use it for interindustry comparisons.

We use the growth of real GDP per capita, g_r, as a measure of economic growth. The growth of the real GDP per capita, g_r, is:

$$\mathrm{Gr} = \left(\frac{\frac{Y_{q1(p0)}}{N_1}}{\frac{Y_{q0(p0)}}{N_0}} - 1 \right).100, \tag{1}$$

where $Y\,q_1\,(p_0)$ is the GDP in the current period in constant base year prices, $Yq_0(p_0)$ is the GDP in the base year at market prices, N is the average size of the population, index 1 denotes the current period and index 0 is the base period. We disaggregate the nominator of Eq. (1) to separate the tourism GDP in constant prices, $Y^t q_{\ 1}(p_0)$, from the GDP in constant prices of other industries, $\Sigma Y^i q_{\ 1}(p_0)$, and the tourism GDP in the base period, $Y^t q_{\ 0}(p_0)$, from the GDP of other sectors in the base period, $\Sigma Y^i q_{\ 0}(p_0)$:

$$\mathrm{Gr} = \left(\frac{Y^t_{q1(p0)}}{N_1} + \frac{\sum_{i=1} Y^i_{q1(p0)}}{N_1} - \frac{Y^t_{q0(p0)}}{N_0} - \frac{\sum_{i\neq 1} Y^i_{q0(p0)}}{N_0} / \frac{Y_{q0(p0)}}{N_0} \right).100. \tag{2}$$

Arrange in new group the phrases in the nominator and come to:

$$\mathrm{Gr} = \left(\frac{Y^t_{q1(p0)}}{N_1} - \frac{Y^t_{q0(p0)}}{N_0} / \frac{Y_{q0(p0)}}{N_0} \right) + \left(\frac{\sum_{i=1} Y^i_{q1(p0)}}{N_1} - \frac{\sum_{i\neq 1} Y^i_{q0(p0)}}{N_0} / \frac{Y_{q0(p0)}}{N_0} \right).100. \tag{3}$$

The first phrase in Eq. (3) indicates the direct impact of tourism on economic growth. The indirect effects are part of the difference between g_r from Eq. (1) and g^t_r from Eq. (4), and are considered the direct effects of other industries on economic growth (Ivanov & Webster, 2007).

$$G^t_r = \left(\frac{Y^t_{q1(p0)}}{N_1} - \frac{Y^t_{q0(p0)}}{N_0} / \frac{Y_{q0(p0)}}{N_0} \right).100 \tag{4}$$

Eq. (4) could also be applied to individual tourism characteristic activities of tourism to measure their impact on economic growth, if the appropriate data are available (Ivanov & Webster, 2007).

The major advantage of the growth decomposition methodology (GDM) discussed above is that it generates a performance measure of tth industry's contribution to economic growth showing how effective the industry is in stimulating the real per capita growth of the GDP (Brida et al., 2008). Comparing the GDM to computable general equilibrium models (CGE), we can say that while CGE models are used for forecasting the impact of different shocks to the economic system, the GDM assesses the actual results of the economic development focusing on ex post estimate of industries' contribution to economic growth. In this regard, GDM does not substitute the CGE models, but it rather verifies their ex ante estimates (Ivanov & Webster, 2007; Ivanov & Webster, 2013a, 2013b). Another advantage of GDM is that it uses data from the System of National Accounts and unified methodology for every industry thus allowing inter-industry and temporal comparisons. A third advantage is that GDM does not require initial assumptions in measuring the economic impact of specific industries.

The methodology applied with data on Gross Value Added (GVA) and GDP. In comparing GVA and GDP, we can say that GVA is a better measure for the economic welfare of the population, because it includes all primary incomes. From the point of view of the society as a whole GDP, despite its disadvantages, is probably a better measure for economic growth and welfare, because it includes

Table 1
Contribution of tourism to economic growth - Province of Iran.

Provinces	Variables (%)	Years										
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	AVE
Total	Growth of GDP per capita in constant 2004 prices – g_r	2.89	9.17	14.92	13.96	16.70	25.60	28.12	21.69	17.83	12.93	16.38
	Growth of GDP in tourism per capita in constant 2004 prices	16.20	23.82	27.60	30.74	41.86	43.77	45.89	51.97	44.39	48.54	37.48
	Contribution of tourism to economic growth –g_r^t	3.26	4.80	5.56	6.19	8.44	8.82	9.25	10.47	8.95	9.78	7.55
East Azarbaijan	Growth of GDP per capita in constant 2004 prices – g_r	-2.70	3.32	9.36	8.64	15.61	15.68	20.04	24.26	14.87	10.72	11.98
	Growth of GDP in tourism per capita in constant 2004 prices	5.90	14.39	16.08	15.36	34.32	37.34	12.11	27.45	29.31	31.88	22.42
	Contribution of tourism to economic growth –g_r^t	0.049	0.120	0.134	0.128	0.287	0.312	0.101	0.229	0.245	0.266	0.187
Western Azerbaijan	Growth of GDP per capita in constant 2004 prices – g_r	4.39	13.69	10.22	12.40	33.32	27.99	38.47	35.63	36.50	31.60	24.42
	Growth of GDP in tourism per capita in constant 2004 prices	8.30	12.08	8.52	6.76	21.59	23.55	15.99	30.52	31.43	33.10	19.18
	Contribution of tourism to economic growth –g_r^t	0.113	0.165	0.116	0.092	0.295	0.321	0.218	0.417	0.429	0.452	0.262
Ardabil	Growth of GDP per capita in constant 2004 prices – g_r	-0.25	9.34	15.52	20.41	32.68	37.01	36.56	45.89	52.02	46.90	29.61
	Growth of GDP in tourism per capita in constant 2004 prices	8.63	14.44	14.28	22.24	43.40	48.07	31.69	46.49	48.15	51.04	32.84
	Contribution of tourism to economic growth – g_r^t	0.189	0.316	0.312	0.486	0.949	1.051	0.693	1.016	1.052	1.116	0.718
Esfahan	Growth of GDP per capita in constant 2004 prices – g_r	-2.94	0.79	12.15	12.92	12.91	22.66	31.54	31.05	21.21	16.49	15.88
	Growth of GDP in tourism per capita in constant 2004 prices	-8.40	-6.92	-7.35	-1.24	14.58	16.47	-0.35	10.94	12.20	14.33	4.43
	Contribution of tourism to economic growth –g_r^t	-0.086	-0.071	-0.075	-0.013	0.149	0.169	-0.004	0.112	0.125	0.147	0.045
Ilam	Growth of GDP per capita in constant 2004 prices – g_r	41.39	68.94	100.59	81.96	64.54	89.87	92.40	31.44	37.17	24.46	63.28
	Growth of GDP in tourism per capita in constant 2004 prices	-12.06	-7.16	-6.87	-17.94	-4.17	-2.91	18.68	24.16	25.35	28.31	4.54
	Contribution of tourism to economic growth –g_r^t	-0.047	-0.028	-0.027	-0.070	-0.016	-0.011	0.072	0.094	0.098	0.110	0.018
Bushehr	Growth of GDP per capita in constant 2004 prices – g_r	-29.37	-29.43	-11.21	-18.10	-22.88	10.44	25.72	26.23	41.83	24.99	1.82
	Growth of GDP in tourism per capita in constant 2004 prices	8.33	12.64	9.77	7.10	23.47	24.53	18.44	25.24	24.42	25.19	17.91
	Contribution of tourism to economic growth –g_r^t	0.018	0.027	0.021	0.015	0.051	0.053	0.040	0.055	0.053	0.054	0.039
Tehran	Growth of GDP per capita in constant 2004 prices – g_r	-1.43	5.64	11.29	18.58	29.28	31.42	25.36	25.61	15.07	16.14	17.70
	Growth of GDP in tourism per capita in constant 2004 prices	6.08	8.20	4.64	21.66	38.96	41.76	33.84	48.96	49.63	51.53	30.53
	Contribution of tourism to economic growth –g_r^t	0.062	0.084	0.048	0.222	0.399	0.428	0.347	0.502	0.509	0.528	0.313
Chaharmahal and Bakhtiari	Growth of GDP per capita in constant 2004 prices – g_r	7.54	17.81	23.69	29.62	44.75	51.96	57.95	63.80	44.16	40.13	38.14
	Growth of GDP in tourism per capita in constant 2004 prices	1.02	4.99	0.51	10.53	27.81	29.84	23.31	36.41	37.84	40.50	21.28
	Contribution of tourism to economic growth –g_r^t	0.005	0.023	0.002	0.048	0.128	0.137	0.107	0.167	0.174	0.186	0.098
South Khorasan	Growth of GDP per capita in constant 2004 prices – g_r	12.21	26.31	39.07	39.80	59.63	39.86	45.91	37.87	35.39	37.13	37.32
	Growth of GDP in tourism per capita in constant 2004 prices	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Contribution of tourism to economic growth –g_r^t	0.377	0.390	0.386	0.322	0.373	0.376	0.466	0.440	0.443	0.452	0.402
Khorasan Razavi	Growth of GDP per capita in constant 2004 prices – g_r	0.10	7.57	12.26	10.20	26.11	33.21	37.42	32.27	32.65	27.90	21.97
	Growth of GDP in tourism per capita in constant 2004 prices	4.26	10.14	11.94	28.65	57.72	63.27	72.73	68.30	66.92	69.77	45.37
	Contribution of tourism to economic growth –g_r^t	0.078	0.187	0.220	0.528	1.064	1.166	1.340	1.259	1.233	1.286	0.836
North Khorasan	Growth of GDP per capita in constant 2004 prices – g_r	2.90	21.57	16.91	17.97	30.94	14.93	22.07	21.70	23.98	21.22	19.42
	Growth of GDP in tourism per capita in constant 2004 prices	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Contribution of tourism to economic growth –g_r^t	0.462	0.465	0.453	0.426	0.495	0.501	0.399	0.450	0.457	0.465	0.457

(*continued on next page*)

Table 1 (*continued*)

Provinces	Variables (%)	Years										
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	AVE
Khuzestan	Growth of GDP per capita in constant 2004 prices – g_r	10.79	15.67	24.54	11.63	-4.67	9.94	17.15	-12.66	-14.16	-25.00	3.32
	Growth of GDP in tourism per capita in constant 2004 prices	3.90	14.51	13.00	23.16	42.77	45.70	31.29	44.92	45.65	47.55	31.24
	Contribution of tourism to economic growth – g_r^t	0.008	0.028	0.025	0.045	0.083	0.088	0.061	0.087	0.088	0.092	0.060
Zanjan	Growth of GDP per capita in constant 2004 prices – g_r	8.15	16.43	12.71	16.77	27.47	33.66	33.68	40.34	36.03	35.26	26.05
	Growth of GDP in tourism per capita in constant 2004 prices	-8.97	-7.61	-5.99	-5.18	8.31	9.61	14.33	26.15	27.52	30.03	8.82
	Contribution of tourism to economic growth – g_r^t	-0.080	-0.068	-0.054	-0.046	0.074	0.086	0.128	0.234	0.246	0.269	0.079
Semnan	Growth of GDP per capita in constant 2004 prices – g_r	-4.90	1.65	3.91	8.97	18.22	35.40	37.29	31.43	29.45	19.27	18.07
	Growth of GDP in tourism per capita in constant 2004 prices	-7.86	-2.69	-5.95	8.71	24.65	25.92	28.57	39.98	40.92	42.81	19.51
	Contribution of tourism to economic growth – g_r^t	-0.038	-0.013	-0.029	0.042	0.118	0.125	0.137	0.192	0.197	0.206	0.094
Sistan and Baluchistan	Growth of GDP per capita in constant 2004 prices – g_r	4.98	3.41	1.18	6.83	19.70	52.37	56.19	63.85	49.94	53.50	31.19
	Growth of GDP in tourism per capita in constant 2004 prices	13.49	12.18	14.88	5.05	21.46	24.07	40.71	48.04	46.89	47.57	27.44
	Contribution of tourism to economic growth – g_r^t	0.090	0.082	0.100	0.034	0.144	0.161	0.273	0.322	0.314	0.319	0.184
Fars	Growth of GDP per capita in constant 2004 prices – g_r	-2.88	5.58	8.33	4.86	11.07	22.25	29.56	34.96	33.49	30.69	17.79
	Growth of GDP in tourism per capita in constant 2004 prices	12.37	22.83	25.27	30.34	54.55	58.35	41.87	51.08	51.92	54.79	40.34
	Contribution of tourism to economic growth – g_r^t	0.093	0.172	0.190	0.228	0.411	0.439	0.315	0.385	0.391	0.413	0.304
Qazvin	Growth of GDP per capita in constant 2004 prices – g_r	3.95	13.20	13.16	25.50	31.91	28.92	34.88	40.70	39.94	38.14	27.03
	Growth of GDP in tourism per capita in constant 2004 prices	2.40	3.41	-1.16	9.14	23.73	25.78	18.37	35.23	36.66	38.73	19.23
	Contribution of tourism to economic growth – g_r^t	0.024	0.034	-0.012	0.092	0.238	0.259	0.184	0.354	0.368	0.389	0.193
Qom	Growth of GDP per capita in constant 2004 prices – g_r	-3.58	-1.17	3.12	3.43	10.21	15.00	17.84	23.48	16.06	9.02	9.34
	Growth of GDP in tourism per capita in constant 2004 prices	-6.32	3.00	8.01	2.57	20.74	22.73	-5.20	3.48	3.88	5.15	5.81
	Contribution of tourism to economic growth – g_r^t	-0.092	0.043	0.116	0.037	0.300	0.329	-0.075	0.050	0.056	0.075	0.084
Kurdistan	Growth of GDP per capita in constant 2004 prices – g_r	1.63	13.15	18.23	17.54	33.19	36.50	47.95	41.84	42.79	37.53	29.04
	Growth of GDP in tourism per capita in constant 2004 prices	15.69	21.79	17.78	32.33	52.51	56.12	60.23	76.06	77.82	81.35	49.17
	Contribution of tourism to economic growth – g_r^t	0.157	0.218	0.178	0.324	0.526	0.562	0.604	0.762	0.780	0.815	0.493
Kerman	Growth of GDP per capita in constant 2004 prices – g_r	8.56	29.64	31.82	11.85	23.85	40.06	34.01	49.54	58.24	50.59	33.82
	Growth of GDP in tourism per capita in constant 2004 prices	-2.76	-2.29	-6.10	1.60	15.94	17.55	12.39	23.87	24.28	25.70	11.02
	Contribution of tourism to economic growth – g_r^t	-0.023	-0.019	-0.051	0.013	0.134	0.148	0.104	0.201	0.205	0.216	0.093
Kermanshah	Growth of GDP per capita in constant 2004 prices – g_r	1.19	6.91	11.11	17.14	33.53	49.44	56.15	59.39	45.46	53.72	33.40
	Growth of GDP in tourism per capita in constant 2004 prices	4.63	8.38	10.80	4.31	20.28	22.27	11.28	26.16	28.60	31.76	16.85
	Contribution of tourism to economic growth – g_r^t	0.034	0.062	0.080	0.032	0.151	0.165	0.084	0.194	0.212	0.236	0.125
Kohgiloyeh Boyerahmad	Growth of GDP per capita in constant 2004 prices – g_r	8.07	6.06	-11.13	-23.69	-36.85	-23.36	-23.45	-53.11	-50.79	-60.92	-26.92
	Growth of GDP in tourism per capita in constant 2004 prices	20.81	27.59	25.23	43.37	64.28	67.37	121.25	131.17	129.94	132.73	76.37
	Contribution of tourism to economic growth – g_r^t	0.013	0.017	0.015	0.026	0.039	0.041	0.074	0.080	0.079	0.081	0.047
Golestan	Growth of GDP per capita in constant 2004 prices – g_r	-3.76	-2.82	2.04	1.21	10.60	7.71	4.28	7.26	6.81	2.46	3.58
	Growth of GDP in tourism per capita in constant 2004 prices	6.25	9.41	12.16	4.50	18.00	19.31	36.16	46.67	46.45	47.80	24.67
	Contribution of tourism to economic growth – g_r^t	0.059	0.089	0.115	0.042	0.170	0.183	0.342	0.441	0.439	0.452	0.233

(*continued on next page*)

Table 1 (*continued*)

Provinces	Variables (%)	Years										
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	AVE
Gilan	Growth of GDP per capita in constant 2004 prices – g_r	0.84	5.14	15.17	19.80	29.22	22.94	25.28	28.58	29.80	23.68	20.04
	Growth of GDP in tourism per capita in constant 2004 prices	15.15	15.74	17.39	21.08	42.53	46.90	60.11	69.01	70.02	73.69	43.16
	Contribution of tourism to economic growth –g_r^t	0.262	0.273	0.301	0.365	0.736	0.812	1.041	1.195	1.213	1.276	0.747
Lorestan	Growth of GDP per capita in constant 2004 prices – g_r	2.62	14.67	12.63	10.90	23.59	38.49	33.66	42.51	40.25	33.73	25.30
	Growth of GDP in tourism per capita in constant 2004 prices	-6.05	-2.24	-5.23	6.41	22.34	24.10	25.90	40.02	42.20	45.26	19.27
	Contribution of tourism to economic growth –g_r^t	-0.034	-0.013	-0.030	0.036	0.127	0.137	0.147	0.228	0.240	0.257	0.110
Mazandaran	Growth of GDP per capita in constant 2004 prices – g_r	2.32	4.63	10.11	21.70	29.07	30.84	28.17	30.90	29.71	21.56	20.90
	Growth of GDP in tourism per capita in constant 2004 prices	1.13	3.15	1.72	13.23	32.86	36.54	21.47	32.72	33.88	36.34	21.30
	Contribution of tourism to economic growth –g_r^t	0.015	0.041	0.023	0.174	0.432	0.480	0.282	0.430	0.445	0.477	0.280
Markazi	Growth of GDP per capita in constant 2004 prices – g_r	-3.63	8.61	7.86	4.30	9.84	16.08	26.55	34.46	22.40	27.93	15.44
	Growth of GDP in tourism per capita in constant 2004 prices	10.66	16.23	13.64	17.86	34.13	36.62	41.66	57.54	58.98	61.63	34.90
	Contribution of tourism to economic growth –g_r^t	0.055	0.083	0.070	0.092	0.176	0.188	0.214	0.296	0.303	0.317	0.179
Hormozgan	Growth of GDP per capita in constant 2004 prices – g_r	-8.64	-8.51	-11.42	-3.90	-6.65	3.17	24.15	35.21	30.24	29.95	8.36
	Growth of GDP in tourism per capita in constant 2004 prices	-3.52	48.28	50.52	63.99	100.09	104.75	16.30	20.49	19.87	20.92	44.17
	Contribution of tourism to economic growth –g_r^t	-0.033	0.450	0.471	0.596	0.933	0.976	0.152	0.191	0.185	0.195	0.412
Hamedan	Growth of GDP per capita in constant 2004 prices – g_r	-1.98	6.74	13.94	10.12	27.15	30.17	36.69	37.74	39.16	35.40	23.51
	Growth of GDP in tourism per capita in constant 2004 prices	17.86	21.10	21.32	24.44	45.66	48.74	56.62	66.87	68.70	72.86	44.42
	Contribution of tourism to economic growth –g_r^t	0.120	0.141	0.143	0.164	0.306	0.326	0.379	0.448	0.460	0.488	0.297
Yazd	Growth of GDP per capita in constant 2004 prices – g_r	12.14	28.05	32.69	36.61	48.90	87.71	88.12	134.88	116.34	118.92	70.44
	Growth of GDP in tourism per capita in constant 2004 prices	14.45	19.14	18.64	45.69	72.84	77.60	62.71	81.20	80.08	81.64	55.40
	Contribution of tourism to economic growth –g_r^t	0.115	0.152	0.148	0.363	0.579	0.617	0.499	0.646	0.637	0.649	0.440

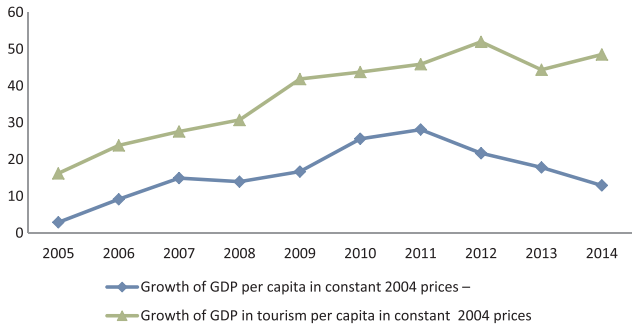

Fig. 1. Growth of GDP in tourism and growth of GDP in Iran, 2005–2014.

also net taxes (taxes minus subsidies) which are the financial basis for the collective consumption of the society.

Our data have been collected from the Departmental of Statistical Center of Iran Series of National Accounts for the 2005–2014 periods. As we use national accounts data, our analysis considers only the tourism activities directly and indirectly linked with tourism included. Both are used in this analysis in constant 2011 prices. In total, 30 provinces have all statistics necessary for the calculations (GDP, tourism GDP and midyear population) and are included in the analysis. In this regard, the final data set of 30 provinces is considered representative for the study on tourism's contribution on economic growth on a global scale.

Empirical results

The results include the growth of GDP per capita in constant prices, g_r (Eq. (1)), the growth of GDP in tourism per capita, and the impact of tourism to economic growth, g_r^t (Eq. (4)). Table 1 presents the results of the application of the GDM to tourism industry of Iranian provinces economy for the period 20005-2014. Data explicitly show that the growth of GDP in tourism per capita in constant 2004 prices in Iran increases significantly every year between 51.9% (2012) and 16.2% (2005). Fig. 1 show the growth of GDP per capita in tourism in constant 2004 prices is higher than the growth for the economy as a whole. The highest growth of GDP in tourism per capita is 51.9% in 2012. As a consequence, the impact of tourism on economic growth is positive. Thus, for Iran it appears that tourism on the whole support the growth of the general economy. If the g_r^t values become negative, this means the impact of tourism less to the growth of GDP in comparison to the rest of the economy and, in fact, slowed economic growth. Fig. 2 show the contribution of tourism to economic growth in Iran increases between 10.4% (2012) and 3.2% (2005), also the impact of tourism on economic growth is highest in 2012 (10.4%). The highest contribution of tourism is in 2012 when 10.4% out of 51.9 percent of the real per capita growth of tourism is attributable to it. It is interesting to note that albeit tourism's sheer size in Iran, its tourism contribution to economic growth was positive in 2005- 2014, where after sanction nuclear against to Iran in 2012 dropped but remained positive.

However, each province in this analysis has a very different contribution to the growth in the economy. Also, Table 1 shows the contribution of tourism to real per capita economic growth for each of the 31 provinces for the period 2005–2014. The most effective province, according to average of growth of GDP in tourism per capita, is Kohgiloyeh Boyerahmad, Yazd and Kurdistan with 76.3%, 55% and 49.1% respectively (See Table 1). These results might be attributable to the explosive growth of tourist arrivals (both domestic and international) in Kohgiloyeh Boyerahmad, Yazd and Kurdistan during the period. Another reason might be the possibly better linkages between tourism and other industries, especially in Kurdistan, that decrease the necessity for imports and, thus, increase the tourism GDP. Furthermore, as formula (3) shows the inverse relationship between tourism's contribution to economic growth and the country's per capita GDP. In this regard, any unit of currency spent on travel and tourism would produce, ceteris paribus, a higher contribution to economic growth in the country with the lower per capita GDP.

Fig. 3 presents the average contribution of tourism to economic growth in provinces in Iran. With an average aggregated contribution for the 2005–2014 periods, tourism in khorasan razavi had the highest contribution to economic growth (0.83%). Gilan took the second place with average aggregated contribution of 0.74%, Ardabil was third with 0.71%. From 2005 until 2014 tourism had high and positive contribution to economic growth with the exception of 2005. In 2014 in Khorasan Razavi, Gilan and Ardabil

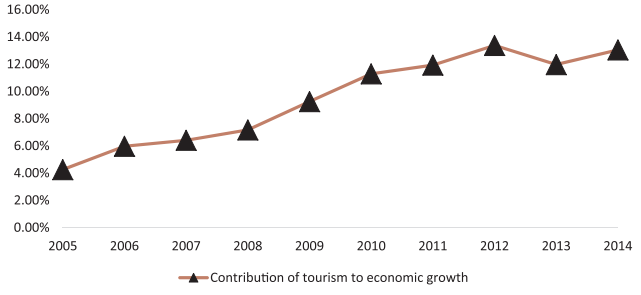

Fig. 2. Contribution of tourism to economic growth in Iran, 2005–2014.

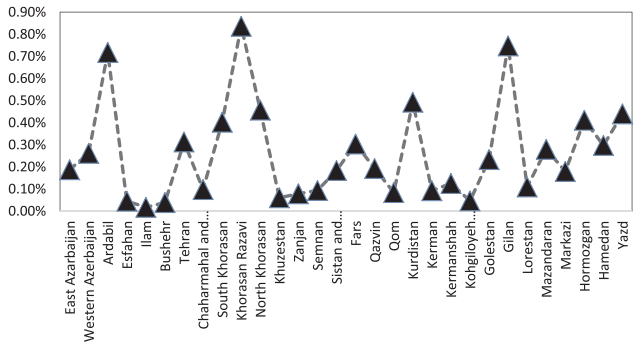

Fig. 3. The Average Contribution of Tourism to Economic Growth in 2005–2014 - Provinces of Iran.

increased the contribution of tourism to economic growth by more than 1% and in further 28 provinces it still had a positive contribution although less than 1% (See Table 1). Table 1 also reveals that most of years in provinces in Iran contribution of tourism to economic growth less than 1%, while in Korasan Razavi, Gilan and Ardabil, only 4 years out of 10 years less than 1% and the rest have grown by more than 1%.

Conclusion and policy implication

In this research note, the authors presented a growth decomposition methodology, which allows between provincial comparisons. The main goal of this study is to investigate the impact of tourism in the growth of GDP per capita in constant prices in Provinces in Iran. In the analysis, the growth of GDP per capita in constant prices is perceived as a measure of economic growth. The model presented is universal and has the benefit of permitting comparisons between provinces as well as permitting comparisons over time. Further research might integrate indirect and induced effects in the analysis in addition to the developed performance measure g_r. The model is suggested as a starting point to improve our understanding of how industries contribute to economic growth, understanding that this growth will be a precondition for improving the economic growth.

The results show that the growth of GDP in tourism per capita in constant 2004 prices in Iran increases significantly every year and is higher than the growth for the economy as a whole. As a consequence, the impact of tourism on economic growth is positive. Thus, for Iran it appears that tourism on the whole support the growth of the general economy. Results of the average contribution of tourism to economic growth in provinces in Iran show that, khorasan razavi had the highest contribution to economic growth, Gilan took the second place and Ardabil was third with more than 1% and further 28 provinces it still had a positive contribution although less than 1%. Hence, policy makers and the government should be allocated more resources to tourism and travel industry.

From a policy implication point of view, a number of recommendations can be made from this research. Firstly, word-of-mouth is also a strong factor influencing tourism demand for Iran. Accordingly, policy makers should put in priority the comfort of tourists during their stay in Iran. In addition, the suppliers of tourism products and services should improve their service quality and upgrade their brands' image. Secondly, price competitiveness is also a strong factor that can be controlled in the Iranian economy; it influences tourism demand for Iran. As a result, policy makers and suppliers must closely monitor all tourism service providers such as hotels, restaurants, tourist operators, and transportation companies such as airport taxis and tourist buses to ensure that they do not charge 'unreasonable' prices for their services.

International tourists are sensitive to events of political instability in their holiday destinations. As a result regards to the increase of political stability provide some important implications for policy makers, fifthly, governments in multi-cultural countries like Iran should aim to minimise crime and maintain religious and cultural justice among various ethnic groups. Sixthly, introducing education programmes, which encourage tolerance and understanding among people from different ethnic backgrounds and creating jobs for citizens, may be beneficial for controlling political instability in a country. Seventhly, tourism companies and travel agencies should focus on the political stability of a country that provides high peace of mind of tourists by lowering threats and increasing freedom.

Natural disaster and crisis cause the declination of tourist arrivals in effected area and created the negative image to the visitor. Eighthly, for fighting natural disaster risk, Iran should create natural disaster fund and encourage tourists to buy travel insurance that have less negative impact on the economic growth. Ninthly, Crisis management may better prepare countries to deal with unexpected events when they occur. During the crisis period itself, the immediate priority is to demonstrate exceptional crisis management capabilities to minimize losses, ensure tourists' safety and limit excessively negative media perceptions. Governments should limit negative media publicity about the destination when it is exaggerated.

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