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The economic impact of the lifting of sanctions on tourism in Iran: a computable general equilibrium analysis

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The imposition of sanctions on Iran, after the Islamic Revolution in 1979, resulted in economic hardship. Many problems were experienced, such as increased unemployment and high inflation, currency fluctuations and economic instability. One area that was hard hit was the tourism sector. With the lifting of United Nations sanctions on 16 January 2016, there is an opportunity for an increase in international tourists to experience the natural attractions and cultural heritage that Iran has to offer. This research employs a single-country multi-sector computable general equilibrium model to estimate the economic impact of the lifting of sanctions to tourism and the wider economy in Iran. The findings reveal that tourism provides a boost to the economy; however, there are redistributive effects that draw resources away from other export sectors. However, just as in the past where there has been a heavy reliance on oil and natural gas, expanding tourism too quickly will also cause problems. Moderate tourism growth would be the appropriate sustainable path to take.

Keywords: economic impacts; sanctions; computable general equilibrium model; Iran

Introduction

Economic sanctions are the planned actions by one or more governments to place pressure on and limit economic relations to a country for political purposes (Galtung, 1967). Sender countries impose sanctions for the purposes of preventing violations of human rights, fighting international terrorism, enacting nuclear non-proliferation, protecting labour rights, environmental protection and preventing the spread of conflict and civil war (Andreasson, 2008; Murdie & Peksen, 2013). Sanctions can include actions such as tariffs, export controls, embargoes, import bans, travel bans, freezing assets, cutting aid and blockades (Morgan, Bapat, & Krustev, 2009). There are two types of sanctions: trade sanctions and financial sanctions. Trade sanctions seek to target a country's import and export capabilities, usually imposing embargoes on traded goods and services. This would include bans on international tourists from visiting the sanctioned country. Financial sanctions on banks, financial institutions and individuals prevent international financial transactions (Andreasson, 2008). The effectiveness of the sanctions and their economic impact depend on the sanctioned country's dependence on those countries imposing the sanctions.

Economic sanctions are perceived to be an effective lever to pressure governments to change their behaviour. Economic sanctions are considered a more humane coercive

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policy than military conflict. The ‘theory’ is that the imposition of economic sanctions will reduce the standard of living in the targeted population. This, in turn, will motivate the people to pressure their governments to alter their behaviour in order to have the sanctions lifted (Allen & Lektzian, 2013). For example, using cross-country analysis of 68 target states from 1960 to 2008, Afesorgbor and Mahadevan (2016) find that the imposition of sanctions has an adverse effect on income inequality.

In general, economic sanctions have not been able to achieve their goals. Hufbauer, Schott, Elliott, and Oeggm (2008) report that only 34% of economic sanctions imposed between 1914 and 1990 have achieved their goals. From the start of the First World War to 1990, there were a total of 115 approved and implemented economic sanctions against countries throughout the world; an average of 1.5 sanctions imposed per year. From 1990, following the collapse of the Soviet Union and the end of the Cold War, the imposition of economic sanctions increased sharply (Hufbauer et al., 2008). During this period, the US government was responsible for imposing almost two-thirds of economic sanctions. Moreover, during the 1990–1999 period, the US share of total economic sanctions in the world increased to 92% (Hufbauer et al., 2008).

Iran is one country that has been the recipient of at least three decades of international economic sanctions. On 14 July 2015, after a decade of intensive nuclear talks, Iran and the Group 5 + 1 (the five permanent members of the UN Security Council plus Germany) and Europe came to a comprehensive agreement on Iran’s nuclear programme. With the removal of sanctions on Iran’s economy and Iran’s tourism industry, more specifically, the purpose of this paper is to estimate the economic impact of the lifting of sanctions to tourism and the wider economy in Iran, using a single-country multi-sector computable general equilibrium (CGE) model.

This research makes several contributions to the literature. In terms of the tourism context, this is one of the first pieces of research to undertake the economic impact of tourism in Iran using a CGE model. CGE models are the most appropriate, realistic methods in which to measure the economy-wide economic impacts of tourism (Dwyer, 2015; Dwyer, Forsyth, Madden, & Spurr, 2000). Furthermore, this research adds Li and Song’s (2013) research on the economic impacts on tourism as a result of imposing / lifting visa restrictions. Lastly, this research provides evidence for the managed growth of tourism. The results show that a moderate boost in tourism is beneficial to the economy but too much tourism too fast can induce negative economic effects.

Tourism, political environment and visa restrictions

Tourism is closely intertwined with global politics and can influence international diplomacy (Suntikul & Butler, 2010). Tourism, as it involves movement of peoples from one country to another across different jurisdictions, has political implications. Richter (1989) notes that governments can manipulate tourism for political purposes. Kim, Timothy, and Han (2007) suggest several ways that tourism can be used for political purposes. One of these is the use of tourism as a tool for economic sanctions or embargos. Examples of where tourism has been used as a political tool include the restriction of US citizens travelling to Cuba as well as trade embargo with South Africa in the apartheid era. Part of this trade embargo involved restrictions on travel, notably on fly-over and landing rights for South African airlines. International tourism can be used as a way to reinforce the limitations on trade in embargo situations.

National and economic security are two of the stated reasons for imposing strict visa regulations on potential tourists attempting to visiting a particular country (Song,

Gartner, & Tasci, 2012). The restriction of visas can negatively influence inbound tourism to a destination, and therefore its economy (Li & Song, 2013). Tourism Alliance, the UK tourism industry lobby group, estimated that due to visa restrictions placed on tourists from China, the UK received 60% fewer tourists from China before the UK government amended its policy (Tourism Alliance, 2012). In the media, Silva (2011) reported that in the USA, the tightening of security through visa restrictions as a result of the 9/11 terrorist attacks cost US businesses US\$ 859 billion and potentially up to 500,000 jobs. There has been limited academic research on the imposition or removal of travel visas. The several exceptions include Li and Song (2013); Song, Gartner, et al. (2012) and Neiman and Swagel (2009). Li and Song (2013) model the tightening of visa regulations in China in the lead up to and during the 2008 Beijing Olympics. In this situation, the Chinese Government sought to tighten security to prevent potential terrorist attacks during the Games. Using a CGE model, Li and Song find that the economic loss to China was estimated to be US\$ 88.23 million as a result of the visa restrictions. (Song, Gartner, et al., 2012). Neiman and Swagel (2009), employing a multivariate regression framework, find, contrary to Silva (2011), that the USA's tighter visa policy after the 9/11 attacks was not the cause of the sharp drop in business and leisure tourists to the USA. They found the decrease in arrivals to the USA from countries requiring a visa was not larger than the decrease in arrivals from countries not requiring a visa. Song, Gartner, et al. (2012), examining the case of China and the tighter visa restrictions imposed after the Tiananmen Square incident in 1989 and The Beijing Olympic in 2008, found that there was a significant loss of tourist arrivals and subsequent tourism receipts as a result of the stricter visa policy. As noted by Song, Gartner, et al. (2012), there is a lack of attention from both tourism academia and practitioners on the impact of visa regulations. This research further contributes to this area.

The impact of economic sanctions throughout history

Economic sanctions are not new phenomenon. However, they have been used more frequently in recent times (Oechslin, 2014). There are numerous well-known examples of sanctions. These examples include Cuba by the USA after the revolution of 1960, South Africa (1977), Myanmar (1988), Iraq (1990), Yugoslavia (1991), Haiti (1993), Sudan (1995), Libya (1998), Afghanistan (1998), North Korea (2006) and Republic of Syria (2011). One of the longest sanctions was the boycott of Germany after the First World War. Several scholars note that sanctions imposed on Iran in 2012 had one of the largest impacts (Dowell, 2011; Farahani & Shabani, 2013; Nyun, 2008; Portela, 2012).

Economic trade sanctions imposed on target countries increase export costs, forcing recipient countries to lose their international competitiveness. Exports and imports of goods and services will be more expensive. Sanctions will also have a negative effect on resource allocation, so the structure of the sanctioned economy will change. Sanctions in the financial sector will increase interest rates and increase the cost of financing medium-term and long-term investments and debts. The other costs of the sanctions include increased uncertainty which will inhibit domestic and foreign investors (Hufbauer et al., 2008) and generally decrease efficiency in markets. There will be a disruption of living conditions and social unrest may result (Andreasson, 2008; Nyun, 2008). Generally, international financial aid ceases (Elliott, Hufbauer, & Oegg, 2008) and there is a slowing of economic growth accompanied by rising inflation (Habibi, 2008). There may be an increasing level of corruption and graft. For example, the USA and Europe Union's sanctions against Syria reduced GDP by 10%, at the same time increasing financial debt by 11% in 2010. Tourism is also affected (Portela, 2012). Countries that impose the sanctions are

also affected. In the USA in 1995, there was an estimated decrease in exports, valued at US\$ 19 billion, accompanied by a loss of 200,000 jobs in the USA attributed to the effects of sanctions imposed on different countries by the USA (Hufbauer et al., 2008).

The first comprehensive global sanctions against Iran in the contemporary era was enacted by the British in response to the nationalization of the oil industry. The first UN Security Council resolution against Iran was issued at the same time and for the same reason. After the Islamic Revolution in 1979, more sanctions were imposed on Iran. In general, US sanctions against the Islamic Republic of Iran can be divided into six main phases: During the Islamic Revolution (1979–1981); During the Iran–Iraq war (1981–1988); The period of reconstruction in Iran (1989–1992); Under President Clinton – a policy of dual containment (1993–2001); After 11 September 2001; and finally from 2012. With the UN Security Council resolutions on sanctions, the contract to sell millions of dollars' worth of military equipment to Iran was cancelled. The US government seized Iranian assets in the USA and banned all trade between Iran and the USA. Several other countries, including Europe and Japan also prohibited the sale of military equipment to Iran and ceased financial lending (Orakhelashvili, 2015). In an effort to stop the progress of Iran's nuclear programme, tougher sanctions against Iran were imposed. These sanctions included a ban on a wide range of economic, scientific and technological, military and strategic activities. The most influential of the sanctions were an embargo on Iran's oil exports and on transactions with Iran's Central Bank. The sanctions focused on trying to cripple Iran's dependence on oil and the role of the Central Bank to process funds from the sale of Iranian oil to the rest of the world. Some have called the sanctions the toughest sanctions in history (Sadeghi-Boroujerdi, 2012) with the US objective of attempting to change Iran's political regime. Table 1 chronicles the history of sanctions against Iran.

The impact of sanctions on Iran's tourism

Iran has a six-thousand year recorded history, one of the oldest civilizations. As Hegel notes 'The Persians are first historical people; Persia was the first Empire that passed away' (Hegel, 2004, p. 173). Iran has four distinct seasons. It is possible for tourists in Iran at the same time to ski in the northern peaks of the country and swim in the Persian Gulf in the south of the country. The Republic has many natural and historic attractions. Some of these attractions include Persepolis, the ceremonial capital of the Achaemenid Empire (ca. 550–330 BC), unique mosques and Islamic monuments. Iranian architecture and traditional markets are also popular with tourists. Iran has 19 World Heritage sites and is in the top ten countries in the world in terms of having ancient and historical sites (Blanke & Chiesa, 2013). However, since the Islamic Revolution in 1979, the tourism industry in Iran, especially for international tourists, has not been given due attention. This low priority given by policy-makers is coupled with a negative destination image regarding security, political instability, poor management and decision-making among tourism officials (Butler, O'Gorman, & Prentice, 2012; Ghaderi & Henderson, 2012; Khodadadi & O'Donnell, 2015; Morakabati, 2011; Reza Jalilvand, Samiei, Dini, & Yaghoubi Manzari, 2012). International sanctions have exacerbated these problems.

Iran is located in a region that is strongly associated with political turmoil and military conflicts for several decades. The US occupation of Iraq and Afghanistan, the conflict between Palestine and Israel, revolutions in Arab countries in 2008, terrorist attacks in Syria and Iraq, the war in Yemen, Bahrain, the Libyan revolution, political upheaval in Egypt are just a few of the notable examples. The current Iranian government notes that improved regional security may lead to an increase in international tourism revenues.

Table 1. Sanctions against Iran.

Year	Sanction
November 1979	After the Iranian Revolution, USA first imposed sanctions against Iran, banning imports from Iran. US\$ 12 billion in assets was seized.
March 1995	US companies were banned from investing in Iranian oil and gas and trading with Iran.
April 1996	US Congress passed a law in which foreign companies making more than a US\$ 20 million investment in the energy sector were sanctioned.
December 2006	The UN Security Council banned trade with Iran with respect to materials and technologies related to the nuclear industry. Assets of individuals and companies were seized.
October 2007	The USA announced a new round of sanctions against Iran. UN Security Council tightens economic sanctions and trade.
June 2010	A fourth round of UN Security Council sanctions were imposed on Iran and its nuclear programme during which more stringent financial constraints and sanctions concerning arms were enacted.
January 2012	USA's oil export revenue sanctions were imposed against Iran's central bank.
June 2012	USA and the World Bank banned transactions related to Iran oil.
July 2012	There was a European boycott of Iranian oil exports.
October 2012	Iran's currency was devalued by approximately a half against the US dollar. The European Union imposed wider sanctions against Iran where banks, trade and gas imports were targeted. Assets of individuals and companies that provide technology to Iran were confiscated.
November 2013	Iran began talks with the P5 + 1 in Geneva and agreed to, in exchange for about US\$ 7 billion in sanctions, stop enriching uranium above 5% and provide better access to UN inspectors.
April 2015	Iran and Europe reached a framework regarding the nuclear agreement.
July 2015	World powers lifted sanctions against Iran on condition that Iran limit its nuclear activities.

Source: Garshasbi and Yusefi (2016).

Pratt and Liu (2016) note that peace is a precursor to increased international tourism. In order to better assess the effects of sanctions on the tourism industry, we must look to the historical process and characteristics of the sanctions against Iran.

After the Islamic Revolution in 1979, the level of tourism activity in Iran fell sharply. However, from 1995 to 2014, the average annual growth rate of international tourist arrivals is 14.1%. Figure 1 shows the upward trajectory over those 20 years. Khodadadi (2016) notes that tourism growth could have been stronger if it weren't for the economic sanctions, the eroding of the country's fleet of aircraft and the prevention of the sale of aircraft spare parts and ban of tourists from some origin countries. Because of events outlined above such as the Islamic Revolution and the political conditions in the region, the Iranian government has a high dependence on oil to finance the state budget (on average 60% of government revenues are financed by oil revenues). Similarly, a high proportion of Iran's export revenues are comprised of oil and gas exports (about 80%).

The international economic sanctions against Iran have created a negative image for potential tourists of Iran. Additionally, there is a long bureaucratic process of issuing visas for Western tourists. The ban on financial transactions with Iranian banks impinges on international tourists' ability to use international credit cards while traveling in Iran. Conversely, the depreciation of Iran's currency means Iran is a less expensive destination for international tourists. But since 1999, inflation increases in Iran has meant that there is no significant changes in the real relative prices (exchange rate adjusted) for Iran's main

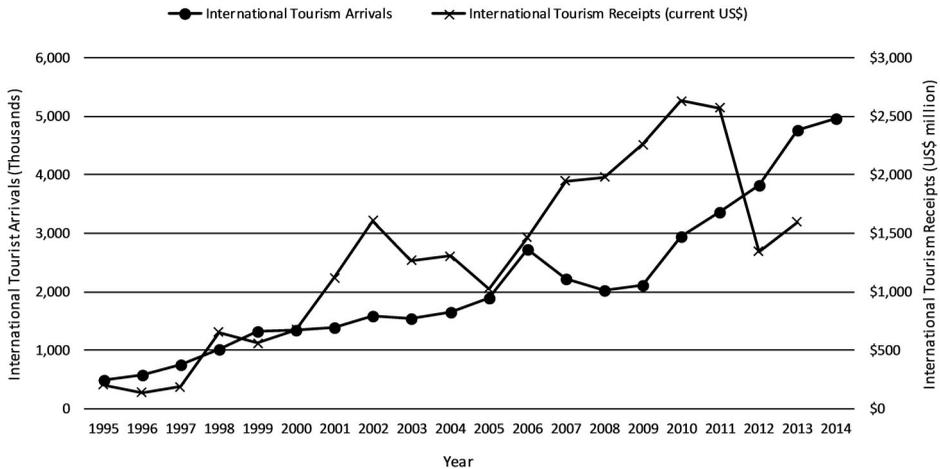


Figure 1. Iran's international tourism arrivals and receipts 1995–2014.

tourism source markets (for example, Canada, China, France, Japan, Turkey, the USA and Germany). Iran remains a relatively inexpensive tourist destination (Blanke & Chiesa, 2013). Therefore, some analysts note that, even under sanctions, Iran has experienced increases in tourism (Khodadadi, 2016). Moreover, due to the decline in the exchange rate, Iran will continue to have a competitive advantage to attract international tourists. This can be seen from 2000 to 2014, where Iran's annual rate of increase in international tourist arrivals is 10.4% compared to the global rate of 3.8% (Figure 1). In this period, due to the relatively low price of tourism products in Iran, obstacles such as restrictions on credit cards, as well as the negative public relations against Iran, international tourist arrivals have not been as high as they could have been (Ranjbarian, Forghani, & Ghafari, 2013).

One advantage of the economic sanctions has been the increase in domestic tourism in Iran. The number of domestic tourists in Iran since 2008 has increased significantly due to the reduction in outbound travel by Iranians. Devaluation of the Iranian currency, the rial, due to sanctions has decreased the purchasing power of Iranians outside of their country. Foreign travel costs are much higher than domestic trips. For this reason, travel to neighbouring countries such as Turkey, Iraq, Syria and the United Arab Emirates has increased (compared to long-haul travel) (Farahani & Shabani, 2013). Habibi (2012) provides evidence of this for the United Arab Emirates.

As shown in Figure 2, the impact of sanctions can be perceived in four areas: macroeconomic, direct impacts, indirect impacts and induced impacts. At the macro level, economic sanctions impact both the supply and demand side of the economy. The psychological effects of sanctions, through creating a negative image of Iran and restricting tourism demand will result in lower tourist arrivals. Trade sanctions including a ban on foreign direct investment and international trade will reduce employment and exports. Concurrently, financial sanctions through sanctions against Iranian banks and finance companies will lower economic growth by causing a slowdown in consumer demand. The direct economic impacts refer to the impact of sanctions on the supply and demand of tourism-oriented industries. The indirect economic impacts relate to the impact of sanctions on tourism-supporting industries. As a consequence, the sanctions can have both income and distributional effects.

With the implementation of the agreement on 14 July 2015 to lift sanctions, there may be an important opportunity for Iran to develop its tourism industry. Iran's policy-makers

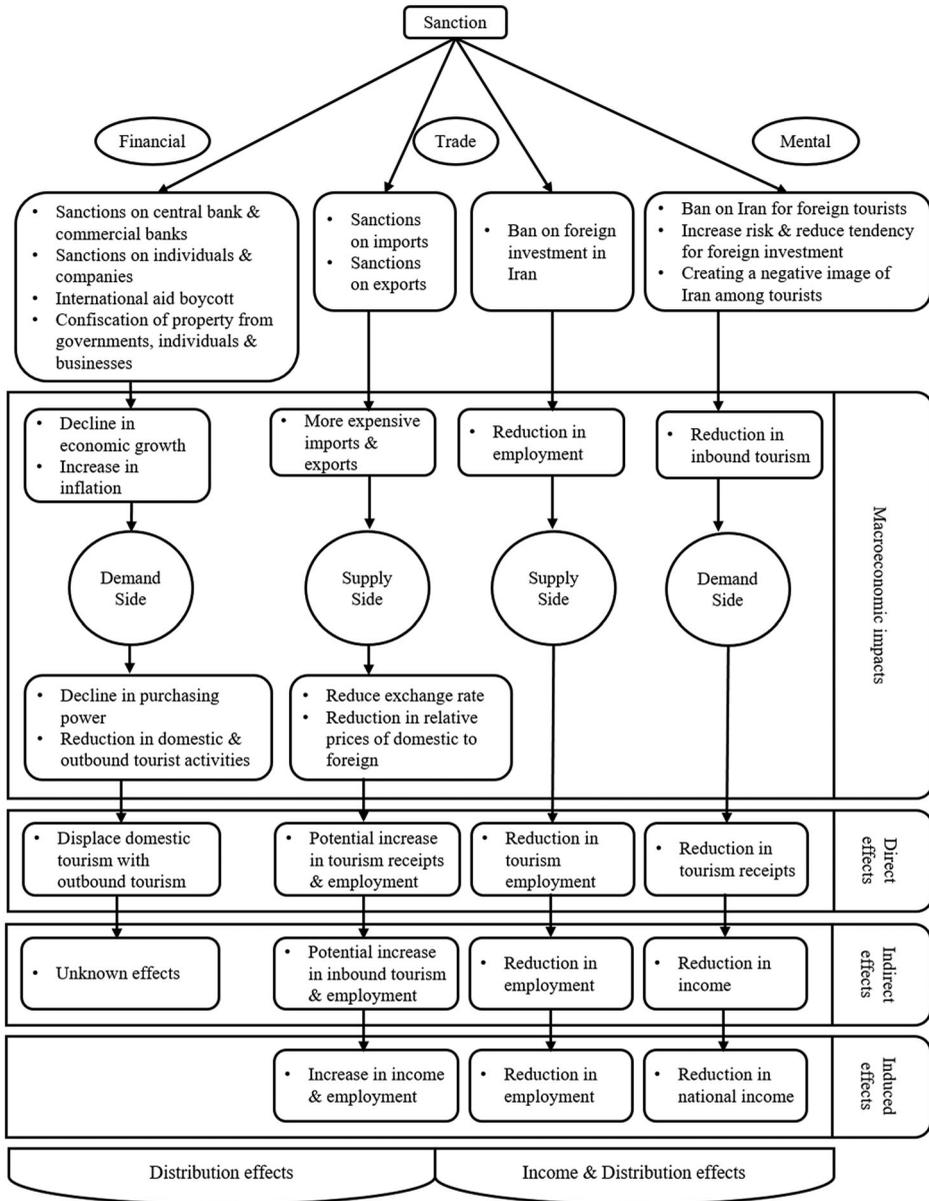


Figure 2. A conceptual model of the effects of economic sanctions on the tourism industry.

are targeting 25 million international tourist arrivals by 2025. As such, and to reduce the reliance on oil, the Iranian government must make efforts to develop the tourism industry in Iran (Khodadadi, 2016). Moves to achieve this include the purchase of 108 passenger aircraft and removal of a visa travel to Iran in 2015 to potential tourists from 180 countries. Removal of international sanctions on Iran could be an opportunity from long-term economic growth, reducing the Republic’s reliance on oil revenues. Iran’s population is relatively young and educated and, with access to capital, technology and labour, tourism opportunities can be seized.

Methodology

There has been a considerable amount of research into the economic impacts of tourism. Policy-makers want to know the economic contribution of tourism, that is, the size and overall significance of tourism to an economy. Policy-makers are also interested in examining the economic impacts of an existing or proposed project, action, event or policy shock (Dwyer, Forsyth, & Dwyer, 2009). While a tourism satellite account or an input–output table can determine the economic contribution of tourism, CGE modelling provides a highly useful and flexible framework to examine the impacts of a change in tourist expenditure, as a result of this ‘shock’. This CGE model can be termed a ‘comparative static’ model. The model is calibrated to the base year, usually the year of the input–output data. The model is then ‘shocked’ where a scenario is introduced to an exogenous variable in the model. The model then re-calibrates to a different equilibrium after the initial shock. Changes in key economic variables are then reported (Burfisher, 2011). As noted by Song, Dwyer, Li, and Cao (2012), the CGE approach is the most rigorous methodology for understanding the economic impacts of tourism. A CGE model consists of a number of equations describing the key relationships within an economy, based on the principles of the circular flow of income. A CGE model is an economy-wide model that describes the motivations and behaviours of all producers and consumers in an economy and the linkages among them (Burfisher, 2011). While a CGE model depicts the workings of the macro-economy, the behaviour of the economic agents in the model is based on microeconomic optimization principles (Stabler, Papatheodorou, & Sinclair, 2010), hence the theoretical foundations follow neoclassical microeconomics (Song, Dwyer, et al., 2012).

Figure 3 depicts a stylized graph of a circular flow of income, sourced from Berck, Golan, and Smith (1996). The outside solid lines represent the flow of real goods, services, labour and capital. The inside dashed lines represent monetary flows. As economic theory states, firms demand labour and capital from the factor markets and in return pay wages and rents in the factor markets. These same firms supply goods and services to the goods and services market in return for revenues. Households, the owners of the factors of production,

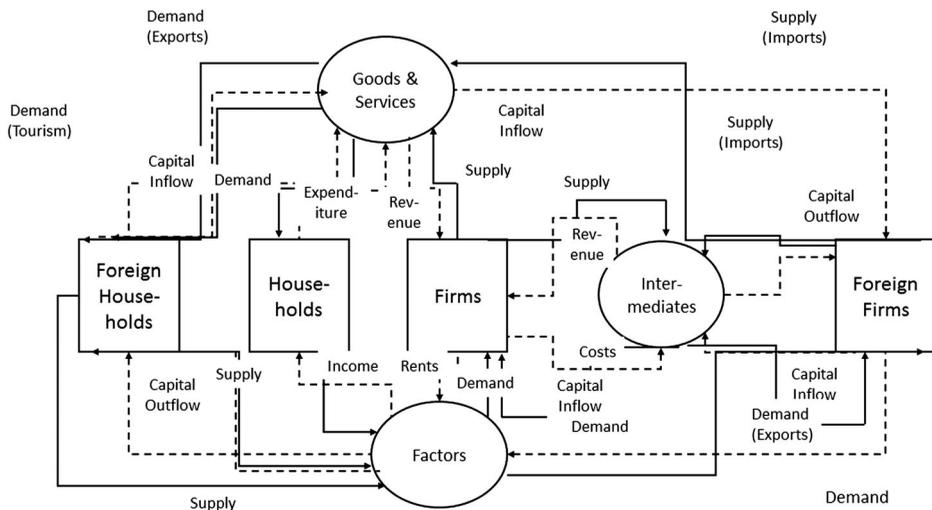


Figure 3. The circular-flow diagram with Intermediate goods and trade.

demand goods and services, spending their income that they receive from providing their factors of production, as compensation.

In Klijs, Heijman, Korteweg Maris, and Byron 's (2012) review of tourism economic impact models, the authors note that CGE models offer the most realistic results. CGE models can incorporate characteristics of the economy that input–output analysis cannot. A review of the advantages of CGE modelling over input–output modelling is provided by Dwyer (2015). Input–output models are restrictive in their assumptions. Standard input–output models assume that all factors of production and inputs have no constraints. They do not recognize crowding-out effects. Furthermore, the assumption of a constant return to scale production function means that there is no substitution between different inputs. In input–output models, all prices are assumed to be fixed. Whereas in reality, changes in supply and demand affect prices and costs. CGE models do not ignore exchange rate changes that input–output model does. This is particularly important for the analysis of tourism, which involves the demand and supply of services from one country to another. Furthermore, the government sector is ignored in input–output models. In reality, a change in economic activity due to tourism will impact taxes and government revenues (Dwyer, 2015; Dwyer et al., 2000; Dwyer, Forsyth, & Spurr, 2004). CGE models can include these variables, whereas input–output models cannot.

CGE models are starting to become the accepted method for properly analysing the economic impacts of tourism. They have been used in various applications. These include economic impacts of changes in inbound tourism (Adams & Parmenter, 1992; Meng, 2014); the economic impacts of tourism crises (Blake & Sinclair, 2003; Pambudi, McCaughey, & Smyth, 2009); the economic impact of special events (Li & Jago, 2013; Madden, 2002) and the economic impacts of economic policy, such as taxation issues (Forsyth, Dwyer, Spurr, & Pham, 2014), poverty alleviation (Blake, Arbache, Sinclair, & Teles, 2008) and climate change (Berritella, Bigano, Roson, & Tol, 2006). CGE models have previously been used to examine non-tourism issues in Iran. The impact of food subsidy programmes in Iran has been one area where CGE models have been used in Iran (Esmaeili, Karami, & Najafi, 2013; Karami, Esmaeili, & Najafi, 2012). Not surprisingly, the issue of energy and oil has been a topic of analysis for Iran using CGE models. Manzoor, Shahmoradi, and Haqiqi (2012) examine the impacts of reducing implicit and explicit energy subsidies in Iran while AlShehabi (2013) develops a dynamic CGE model to analyse policy linkages between energy and labour. Sajadifar, Khiabani, and Arakelyan (2012) investigate the impacts of implementing a value-added tax system on the economy of Iran.

Data

The authors obtained the 2011 Iran input–output table. Input–output tables are generally updated every five years and hence this is the latest available. The 2011 Iran input–output table provides a numerical snapshot of the economy in Iran for the calendar year, 2011. The benchmark economy will be used to calibrate the applied CGE model that follows. The input–output table displays information on inter-relationships that exist among industries, final users (households, tourists, government and exports), and the factors of production within an economy. This information can be used to determine the role and relative importance of each sector in terms of its output, value added, income and employment contributions and to analyse inter-sectoral linkages in the economy. The 2011 detailed input–output table has a total of 71 sectors. This has been condensed down to 14 sectors for this research for the purposes of tractability. Tourism-oriented sectors have not been aggregated so as to examine the impact of the sectors most influenced by changes in tourist arrivals.

Table 2. Features of the Iranian economy – 2011 (Billion Rials).

Sector	Share of output	Share of total imports	Imports as % of sector output	Share of total exports	Exports as % of sector output	Capital to labour ratio
Agriculture	8%	5%	5%	2%	4%	39.0
Oil & natural gas	10%	0%	0%	63%	92%	34.5
Manufacturing	33%	76%	22%	21%	9%	4.1
Electricity	5%	4%	9%	4%	12%	2.6
Water	0%	0%	0%	0%	0%	0.7
Construction	7%	0%	0%	0%	0%	1.5
Wholesale and retail services	11%	9%	8%	5%	7%	15.7
Hotels and accommodation	0%	0%	9%	0%	23%	1.3
Restaurant	1%	0%	1%	0%	0%	13.5
Rail transportation	0%	0%	1%	0%	6%	0.8
Road and water transportation	4%	4%	10%	4%	15%	8.2
Air transportation	0%	0%	15%	0%	0%	0.7
Other transportation	0%	0%	0%	0%	0%	4.3
Other services	20%	1%	0%	0%	0%	1.8

Table 2 shows some of the key characteristics of the Iranian economy for the benchmark input–output data. The Manufacturing sector makes up a third of output while the non-tourism service sectors comprise a fifth of output. The manufacturing sector imports over three-quarters of all imports and over one-fifth of the sector output are imports. On the export side, not surprisingly, oil and natural gas comprise almost two-thirds of exports with manufacturing taking up another fifth of total exports. The most capital-intensive sectors are agriculture, oil and natural gas and whole and retail services, while air transportation, water and rail transportation are the most labour-intensive sectors.

Table 3 shows the breakdown of international tourism expenditure by sector. International tourists are estimated to spend 28% of their total expenditure on hotels and

Table 3. International tourism consumption as a % – 2011.

Agriculture	0
Oil & natural gas	0
Manufacturing	6.4
Electricity	0
Water	0
Construction	0
Wholesale and retail services	16.0
Hotels and accommodation	28.0
Restaurant	21.0
Rail transportation	5.0
Road and water transportation	8.0
Air transportation	10.0
Other transportation	0
Other services	5.6
TOTAL	100

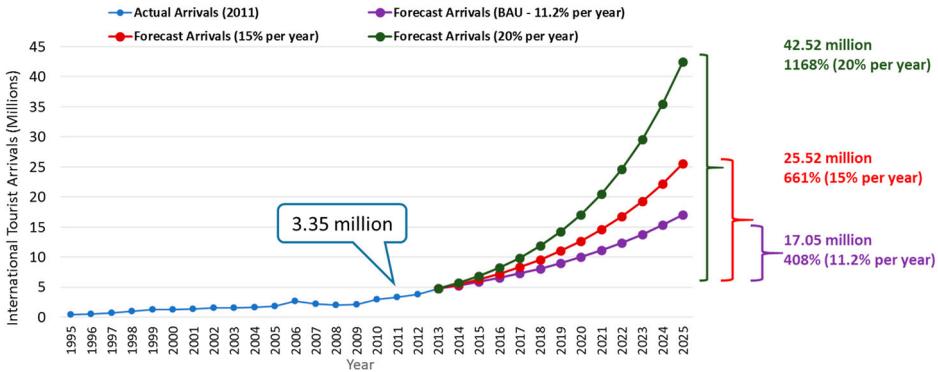


Figure 4. Scenarios.

other accommodation and a further 21% of their budget on other restaurants. One of the authors obtained these data from the Cultural Heritage, Handcrafts and Tourism Organization, the organization responsible for tourism policy in Iran that undertook its own unpublished study to capture a breakdown of international tourist expenditure.

Simulations

To estimate the economic impact of tourism as a result of lifting the sanctions in Iran, we note that from 2008 to 2011, international tourist arrivals have been growing at 11.2% per year. As the exact impact on international tourist arrivals is uncertain, three different ‘what-if’ scenarios will be simulated. A ‘business as usual’ case where the ‘shock’ to the economy will be a projected 11.2% per year increase in international tourist arrivals occurs. As the base year of the data is 2011 (3.35 million arrivals), this means that an 11.2% increase in arrivals will result in 17.05 million arrivals by 2025. Therefore, the total increase from 3.35 million to 17.05 million is 408% from 2011 to 2025. The second scenario models the impact of an increase in tourism arrivals to 25.52 million by 2025; and approximately increase of 15% per year. This represents a total increase of 661% increase from 2011. The justification of this scenario is that this figure is close to the target number of international tourist arrivals targeted by Iran’s policy-makers. In a ‘high-demand’ scenario, international tourist arrivals are assumed to increase by 20% per year for a total increase of 1168% across the years 2011–2025 to 42.52 million international tourist arrivals. These scenarios are depicted in Figure 4.

Results

With an injection of tourism expenditures as a result of a simulated increase in tourist arrivals, many of the negative impacts outlined in the conceptual model of the effects of economic sanctions on tourism (Figure 2) are reversed. The increased tourism sees an increase in economic activity.

Table 4 shows the impact of the simulated tourism increases for the three scenarios. Compared to the initial baseline, the business as usual case sees welfare, a measure of the value of the gain in economic activity minus the cost needed to enable this additional activity, increases by 0.4%. In Scenario 2, where arrivals are to reach 25 million by 2025, welfare increases by 1.8% and in the high-demand scenario, welfare increases by 8.9%. GDP, on the other hand, increases by 0.2% with moderate growth; remains

Table 4. Economic impact on tourism of lifting sanctions – macroeconomic indicators.

Billion Rials	Values				% Change		
	Initial value	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
Welfare	2,873,773	2,886,585	2,924,175	3,130,240	0.4%	1.8%	8.9%
GDP	6,483,875	6,494,507	6,483,324	6,224,085	0.2%	0.0%	-4.0%
Private consumption	2,873,774	2,886,821	2,927,338	3,152,312	0.5%	1.9%	9.7%
Investment	2,353,171	2,365,570	2,399,879	2,588,301	0.5%	2.0%	10.0%
Domestic output	8,193,476	8,512,571	8,880,739	9,254,912	3.9%	8.4%	13.0%
Tourism consumption	27,326	432,461	1,038,910	2,479,426	1482.6%	3701.9%	8973.4%
Total exports	1,592,593	1,350,472	1,025,101	541,324	-15.2%	-35.6%	-66.0%
Total imports	984,430	1,162,257	1,529,344	3,158,719	18.1%	55.4%	220.9%

approximately stagnant with medium growth and actually decreases in the high-growth scenario. When GDP is decomposed into its single elements, the reasons for this decrease in GDP becomes evident. Household consumption increase by 0.5%, 1.9% and 9.7% in the low-, medium- and high-demand scenarios. Investment growth follows a similar magnitude. Tourism consumption increases more than the initial stimulus, seeing large increases.

However, the external sector of the economy is the cause of the fluctuations in GDP. The influx in tourism results in other export sectors decreasing so that non-tourism exports decrease by 15.2% in scenario 1, 35.6% in scenario 2 and 66.0% in scenario 3. The net external position is simultaneously worsened by the increase in imports. The increased tourism consumption means that some of that additional demand will be met through the import of other goods. In scenario 1, imports are estimated to increase 18.1%. In scenario 2, imports are estimated to increase by 55.4% and in scenario 3, imports are to increase by 220.9%. This worsening of the net export position more than offsets the increase in domestic consumption and investment as a result of the tourism demand increase, leading to an overall decrease in GDP.

Table 5 shows the percentage change in prices which drives the changes in the macro-economic variables in Table 4. As in other studies of this nature (Forsyth, Dwyer, & Spurr, 2014; Inchausti-Sintes, 2015; Pratt, 2014), the increase in tourism demand leads to an appreciation in the exchange rate. This means that other exports are relatively more expensive and imports are relatively less expensive. This leads to import substitution and the contraction of the other export sectors. Relative to the general level of prices, the price of foreign exchange decreases by 2.8% in the business as usual case (scenario 1), 7.7% in scenario 2 and 21.7% in scenario 3. With the increase in tourism demand, the price of the bundle of tourism goods and services increases by 0.5%, 1.3% and 2.9% for the three scenarios. The resulting improvement in the terms of trade means that export prices are increasing faster than import prices. This factor is also driving the fall in exports and an increase in imports. In general terms, the return on capital and the investment price decrease while the aggregate wage rate increases.

At the industry level, there are changes in the net value added as a result of the policy to lift the sanctions on Iran. Unlike input–output analysis where the economy is assumed to have unlimited resources, there are some ‘winners’ and some ‘losers’ when it comes to tourism demand increases when modelling using a CGE model. The increase in demand, as in elementary economic theory, reveals that prices will increase (in all cases except a perfectly elasticity supply curve). Increases in prices attract resources into the tourism-related sectors, increasing the industries’ costs and making Iran less competitive. The size of the cost increases depends on the supply of the factors of production and what proportion of the tourism-related industries’ total production costs are accounted for by these factors.

Table 5. Economic impact on tourism of lifting sanctions – price changes.

Prices	% Change		
	Scenario 1	Scenario 2	Scenario 3
Price of foreign exchange	−2.8	−7.7	−21.7
Tourism price	0.5	1.3	2.9
Terms of trade	3.4	9.7	31.3
Return on capital	−1.5	−2.9	−0.6
Aggregate wage rate	6.0	14.3	31.8
Investment price	−0.1	−0.1	−0.4

As with other economic impact of tourism research, the tourism-related sectors naturally witness large increases. For example, the hotel and accommodation sector, restaurant and air transportation sectors see the largest increases. The sectors supplying goods and services to these sectors, such as other service sectors, wholesale and retail services and construction also see increases in economic activity (Table 6). However, those sectors that export a lot, such as the oil and natural gas sector and the manufacturing sector, witness a decline in net value added. As noted above, the relative price of exports is now higher, making oil and natural gas from Iran more expensive. The manufacturing sector is somewhat less affected than the oil and natural gas sector because, while manufacturing goods are exported to a relatively high degree in Iran, the sector also has a high import quotient and imports are now relatively cheaper, as a result of the changes in the terms of trade. However, the overall net impact of manufacturing net value added is negative.

Conclusions and discussion

With the lifting of United Nations sanctions on the Republic of Iran on 16 January 2016, there is an opportunity for an increase in international tourists to experience the natural attractions and cultural heritage that Iran has to offer. This paper estimates the economic impact of tourism and the wider economy to Iran under three scenarios. The first scenario is where tourist arrivals increase 10% per year over the years 2011–2025. This has been approximately the current growth path of international tourist arrivals over the last five years. The second scenario estimates annual increases in tourism by 15% across the same time period. Incidentally, this brings international tourist arrivals to approximately 25 million, the number targeted by Iranian policy-makers for 2025. The third scenario assumes that international tourist arrivals grow by 20% per annum.

The main findings are that increases in tourism as welfare-generating. Tourism provides the much-needed extra income and stimulates investment. Through the additional direct economic activity in the tourism-oriented sectors and the indirect economic activity through the sectors that supply and demand goods and services to these sectors, domestic output rises. To the extent that domestic industries use imports in producing their goods and services, the demand for imports also rise. These findings match other economic impact studies of tourism (Dwyer et al., 2000; Pratt, 2015; Pratt & Blake, 2009). The increase in tourism increases the demand for Iranian rials, resulting in an appreciation of the exchange rate. This results in exports being more expensive/less competitive and imports being less expensive. Hence, we see relative declines in the export-oriented sectors of manufacturing and oil and natural gas. In scenarios 1 and 2, the relative losses in those sectors are offset by the increases in the other, mostly tourism, sectors. However, in scenario 3, the high-growth scenario, the losses in the export-oriented sectors outweigh the gains in the other sectors. So while welfare, including household consumption and investment increase, there is a decline in GDP, primarily due to the negative net export position. This suggests that, while historically Iran has relied perhaps too much on its oil and natural gas reserves, it is not wise to focus too much on tourism either. Balanced growth in diversified industries seems to be most prudent.

The paper makes several contributions. To the authors' best knowledge, it is the first analysis of the economic impact of tourism in Iran using a CGE model. As noted above, CGE models are the 'state of the art' when it comes to assessing economic impacts. CGE models are more realistic representations of the economy under investigation. In contrast to input–output models, CGE models can examine the change in economic variables by taking into account factor constraints, changes in prices of inputs and outputs, changes in

Table 6. Economic impact on tourism of lifting sanctions – net value added.

Sector (Billion Rials)	Values				% Change		
	Initial value	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3
Agriculture	500,112	499,684	494,925	468,106	-0.1%	-1.0%	-6.4%
Oil & natural gas	1,036,805	786,425	472,153	84,039	-24.1%	-54.5%	-91.9%
Manufacturing	912,021	884,153	820,780	620,539	-3.1%	-10.0%	-32.0%
Electricity	392,345	394,549	386,893	315,404	0.6%	-1.4%	-19.6%
Water	16,439	16,799	17,338	18,389	2.2%	5.5%	11.9%
Construction	262,862	264,847	270,078	295,155	0.8%	2.7%	12.3%
Wholesale and retail services	823,049	880,426	960,582	1,074,711	7.0%	16.7%	30.6%
Hotels and accommodation	10,999	93,951	198,948	335,998	754.2%	1708.8%	2954.8%
Restaurant	46,639	94,824	168,196	340,361	103.3%	260.6%	629.8%
Rail transportation	11,769	27,211	49,130	94,592	131.2%	317.4%	703.7%
Road and water transportation	276,993	301,222	332,328	361,467	8.7%	20.0%	30.5%
Air transportation	7,704	21,549	40,461	73,671	179.7%	425.2%	856.2%
Other transportation	28,954	30,586	32,955	37,216	5.6%	13.8%	28.5%
Other services	1,743,867	1,774,331	1,825,789	1,950,907	1.7%	4.7%	11.9%

exchange rates, the workings of the labour market and the government fiscal policy stance (Dwyer, 2015; Dwyer et al., 2000). We also note that there can be ‘too much of a good thing’. Just as in the past where there has been a heavy reliance on oil and natural gas, expanding tourism too quickly will also cause economic problems, let alone environmental and sociocultural issues. Sustainability with managed growth would be the appropriate path to take. Annual growth in international tourist arrivals of between 10% and 15% would seem to be a prudent target.

With moderate growth, Iran’s policy-makers may well be able effectively deal with some of the problems that have plagued Iran’s tourism previously, such as trying to safeguard the cultural and environmental resources and uphold Islamic values and norms, poor access and poor infrastructure (Alipour & Heydari, 2005; Khazeni-Rad, 2016; Morakabati, 2011).

Disclosure statement

No potential conflict of interest was reported by the authors.

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