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The Impact Of Sanctions On Iran's Oil And Natural Gas Exportation: Swot Analysis

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ABSTRACT: Iran holds the world's fourth-largest proven oil reserves and the world's second-largest natural gas reserves. International sanctions are redefining the Iranian energy sector, and the lack of foreign investment and technology is affecting the sector profoundly. In 2012, Iran saw unprecedented drops in its oil exports as sanctions by the United States (U.S.) and European Union (EU) were tightened, targeting Iranian oil export revenues. Oil and gas revenues play a vital role in Iranian government's performance. That is why we decided to have a glance on efficacies of recent sanctions on Iran's oil and gas exportation. The purpose of this paper is to outline how the Western sanctions have affected Iran's oil and gas sector. Our studies show that, international embargoes have negatively affected this sector. Of course, Iran is not reactive and strikes back. Furthermore, in this study, through Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis, we concluded that some of the top priorities for Iran to thwart the impact of sanctions are: develop its Natural Gas fields, reduce unrefined oil sales and enhance its exportation of petroleum products, correct internal mismanagements, and also reduce its annual budget reliance on crude oil revenues by non-oil export development and using tax monies.

KEYWORDS: Sanction, Iran, U.S., EU, Oil and Gas Sector, Hormuz Strait, SWOT.

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1. INTRODUCTION

Being in the Middle East, Iran has a great capacity of natural sources. Middle East is a very strategic zone in the world for trading oil and gas. During the history, its countries for their abundant oil and gas sources have been targeted by world powers. Iran is in vicinity of Caspian Sea from the north, and Persian Gulf and also the Sea of Oman from the south that connect Iran to the high seas. Its strategic position in the Middle East and excellent capacity in oil and gas sector cause very important role for that in the region. Furthermore, Iranians' incredible developments in science and technology during last decades have enhanced Western concerns to grab the reign of power by Iran, in the Middle East. Because of these, the USA and the European countries tend to halt Iran's improvements, even compulsorily.

Iran's designation as a petroleum state can be understood in two important and interlinked senses. First, Iran is an oil producer and a participant in global energy markets. Second, Iran's economy is heavily reliant on oil and gas as its primary source of foreign currency earnings as well as for implicit subsidies on both domestic energy consumption and industrial production. International sanctions have a direct impact on Iran in both of these realms (Yong and Hajihosseini, 2013). Iran holds the world's fourth-largest[4] proven oil reserves and the world's second-largest natural gas reserves. International sanctions are redefining the Iranian energy sector, and the lack of foreign investment and technology is affecting the sector profoundly. Iran, a member of the Organization of the Petroleum Exporting Countries (OPEC), ranks among the world's top four holders of both proven oil and natural gas reserves. In 2012, Iran saw unprecedented drops in its oil exports as sanctions by the United States and European Union were tightened, targeting Iranian oil export revenues. The Strait of Hormuz, on the south eastern coast of Iran, is an important route for oil exports from Iran and other Persian Gulf countries. At its narrowest point, the Strait of Hormuz is 21 miles wide, yet an estimated 17 million barrels per day flowed through it in 2011 (35 percent of all seaborne traded oil and 20 percent of oil traded world-wide). In addition to oil, liquefied natural gas (LNG) volumes also flow through the Strait. Qatar exports about 2 trillion cubic feet (Tcf) per year of LNG through the Strait, accounting for almost 20 percent of global LNG trade. Furthermore, Kuwait imports LNG volumes that travel northward through the Strait of Hormuz. These LNG flows totalled about 100 billion cubic feet in 2010 (eia, 2013).

U.S. sanctions have been a major feature of U.S. Iran policy since Iran's 1979 Islamic revolution, but U.N. and worldwide bilateral sanctions on Iran are a relatively recent (post-2006) development. Many of the U.S. sanctions reinforce U.N. and multilateral sanctions put in place in recent years by European and some Asian countries (Katzman, 2014). In 2011, EU member states of Iranian oil importers cut off their importation of Iran's crude oil. After that, Iran's customers were limited to some traditional ones like China, Japan, South Korea, India, Turkey, South Africa, and some others. Western embargoes even forced some of Iran's traditional customers to reduce or cut off their importation of Iran's crude oil. Some of those economies like Japan and South Korea cut off their importation of Iran's crude oil. But some others like China as the world's second largest crude oil consumer (after the USA) couldn't give up Iran's oil completely (in 2011, China was the largest buyer of Iran's crude oil).[5]

So, trade with countries that still have normal relations with Iran, particularly China, Russia and India will still be a factor and will continue to be a source of foreign exchange earnings (Carstenius, 2013).

The purpose of this paper is to outline how the Western sanctions have affected Iran's oil and gas sector. Furthermore, in this study, through Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis, we concluded that some of the top priorities for Iran to thwart the

[4] According to Kenneth Katzman's report (2014), "Iran has 136.3 billion barrels of proven oil reserves, the third largest after Saudi Arabia and Canada."

[5] For more information see (eiu, 2012).

impact of sanctions are: develop its natural gas fields, reduce unrefined oil sales and enhance its exportation of petroleum products, correct internal mismanagements, and also reduce its annual budget reliance on crude oil revenues by non-oil export development and using tax monies.
The next section outlines the literature review. The third section presents a general overview of sanctions. It discusses the nature of sanctions and also indicates a brief history of sanctions against the Islamic Republic of Iran. Section four illustrates the impact of sanctions on Iran's oil and gas sector. Section five presents the SWOT model and four strategies of SWOT matrix for sanctions against Iran from the viewpoint of oil and natural gas sector. Section six has been devoted to results. And finally, the last section concludes and presents some recommendations.

2. LITERATURE REVIEW

So far, because of the importance of sanctions issue, lots of studies have been done about their effects on aimed economies. In this brief we consider enough to some of those realms. The key evidence that sanctions can achieve ambitious foreign policy goals is the study by Gary Hufbauer, Jeffrey Schott, and Kimberly Ann Elliot (1985, 1990)–a reconsideration of the empirical record in the first large-N study of sanctions episodes- first published in 1985 and updated in 1990. Hufbauer, Schott, and Elliot (hereafter HSE) reviewed the universe of sanctions from 1914 to 1990, 115 identified cases in all. They reported sanctions success in 40 cases or 34 percent of the total.[6] Elizabeth Rogers (1996) believes that, "economic sanctions are more effective than most analysts suggest. Their efficacy is underrated in part because unlike other foreign policy instruments sanctions have no natural advocate or constituency As a result, their successes are widely unreported, while their failures are exaggerated by those with an interest in either avoiding their use, or in using other instruments" (Pape, 1997).

Robert Pape (1997), in his study challenges the emerging optimism about the effectiveness of economic sanctions. The decisive question he asks is whether economic sanctions are an effective tool for achieving international political goals, and if so, under what conditions. His aim is to assess the independent usefulness of sanctions. He concludes that economic sanctions have little independent usefulness for pursuit of noneconomic goals. He believes that, the HSE study is seriously flawed. Practically none of the claimed 40 successes of economic sanctions stands up to examination. Eighteen were actually settled by direct or indirect use of force; in 8 cases there is no evidence that the target made the demanded concessions; 6 do not qualify as instances of economic sanctions; and 3 are indeterminate. Of HSE's 115 cases, only 5 are appropriately considered successes.

Habibi (2008), discussing about the efficacies of economic sanctions on Iran's economy believes that, the economic mismanagement and institutional inefficiencies of the Iranian economy have made it more vulnerable to the economic sanctions that have been applied against Iran in recent years. The economist intelligence unit (eiu, 2012), in its report of Western sanctions on Iran asks this important question that: "is Iranian economy cracking under pressure?" Analyzing Iran's economy under embargoes concludes that, the sanctions regime against Iran's oil exports could become a prolonged affair, lasting throughout 2013, and is not guaranteed to lead to the result desired by Western policymakers. GAO (2013)-United States Government Accountability Office- has estimated the impact of sanctions on both of Iran's crude oil production and its oil export revenues. In this estimation Iran has been compared with peer economies. According to the GAO's analysis of data from the Energy Information Administration (eia) and International Monetary Fund (IMF), In contrast to its peers, Iran's oil production and oil export revenues have fallen (for more information about GAO's estimation see sector 4 of this paper).

[6] Hufbauer, Schott, and Elliot actually count 41 successes because they count U.S. sanctions against Egypt in 1963 as two successes even though the case is entered only once in the database (Pape, 1997).

3. GENERAL OVERVIEW

3.1. Why Sanction?

Sanctions are tools controlled by the UN Security Council to punish those states, which violate or threaten international peace and security, and restore international peace. Also, the governments impose sanctions to meet their national interests, accompany Security Council and penalize violators of international and human rights (Jorjani et al., 2013). The world's major powers putting other countries under pressure tend to reduce their standard of living, income level, employments, and so on. So that, to fall down nation's satisfaction of their states. And these can cause to change the strategy or even regime changes in sanctioned countries.

The U.S. and its allies by their measures force Iran's trading partners to choose either Iran or international financial system. In this situation, Iran's trading partners have two options: a) cut off their transactions with Iranian companies and choose international financial system; b) give up the U.S. international markets and choose Iran (for more information see Gal and Minzili (2011)). Both of these two options have some pros and cons. In the first case, they'll lose Iran's high quality oil and have to find new markets for their energy needs. In the second case, they'll lose the international trade system and also will face American sanctions on themselves. According to GAO's report of State (2013), 20 countries reduced their volume of crude oil purchases from Iran after the passage of NDAA (National Defence Authorization Act for Fiscal Year 2012).

Furthermore, the Iran Sanctions Act (ISA) has been a key component of U.S. sanctions against Iran's energy sector, and it has been expanded to sanction dealings with other Iranian economic sectors. ISA sought to thwart Iran's opening of the sector to foreign investment in late 1995. ISA was the first major extra-territorial sanction on Iran —a sanction that authorizes U.S. penalties against third country firms. ISA's application has been further expanded by several laws enacted since 2010 that amend its provisions. Several firms have been sanctioned under ISA for investing in Iran's oil and gas fields (Katzman, 2014). The USA and EU by their measures aim some goals as: a) they tend to reduce foreign investment in Iran's energy sector so that Iran can't develop its oil and natural gas fields; b) they tend to make difficult Iran's access to international financial system aimed at facing Iran a lot of problems in its payment mechanism with its trading partners; c) they also eliminated the insurance of Iranian shipments to make adversities for transferring of Iran's petroleum and petrochemical cargoes. On the other side of the coin, response to the sanctions, Iran has had some strategic reactions. For instance: a) Iran decided to change its payment system and trading partners; b) Iran also used barter trade system; furthermore, c) Iran and some of its traditional trading partners used their own insurance for Iranian shipments.[7]

3.2. A Brief History of Sanctions against Iran

During last decades, whenever Iran tended to be independent faced Western reaction on itself. The U.S. cruel measures against Iranian nation have always existed, however, in this brief we consider enough to some of them. The geopolitics of Iranian energy has been a source of tension between Iran and the West several times in the past. Oil was first discovered in Iran in 1908, and subsequently a concession to produce oil was awarded by the Shah of Iran to the Anglo-Persian Oil Company, which was renamed the Anglo-Iranian Oil Company (AIOC) in 1935 and British Petroleum (BP) in 1954. In the early 1950s the Iranian Prime Minister, Mohammed Mossadegh, attempted to nationalize the AIOC, but he was removed from power in 1953 following a two-year crisis. During this episode, the UK, in retaliation for the nationalization of AIOC, placed an

[7] For more information see (eiu, 2012).

embargo on Iranian oil exports and attempted to prevent Iran from selling oil elsewhere (eiu, 2012). On November 4, 1979, Iranian students took 100 people hostage in the U.S. embassy in Tehran, including 52 Americans. The Iranian government supported the students and demanded that the United States extradite the shah, who had fled to the United States on October 22 (Pape, 1997). In response, President Carter claimed these acts a "threat to our national security" resulting from U.S. reliance on Iran as a source of crude oil[8] (Meshkat, 2013). Over the next several weeks, the United States imposed a series of trade and financial sanctions on Iran, including an embargo on oil (Pape, 1997). US sanctions were exacting a toll on the Iranian energy industry. Unilateral US sanctions have been in place since the 1990s, when a presidential executive order by the Clinton administration banned Iranian oil imports and prohibited US investment in Iran's energy sector (eiu, 2012). Beginning in 2010, Congress has enacted additional financial sanctions which generally restrict Iranian access to the U.S. financial system. In addition, the United Nations and the European Union have adopted several sanctions to compel Iran to suspend its nuclear program (GAO, 2013).

A series of sanctions targeting the oil sector have resulted in cancellations of new projects by a number of foreign companies, while also affecting existing projects. Following the implementation of sanctions in late-2011 and mid-2012, Iranian production dropped dramatically. Although Iran had been subject to four earlier rounds of United Nations sanctions, the much tougher measures passed by the United States and the European Union have severely hampered Iran's ability to export its oil, which directly affected its ability to produce petroleum and petroleum products (eia, 2013). Indeed, in 2012 Western sanctions on the Islamic Republic of Iran's oil and gas industry, aimed at putting economic pressure on it to change its nuclear policy, have reached an unprecedented level. However, it is only recently that Iran's oil and gas sector has been specifically targeted by both the US and the EU in such a coordinated manner. Importantly, this marks the first time since the foundation of the Islamic Republic of Iran that the EU member states have collectively put in place sanctions on the export of Iranian crude oil—until now an action that, with a few exceptions, had only been taken by the US (eiu, 2012).

4. SANCTIONS AND IRAN'S OIL AND GAS SECTOR

4.1. Oil Sector

With 25% of GDP, 85% of foreign currency income, and 65% of government revenues (Jorjani et al., 2013), the most important driver of Iranian economy is oil (Habibi, 2008). Iran has 34 producing fields (22 onshore and 12 offshore), with onshore fields comprising more than 71 percent of total reserves. According to Oil & Gas Journal, as of January 2013, Iran has an estimated 154 billion barrels of proven oil reserves, 9 percent of the world's total reserves and over 12 percent of OPEC reserves. Over 50 percent of Iran's onshore oil reserves are confined to five giant fields, the largest of which are the Marun field (22 billion barrels), Ahwaz (18 billion barrels), and Aghajari (17 billion barrels). Of those onshore reserves, more than 80 percent are located in the south western Khuzestan Basin near the Iraqi border. Currently, Iran's largest producing field is the onshore Ahwaz-Asmari field, followed by the Marun and Gachsaran fields, all of which are located in Khuzestan province. Iran's largest offshore field is Abuzar field, with a production capacity of 175 thousands bbl/d. According to FACTS Global Energy (FGE), Iran also possesses reserves in the Caspian Sea totalling approximately 100 million barrels (eia, 2013).

Western sanctions against Iran have negatively affected on both production and exportation of Iran's crude oil. In 2013, GAO (United States Government Accountability Office) has estimated the impact of sanctions on both Iranian production and export revenues of crude oil. In this

[8] Proclamation No. 4702, 44 Fed. Reg. 65,581 (Nov. 12, 1979).

estimation Iran has been compared with peer economies. The peer group comprises Algeria, Angola, Armenia, Azerbaijan, Bahrain, Djibouti, Egypt, Equatorial Guinea, Gabon, Jordan, Kuwait, Mauritania, Morocco, Oman, Panama, Republic of Congo, Qatar, Saudi Arabia, Tunisia, Turkey, Turkmenistan, United Arab Emirates, and Venezuela (GAO, 2013). Table 1 indicates the type of peer countries.

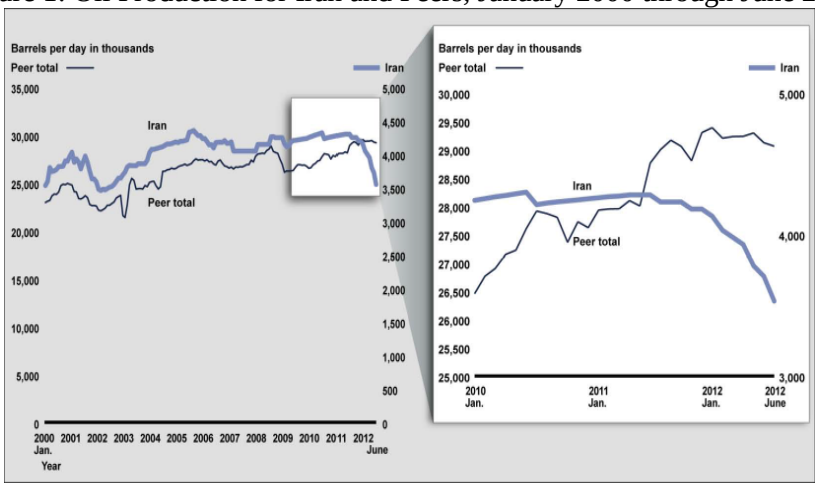
Table 1: Peers for the Iranian Economy

Peer country	Type
Algeria	Regional and oil exporting peer
Angola	Oil exporting peer
Armenia	Regional peer
Azerbaijan	Regional and oil exporting peer
Bahrain	Regional peer
Djibouti	Regional peer
Egypt	Regional peer
Equatorial Guinea	Oil exporting peer
Gabon	Oil exporting peer
Jordan	Regional peer
Kuwait	Regional and oil exporting peer
Mauritania	Regional peer
Morocco	Regional peer
Oman	Regional peer
Panama	Oil exporting peer
Qatar	Regional and oil exporting peer
Republic of Congo	Oil exporting peer
Saudi Arabia	Regional and oil exporting peer
Tunisia	Regional peer
Turkey	Regional peer
Turkmenistan	Regional peer
United Arab Emirates	Regional peer
Venezuela	Oil exporting peer

Source: GAO Analysis of International Monetary Fund Data.

As mentioned, sanctions have been put in place to force Iran's energy sector to decline its oil and gas production. However, Iran has done its best to control the negative impacts of sanctions, but naturally every restriction has some efficacies that no aimed state can control them completely. And obviously, these multilateral embargoes are being used by US, UN, EU, and their Asian allies against Iran have had some negative effects on Iran's oil production. According to the GAO (2013) analysis of data from the Energy Information Administration, Iranian oil production sharply diverged from peer oil production beginning in 2011. Iranian oil production has fallen by more than 16 percent since July 2010, while production by peers concurrently increased by roughly 4 percent. Of course, concurrent events such as economic policies in Iran imply that factors in addition to sanctions may be affecting its economy (see Figure 1).

Figure 1: Oil Production for Iran and Peers, January 2000 through June 2012

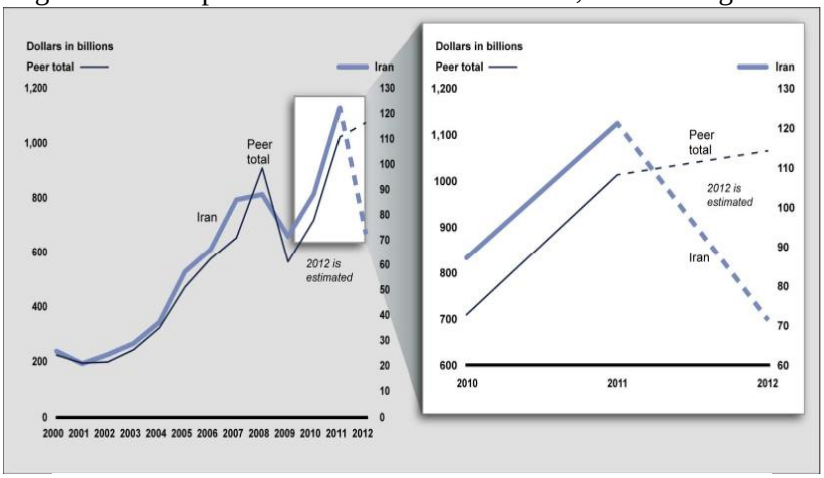


Source: GAO Analysis of Energy Information Administration Data.
Note: The Oil Production Shown for Peers Is Based on the Combined Production of All Peers.

For oil exporting countries, the oil export revenues-due to price and quantity effects-are key to the overall economy (Kitous et al., 2013). Any reduction in Iran's crude oil production will cause to decline its exportation capacity of crude oil. Naturally, that will cause to decline Iranian oil export revenue which plays a vital role in Iran's annual budget. In other words, the U.S. and its allies by their measures on Iran's energy sector aimed the most important section of Iranian economy. Indeed, they knew that Iranian state relies on oil revenues to procure its annual budget. For this reason, putting Iranian oil companies under pressure, Western countries tended to decline its oil exportation to face Iranian state budget deficit.

Figure 2 illustrates oil export revenue for Iran and peers. The impact of sanctions on Iran's oil export revenue, specially, in 2011 and 2012 is clear. Since 2011 sanctions have caused to decrease Iranian oil export revenue, while peer's revenue has increased.

Figure 2: Oil Export Revenue for Iran and Peers, 2000 through 2012



Source: GAO Analysis of International Monetary Fund Data.
Note: The Export Revenue Shown for Peers Is Based on the Combined Oil Revenues for All Peers.

To find out how sanctions can cause to budget deficit see figure 3.

Figure 3: Relation between Sanctions and Budget Deficit

4.2. Natural Gas Sector

Unlike Iran's oil sector, its natural gas exportation is small. The great deal of produced natural gas is being used in residential sector and also domestic oil fields to enhance their exportation capacity. Table 2 indicates Iranian production and consumption capacity of natural gas (2002–2012).

Table 2: Natural Gas Use in Iran 2002-2012 (bcm*)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Production	75.0	81.5	84.9	103.5	108.6	111.9	116.3	131.2	146.2	151.8	160.5
Consumption	79.2	82.9	86.5	105.0	108.7	113.0	119.3	131.4	144.6	153.5	156.1

Source: BP Statistical Review (2012) and U.S. Energy Information Administration, Iran Country Analysis.*Billion Cubic Meters

As this table shows, huge part of Iranian natural gas production is being used in domestic consumption. For this reason, Iranian natural gas exports are small. At most of these years its domestic consumption has been more than its production but two years (2010 and 2012). Because of that, Iran has to have some imports to meet its domestic needs of natural gas. Iran exports natural gas to Turkey, Armenia, and Azerbaijan, and receives pipeline imports from Turkmenistan and Azerbaijan (eia, 2013). See table 3 for average Iranian imports and exports of natural gas in 2012.

Table 3: Average Iranian Imports and Exports of Natural Gas in 2012

Imports	**Exports**	
Armenia	-	44
Azerbaijan	35	56
Turkey	-	670
Turkmenistan	770	-
Total	805	770

Source: FACTS Global Energy, Iran Oil and Gas Monthly, and eia (2013).
Unit: Million Cubic Feet per Day

According to Oil & Gas Journal, as of January 2013, Iran's estimated proved natural gas reserves stood at 1,187 trillion cubic feet (Tcf), second only to Russia. Eighty percent of Iranian natural gas reserves are located in non-associated fields, and most of these reserves have not been developed. Iran's natural gas reserves are located predominantly offshore, although significant associated natural gas production originates from the country's onshore oil fields. The giant South Pars[9] gas field, only a portion of which is in Iranian territory, comprises over 27 percent of Iran's total proved natural gas reserves and is Iran's largest natural gas field. South Pars' proved natural gas reserves are estimated at 325 Tcf, according to FACTS Global Energy (FGE), with 3-4 billion barrels of condensate in place, as reported by Arab Oil and Gas Directory. Kish is Iran's second-largest field, with an estimated 70 Tcf of reserves in place.

[9] Development of the offshore South Pars field is of vital importance to Iran, both politically and economically. Natural gas production from South Pars is critical to meet increasing domestic consumption and to meet Iran's current and future export obligations (eia, 2013).

Other large natural gas fields include North Pars, Tabnak, Forouz, Kangan, and Ferdowsi (eia, 2013). Demand for natural gas in Asia has grown steadily during the past decade and is expected to increase considerably in the next 20 years. With one of the world's largest reserves of natural gas and an enviable geographical location as a likely hub for energy transit, Iran is in an excellent strategic position to benefit economically and politically from this growth in demand (Carter, 2014). Although exploration for new resources is not a priority for the Iranian government, a number of new finds have been announced recently. In 2011, four sizeable new discoveries were announced: Khayyam, Forouz B, Madar, and Sardare Jangal fields. Iran is the third-largest natural gas producer in the world due in part to the development of the giant South Pars field. Despite repeated delays in field development and the effects of sanctions, Iran's natural gas production is expected to increase in the coming years (eia, 2013).

There are two basic conditions for Iran to become a major gas exporter: first, Iran would need to create a sufficient gas surplus for export by reducing domestic consumption and/or increasing her marketable production. Second, the government would need to reach agreements –i.e. conclude contracts- with foreign customers (Jalilvand, 2013). Much like in the oil sector, the natural gas sector has been hampered by international sanctions. Although sanctions targeting the Iranian natural gas exports were only recently enacted by the EU, lack of foreign investment and sufficient financing has resulted in slow growth in Iran's natural gas production. According to some analysts, Iran should have become one of world's leading natural gas producers and exporters given its large resource base. Development of its fields has been hampered by a combination of financing, technical, and contractual issues. Nonetheless, Iran's natural gas production has grown and likely will continue to increase in coming years. FGE (FACTS Global Energy) estimates that Iran's gross natural gas production will increase to 10.9 Tcf in 2020, but that growth will depend on the pace of development of the South Pars field (eia, 2013).

5. MODEL

5.1. Swot Analysis

SWOT analysis (Weihrich, 1982), a strategic planning method for business management, was made by Professor Weihrich at the University of San Francisco and had been successfully applied in the analyses of business or industry on the advantages and weaknesses of internal environment, and the opportunities and threats of external environment. SWOT analysis can help managers clearly understand the business advantages and disadvantages of an enterprise itself, meanwhile, systematically analyze the opportunities of the external environment and threats from competitors, such that they can make decisions quickly (Lu et al., 2013). This paper tends to analyze the strengths (S), the weaknesses (W), the opportunities (O), and the threats (T) for impact of sanctions against Iran from the viewpoint of oil and natural gas sector (see Table 4).

Table 4: SWOT Analysis for Impact of Sanctions on Iran's Oil and Gas Sector

Strengths	**Weaknesses**
• Great deal of oil and natural gas reserves • High quality oil • Authority on Hormuz Strait • Membership in OPEC • Connection to the high seas	• Undeveloped natural gas fields • Old oil fields • Sale of unrefined oil • Heavy reliance on crude oil revenues • Internal economic mismanagements
Opportunities	**Threats**
• A chance to develop natural gas fields because of the increasing global needs for natural gas • A chance to develop natural gas fields because of the restrictions on oil sector • A chance to self-sufficiency in oil and natural gas sector • A chance to decline reliance on crude oil revenues • A chance to reduce unrefined oil sales • A chance to non-oil export development	• Change into an isolated economy • Diminish of foreign investment in oil and natural gas sector • Less access to international markets • Payment mechanism difficulties • Shipment insurance problems • Decline oil production, exportation, and revenues • Face budget deficit

See also SWOT matrix and its four strategies (SO, ST, WO, and WT) in table 5.

Table 5: SWOT Matrix Strategies Table

SWOT matrix	**Internal analysis**	
	Strengths (S)	**Weaknesses (W)**
External analysis Opportunities (O)	SO strategy (Max-Max)	WO strategy (Min-Max)
Threats (T)	ST strategy (Max-Min)	WT strategy (Min-Min)

Source: Weihrich (1982).

In SWOT matrix, SO, ST, WO, and WT strategies are defined as (Lu et al., 2013):

a) SO strategies, that is, in accordance with the principles of maximizing both of the strengths and opportunities (Max–Max), enhance the merits and take advantage of chances.

b) ST strategies, that is, in accordance with the principles of maximizing the strengths and minimizing the threats (Max–Min), strengthen the advantages and avoid the risks.

c) WO strategies, that is, in accordance with the principles of minimizing the disadvantages and maximizing the opportunities (Min-Max), reduce the weaknesses and utilize the chances.

d) WT strategies, namely, in accordance with the principles of minimizing both of threats and disadvantages (Min–Min), decrease threats and overcome shortcomings.

These four strategies for impact of sanctions on Iran's oil and natural gas sector have been summarized in table 6.

Table 6: SWOT Matrix Strategies for Impact of Sanctions on Iran's Oil and Gas Sector

SO strategies	**WO strategies**
Huge reserves of natural gas, boycotted oil sector, and also increasing global needs for natural gas (specially, in Asian countries) procure an excellent opportunity for Iran to develop its natural gas fields. Hence, Iran should maximize both strengths and opportunities mentioned in table 4 for reducing impact of sanctions.	Western sanctions with their all disadvantages on Iran's economy, industry, and policy, have provided some opportunities for Iran. For example, a chance to reduce reliance on crude oil revenues, a chance to non-oil export development, and also a chance to reduce unrefined oil sales. So, Iran by minimizing its internal weaknesses should utilize of those opportunities appropriately.
ST strategies	**WT strategies**
Diminish of foreign investment in energy sector, less access to international financial system, payment mechanism difficulties, and shipments insurance problems, all are options that can change Iran as an isolated country. But Iran can reduce these kinds of threats by reinforcing strengths (indicated in table 4). For instance, by blocking Hormuz Strait can prevent of oil transferring and affect international oil markets.	As mentioned in ST strategies, isolation of Iran is one of the most important aims of sanctions. For reducing this threat, Iran should reduce its internal weaknesses (indicated in table 4). As an example, improvement of economic mismanagement will thwart some of sanctions' disadvantages.

6. RESULTS

On the basis of Iran's huge reserves of natural gas, boycotted oil sector, and also increasing global needs for natural gas (specially, in Asian countries), it is expected that Iran will develop its natural gas fields. Iran also, should reduce its annual budget reliance on crude oil revenues. Oil prices depend on external elements and every fluctuation in international markets can threat Iranian budget security. For this reason, Iranian state should diminish unrefined oil sales and enhance its exportation of petroleum products. Furthermore, Iranian state should develop its non-oil exports and use tax monies to support its annual budget.

7. CONCLUSION AND RECOMMENDATIONS

Sanctions with their all difficulties on aimed regimes provide some opportunities for them. The world's experiences indicate that, pressures and severities on targeted nations in some cases have increased their self-sufficiency in economy, industry, and so on. Diminish of foreign investment in energy sector, less access to international financial system, payment mechanism difficulties, and shipments insurance problems, are only some results of Western sanctions against Iran. All of them are options that can change Iran as an isolated country. Nonetheless, Iran with its strategic location in the region not only can thwart some of these threats, but can change them to opportunities. Of course, firstly this needs to reform internal mismanagements. In this essay, we analyzed the SWOT matrix for sanctions against Iran and their effects on Iran's oil and natural gas sector. So far, Because of the importance of sanctions issue, lots of studies have been done about their effects on aimed economies. But inasmuch as the authors know, so far, there is no coherent study about Western embargoes and their efficacies on Iranian

oil and gas sector, using SWOT approach. We believe that, SWOT matrix and its four strategies can help to decision makers of sanctioned countries for making right decisions to contrast world powers' tyrannical measures.

Our studies show that, Iran needs to use a combination of maximized strengths and opportunities and minimized weaknesses and threats. These strategies and their combinations were mentioned in tables 4, 5, and 6. But as a consequence of them, we present some recommendations as follow:

1) As mentioned, because of the global increasing needs to energy (natural gas, in particular), Iran should improve its natural gas fields. Specially, the production capacity of the giant South Pars gas field.

2) Because of the Russia's cold climate specially in winter, they can't produce fruit, green, and also corny products. Furthermore, Western recent sanctions against Russia, have enhanced its needs to these kinds of products. Clearly, it has provided a great opportunity for Iran to non-oil export development.

3) The Strait of Hormuz is a vital checkpoint to energy transit in the Middle East and even in the world. Iran's authority on Strait is a desirable opportunity for Iranians. For example, by blocking Hormuz Strait Iran can prevent of energy transferring and affect the international energy markets.

4) Iran as a member of OPEC has an effective role in the international energy markets. Any reduction in Iran's production of crude oil can negatively affect the international supply of crude oil and its price. So, Iran should use of this opportunity to reduce its energy market's vulnerability.

5) Considerable quality of Iranian crude oil is another opportunity which Iranian state should concentrate on it. Sanctions not only negatively affected Iranian economy, but they had some negative aspects on Western economies. As an example, losing Iranian oil markets, Western companies had to find a new market for their energy needs. But not all countries have high quality oil like Iran's. So, Iranian companies to exploit of this advantage should reconstruct their old oil fields so that improve their oil quality more than before.

At the end it is important to note that, Iran has done its best to control the negative impacts of sanctions, however, naturally every restriction has some efficacies that no aimed state can control them completely. And Iran is not as exception in this issue.

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ETHICAL CONSIDERATION

Authenticity of the texts, honesty and fidelity has been observed.

AUTHOR CONTRIBUTIONS

Planning and writing of the manuscript was done by the authors.

CONFLICT OF INTEREST

Author/s confirmed no conflict of interest.

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