

Dutch Disease, Rentier State, and Resource Curse: A Characteristic Triangle and Ultra Challenge in the Iranian Economy

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Received: 2018, September 17

Accepted: 2018, November 14

Abstract

Ownning Natural resources has been beneficial for some Countries, but hurtful for some others. Optimum management of natural resources in the former group has enhanced economic growth, bad governance, however, has led to Dutch Disease in the latter group. Bad governance in Iran has created Dutch Disease, Rentier State, and Resource Curse, DRR as a characteristic triangle. As the Iranian annual budget is financed by oil revenue, it is involved in a rentier state case. By applying analytical and statistical tools, this article is highlighting the different dimensions of a characteristic triangle in the Iranian economy. Positing DRR, as the number one challenge in the Iranian economy, is another mission of this article. A first specific feature of DRR is that its 3angles connect closely to each other. Secondly, DRR has led to weaken the Iranian taxing system. Thirdly, DRR has been in charge of the current less developed private sector. Some policy implications of this article include standardizing the Iranian taxing system, improving the Iranian "National Development Fund" and supporting the private sector to become a well-developed one. Disregarding DRR in Iran would deepen economic hardships. Curing DRR is the most urgent in the Iranian economy. Settling the DRR in Iran is a prerequisite of sorting out other challenges.

Keywords: Dutch Diseases, Rentier State, Resource Curse, Iranian Economy.

JEL Classification: Q38, Q30, F20.

1. Introduction

Possessing natural resources in a country, potentially spanking, is a paramount opportunity and a blessing in principle. As the natural resource is the national wealth of countries, it is expectable that owners

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of those resources are much prosperous and whether than countries that are deprived of the very resources. It has been observed; however, some reverse cases in this regard. For instance, countries possessing huge natural resources suffer from low economic growth (Sachs and Warner, 2001). Not surprisingly, Iran is among the very countries. DRR and bad governance of natural resources in Iran has led to waste those resources and increased the economic corruption as well (Dadgar and Nazari, 2012). In other words, as if owning resources in the mentioned countries has led to more economic demotion and not promotion at all. Hence, the term resource curse is used in this regard. Dutch Disease is closely connected to resource curse on one hand and to rentier state on the other. Mismanagement of natural resources will deteriorate the economic system. In public economic literature, there are some popular terms, which are equivalent of mismanagement of natural resources. These are Dutch Disease, rentier state and resource curse, DRR. As we see in a considerable numbers of scientific texts all above terms are more or less related to Dutch disease. We mention some of them typically. For instance, resource curse illustrates mismanaging and wasting natural resources. Rentier state is a state, which relies mainly on exogenous and external rents to finance its expenditures and not on internal and endogenous one. When a government relies on revenue of crude oil to finance more than 42 percent of her expenditure, it is called rentier state (Mahdavi, 1970). Economically speaking, ordinary and non-rentier states rely on taxing income, which is a natural and internal source of financing public expenditure. DRR is meaningfully related to some other economic issues. One is “mono product condition”. The main source of revenue of countries involving in DRR, is selling crude natural resources (Beblawi, 2016; Heidari, 2014). Another term related to the DRR issue is competitiveness of tradable commodities. Another one is counter manufacturing effect. That is, involving in DRR reduces manufacturing productivity. Finally, DRR is related to downgrading national currency, because of injection plenty of that currency into economy due to DRR. As Netherlands was the first country, involved in mismanagement of natural resources, the related phenomenon was so called "Dutch Disease". It was coined by economist magazine in 1977. Although Netherlands was the first country involving in that diseases, disease in question, however, passed over Netherlands and

spread in other countries. Right now, Netherlands is no longer seized in Dutch Disease. Iran, however, is. Even though one original and famous cause of DRR was mismanaging huge natural resources, DRR is not limited, however, to case in question. For, potentially speaking, Dutch Disease can emerge from extracting huge natural resources, absorbing vast foreign aids or foreign investment, rapid expand in touristic industry, discovering gold and other precious metals and so on. Iranian economy is a very brilliant case for investigating Dutch Disease and other constituents of DRR. Hence, this paper is responsible to indicate that one of the most hardships in Iran in continuation of the 21century is still DRR triangle.

2. Background and Theoretical Foundations

Dutch diseases, as a key element in DRR, stems from the discovery of plenty amount of gas and petroleum in the Netherlands in 1959. This case, on one hand, led to revaluating the national currency; it reinforced the competitiveness of oil and gas extraction activities and weakened the competitiveness of manufacturing and industrial commodities, on the other hand. Consequently, key Dutch industries were almost collapsed during the 1960s and 1970s. This episode became a benchmark for DRR generally and Dutch Disease particularly. Hence, the starting point of Dutch Disease is unusual increasing the exchange revenue. Utilizing that revenue for financing the public sector will be the second round of this problematic spiral. The outcome of a spiral as such depends significantly on optimum management or mismanagement of utilizing this new unearned and so-called "windblown" revenue. Good governance (including Norway governance) may Orientalize the case for benefiting all citizens from this new revenue and increase the standard of living of all. Bad governance (including Iranian one), however, can waste the resources and impose the DRR phenomenon on the whole economy. For, mismanaging the huge income may deteriorate the balanced growth and make unevenness the progress between tradable and non-tradable commodities. It may apparently flourish non-tradable and unproductive activities and weaken tradable and much more productive ones. This is, in turn, one of the most obvious outcomes of DRR and Dutch Diseases (Ismail, 2005 and Corden, 2018). Another symptom of DRR is

prevailing as a kind of anti-industrialization in the economy. For, because of DRR, national currency revaluates relatively and consequently weakens the competitiveness of industrial products. This process eventually leads to increasing imports and decreasing exports. Thus, DRR destroys the balance between tradable and non-tradable economic sectors. Meanwhile, DRR is mainly related to the public sector mismanagement alongside with its rentier state (Corden and Neary, 1982). While the starting point of Dutch disease or DRR, is linked to the extraction of natural resources, it is not, however, limited to that episode. Raising price of exported commodities (case of Switzerland), increasing demand for tradable goods, expansion of technology in doing business sector (case of Japan and Ireland), discovering the new natural resources (case of England), growth in new industries (Jamaica and Venezuela), discovery of massive gold (Australian case) and so on can be mentioned as some other causes of Dutch Disease (as main ingredients of DRR). Also, rapid rise of foreign aids for poor countries, boom in touristic industry in some other countries (case of Spain), discovery in diamond (case of Botswana), and massive foreign investment in a country (Brazil case), booming in mineral industries in some other (case of Chile) and so forth can create DRR. In addition, any event, which causes increasing the foreign currencies into the national economy, may potentially cause DRR in the domestic country. Dependence of economic systems to “mono-product export “(case of Iran) and dependence of public sector expenditure on revenue of exporting crude oil (again case of Iran), can cause DRR as well (Holzner, 2011; Banks, 2011).

After quadrupling oil prices in 1974, the Iranian economy experienced a meaningful groundwork of Dutch Disease. Experiences of Netherlands and Norway in combating with the disease in question could be construed as incredible findings for other countries (including Iran). Involving in such disease, the Nederland government applied different policies to harness the DRR case, during the 1960-1980 period. As a result of those policies, especially in 1980, this country could proceed basically in saving its economy from diseases in question (Koitsiwe and Adachi, 2015; Aarts, 1996). Although Dutch Disease is closely related to rentier state (coined in the 1970s), there is a narrow difference in their theoretical base. Mainly Max Corden and Peter Neary

(1982) introduced the Dutch Disease model and its theoretical base. They divided the economy into tradable and non-tradable sectors. A tradable sector, in turn, included booming and non-booming subsectors. The extraction of natural resources and selling crude oil and gas were booming sectors. Industrial and agricultural parts were non-booming parts of the economy. By shifting labor from non-booming to booming sectors, the economy faces a kind of de-industrialization. This incident leads to weakening the competitiveness of the economy as a whole in the mid-run. Prices of tradable commodities are determined globally, that of non-tradable ones are, however, finalized domestically. This event at least leads to an uncertain situation in financing domestic projects, which are based on the revenue of selling natural resources. Consequently, crude oil oriented economies (like Iran) would face a fragile income source. For, achieving income in question is subject to international shocks and other factors affecting the price of crude oil. These influence investment activities in the private sector too. The volatility of the price of natural resources has ever been problematic in finalizing economic projects (Corden, 1984; Zada, 2016; Hartard and Liebert, 2016 and the law library, 2018). Of course, Dutch Dieses model Corden and Neary (1982) is based on some simple assumptions, which may not be compatible with real-life for all countries. Full certainty in the market, stable and continuous equilibrium, full employment, full flexibility of wages, and neutral technology are among assumptions in question. By boosting the competitiveness of domestic commodities and investing in the revenue of selling natural resources, each country can harness the negative impact of DRR. The huge inflow of foreign currency into the domestic economy will raise the import and will weaken the competitiveness of national products. A prudential policy here is investing the oil revenue in productive projects and not consuming it in the current budget. Investing the oil revenue of some Iranian competitors among oil exporters in Middle Eastern countries is about 2500 billion dollars. However, the “Iranian national development fund” is empty. Therefore, the Iranian economy is obviously involved in a bad kind of DRR. For, on one hand, Iranian policymakers, especially in the period of 2005-2018, have not invested a considerable amount of oil revenue in the national development fund. On the other hand, the competitiveness of domestic and tradable commodities is in the most undesirable situation

(WEF, 2018). Iran lags behind so many countries of its competitors in this regard. These include Saudi Arabia, Thailand, Azerbaijan, Indonesia, Bulgaria, Kuwait, Vietnam, Oman, Georgia, and Romania and so on. Iranian economy suffers from two basic shortcomings which are significantly are connected to DRR as well; these are lack of well-developed private sector on one hand and standardized taxing system on the other. Mismanaging oil revenue in Iran has defected its taxing system entirely. Similarly, bad governance in this country has created huge economic corruption as well (Dadgar and Nazari, 2018).

Theoretically, and according to the Heckscher-Ohlin model, it is recommended that countries with comparative advantages in factor abundance, export the products of those factors. This recommendation, however, does not work in the case of exporting crude oil resources because it leads to weaken the competitiveness of industrial and agricultural goods. It albeit works for exporting final products of oil, and not crude oil itself. For, the ultimate consequence of exporting crude natural resources will be worsening the productivity of the economic system in principle (Afandiyev, 2013). In sum: 1- As a result of the crude oil export and injecting its equivalent domestic currencies into the economy, the Iranian exchange rate fluctuates rapidly. 2- Uncertainty would surround the doing business. 3- Productive investors confuse to invest normally. 4- Reduction in productive investment would lead to a reduction in the growth of domestic products. 5- Hence, the economy has to rely on importing final goods in order to provide the surplus demand. 6- Ultimately, the competitiveness of domestic products declines. The above package is obviously an illustration of sinking Iranian economy into Dutch Diseases and its DRR triangle as well. The Countries involving in Dutch Disease and DRR will rely on exporting "Mono product" rather than a diversified one. Lack of diversity in export is itself another outcome of involving in Dutch Disease (Buture, 2013; Elardhi, 2018). Lack of diversification is a crucial shortcoming of the current Iranian economy. This has caused the Iranian economy to lag behind its neighbor countries. By diversifying their exports some natural resource-based countries among Iranian competitors, are curing DRR in their countries as well (Mahroum and Saleh, 2018). We can conclude that optimum or good government can help the country to cure DRR. For, a good government would help to standardize the economy. Bad

government, however, may sink the country into DRR spiral¹. Both theoretically and in actual life, there is a strong link between resource curse, Dutch Disease, and rentier state. Theoretically speaking resource curse refers to a negative relationship between the abundance of natural resources and economic growth. Not surprising some studies indicate that the resource curse refers to the abundance of natural resources and weak democratic institutions (Sen, 1981; 1999). The starting point of resource curse debates goes back to the 1950s, the term was coined however, in the 1990s. Some studies link resource curse to the type of governance, lack of democratic institutions and the like. This obviously is compatible with the triangle framework of this paper (Venables, 2016; Schubert et al., 2018). Some findings of Sen (1999), North (1991), and the Like are compatible with theories underpinning the resource curse (Dunning, 2014; Okoro, 2016; Zhan, 2019). Overall, as theories and empirical studies support, although the resource curse is not an exclusive factor for under-development, it is partly responsible for that. It is a complementary element to Dutch Disease and rentier state (other pillars of the DRR triangle in this article).

3. Some Experiences of DRR: Lessons for Iranian Economy

Involving governments in Dutch Disease and DRR have examined widespread efforts to save their countries from diseases in question. We mention some typically. 1- The Netherland country, which was the first to involve in Dutch Disease, cured that disease in a reasonable period. Thus using Dutch Disease for Nederland is no longer meaningful; Iranian disease, Venezuela disease, or ... do make sense more than Dutch Disease. 2- Before Nederland, it was argued that Australia had involved in some dimensions of DRR. Of course, Australia was involved in the gold rush case of DRR (in the 19th century). 3- Another notable experience is combating Norway with some aspects of DRR in the 1970s. Firstly, a significant feature of the Norway case is a positive relationship between oil revenue and economic growth in that country. Countries with similar conditions lagged behind Norway in this regard (Larsen, 2006).

1. Optimum or good government: 1- Does not intervene, but monitor the economy. 2- She is democratic and peaceful in principle and considers the rules of the game. 3- She cooperates with private sector. 4- She is accountable, disciplined and accepts her responsibility. 5- She tries to produce and enhance much more social capital. 6- She is not rentier in nature and finances her expenditure from taxing system (Dadgar, 2018).

Secondly, Norway is a remarkable experience. The policymakers of this country believed that natural resources are belonging to all generations and not just the current generation. If Iranian rulers pay attention seriously, just to this point, they might decide to follow Norway in curing DRR in their country. Believing rulers of countries in such a "world view" is a brilliant lesson and golden experience for deciding to save countries from bottlenecks like Dutch Disease (Schium, 2018). Thirdly, another impression of Norway rulers was that the revenue of oil would be temporal and possibly does have fluctuations in principle. On the contrary, Iranian rulers, as if, believe that the crude oil revenue is perennial and permanent in nature¹. Fourthly, a distinguishing feature in Norway's case (comparing with Iran) was the role of the private sector in both ownership and management of petroleum. Fifthly, the efficient taxing system in the Netherlands worked as a controlling factor and a monitoring device for supervising the behavior of private companies too. A key difficulty in the Iranian economy is, however, ambiguity in ownership and property rights between the public and private sector itself. Moreover, in the Iranian case, the status of economic freedom, conditions of doing business, trends of macro variables and so on and so forth, are in a problematic framework (Holden, 2013; IMF, 2017; Alizada and Hakimian, 2013, the economist, 2018, and Maloney, 2015). The mentioned template indicates the major differences in governance structure and institutional framework in Norway and Iran. Consequently, Iran is starving with sever DRR phenomenon. According to good government indexes, an efficient taxing system and well-developed private sector would actually insure financing public sector expenditure and hence cure DRR problems naturally (Nordix, 2018). Sixthly, oil companies in Norway will sometimes endure above 80% marginal tax rate on their profit. Due to optimum government, transparent property rights, standard taxing system and so on, Norway could succeed in managing oil revenue and resolved the main parts of its DRR case. Seventhly, benefiting from the optimum structure as such, Norway established an efficient reserve fund to keep the main part of oil revenue and investing it and consuming the returns of investment in question and

1. Governments that construe oil revenue as temporal asset will plan to enhance taxing system. Governments, which pretend perpetuity of oil revenue, will rely on oil revenue for financing public expenditure.

not a principal asset. Following this procedure could be a very helpful lesson for Iran. 4- We can mention some other relevant cases in this regard. We point out to the Indonesian experience regarding oil boom in the 1970s, Nigeria in 1990s, Australian mineral products in 2000s and 2010s, mineral product boom in Chile in 2000s, foreign exchange boom in Philippine in the same decade, dollar boom in Canada in 2000s, Natural gas price boom in Russia in the very decade, oil price boom in Venezuela and Azerbaijan in 2000s, typically. The entire experience can encompass some lessons for Iran. In all the above cases quality of law, doing business environment, the fiscal discipline of public sector, rational decision making, political stability, and democratic institutions had crucial role in leading ultimate outcome regarding DRR generally and Dutch Disease particularly (Martin, 2012; Economist, 2007; Greenberg, 2011, and Ross, 2013). 5- Another effective experience that could be educational for the case of Iran is the Britain Dutch Disease case. One can maintain on following findings in Britain's case. Firstly, due to a rapid increase in oil prices in the 1970s, the extraction of petroleum in England was quietly beneficial. Consequently, this country became one of the biggest oil exporters in the world in the very period. Secondly, the above event led to revaluating domestic currency and worsening the competitiveness of productive commodities in England. Some studies indicated that a one percent reduction in manufacturing commodities in England in the same period would lead to losing 70000 job opportunities. Thirdly, by applying the policy implications of studies in question, Britain's government was investing (and not consuming) money released from oil boom price in question. Thereupon, oil return in England was converted to a permanent and safe income. 6- Generally speaking, one efficient lesson from DRR, and other similar cases, is investing the new oil revenue in productive activities in foreign counties and not utilizing it in current expenditure (Alilou et al., 2012; Cameron and Stanley, 2017). Remarkable numbers of empirical studies confirm the successes of the above solution. By doing so, the domestic economy will be insured in front of fluctuations in exchange revenue as well. This is a very easy and efficient lesson, which has been neglected by the Iranian public sector. In other words, improving development fund is another fruitful lesson in combating DRR, which surprisingly Iranian officials relinquished it in actual life. Iranian officials neglected other

similar solutions for DRR. 7-Optimum taxation in some countries (including Australia), the outflow of extra money in Chili and diversifying exports in that country are other fruitful findings to be imitated by Iran (Zainnaser, 2014; Rueble, Kularni Zoll, and Comy, 2018). Attention to the findings of this paper so far, we conclude certainly that the Iranian government has not operated efficient policies yet to save her country from the fatal threats of DRR.

4. Groundwork of DRR in Iran: A Semi-Technical Analysis

In starting this section, we prefer to introduce some of the axiomatic settings of this article. This can be indicated in the following package. 1- Involving the Iranian economy in Dutch Disease and DRR is too obvious to be debatable. 2- The Iranian public sector suffers mainly from bad governance alongside DRR as well. 3- DRR can aggravate bad governance and vice versa. 4- Two obvious negative by-products and at the same time, two influential factors of DRR in the Iranian economy are inefficient taxing system on one hand and less developed private sector on the other. 5- *Retuning* sanctions related to a comprehensive joint plan of action, JCPOA is going to make the Iranian difficulties much more complicated. 6- Bailout of Dutch Disease and DRR are very urgent in the current Iranian situation and neglecting it may help to collapse the economy as a whole. 7-Settling DRR is a very efficient benchmark for sorting out other key challenges in the Iranian economy. By presuming, such a package, this article is analyzing the DRR in Iran. The groundwork of Dutch Disease and its related DRR in Iran goes bank to 1970s when the price of petroleum raised rapidly and the Iranian government increased the annual budget accordingly. Iranian imports rose in the period of 1970-1978 and the domestic products diminished accordingly. Due to converting new dollars into domestic currency, liquidity went up and led to a higher inflation rate. Eventually, some elementary symptoms of DRR appeared in the Iranian economy. The price of crude oil, however, decreased in 1979. This incident, in turn, worsened the government's capability to precede her welfare programs. In addition, the rebelling movement and nationwide demonstrations against the regime led to the inability of the government to combat with DRR case. The impact of DRR in the Iranian economy was triggered by the 1980s and afterward. This chronic and painful

problem is continuing on the eve of 2019. Some studies have stressed on some dimensions of Dutch Disease in Iran (Zamanzade et al., 2014; Manzour and Badipoor, 2009; Dabir, 2010). This article is analyzing the results of those works and trying to highlight other dimensions of Dutch Disease. Thus, it is positing the case under the DRR framework. As figure (1) indicates, the symptom of DRR in the Iranian economy was very high in the period of 1979-1980.

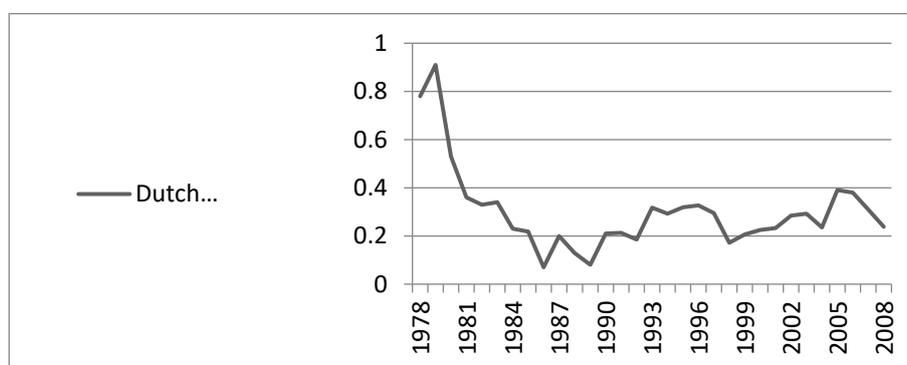


Figure 1: Dutch Disease Index Trend in Iran

Source: Sadegi et al., 2014.

As figure (1) indicates the Dutch Disease index was estimated in the time series framework and Fuzzy Logic method. This index is a number between zero and one. This article concludes that the trend of the Dutch Disease index is affected by the financial sector and budgetary policies. According to Iranian law after the revolution, oil and gas revenues are state-owned incomes. This in turn, and as economic efficiency is concerned, can be a problematic case. According to Iranian central data, above 80 percent of export revenue in Iran has been belonging to oil and gas products. More than 50 percent of Iranian government payment is financed by oil revenue. When oil revenue raises, there are some potential channels for utilizing that revenue. First, is supplying the earned dollars in the free market. By so doing the price of the exchange rate will go down. This policy will, *ceteris paribus*, increase imports and decrease exports of non-oil products. This is obviously sinking the economy in Dutch Disease and its related DRR triangle. The second channel will be selling the oil dollars to the central bank and receiving the equivalent of the domestic currency. This will raise the

monetary base and liquidity. Therefore, both the above solutions increase demand for both tradable and non-tradable commodities, which possibly lead to a higher inflation rate. Eventually, domestic and tradable commodities will lose some of their competitive powers and the economy will face a kind of recession that is a symptom of the DRR framework (Parvin and Dezhbakhsh, 1988; Davis et al., 2003; Mehrara et al., 2015). In sum, the Iranian economy indicates all symptoms of Dutch Disease and DRR (CBI, 2018; Khezri, et al., 2015). A rapid increase in liquidity, pure speculation, and price bubble in different markets, including exchange and money markets, capital markets, gold and housing markets are mentioned typically (Khodadad and Razban, 2014). Raising prices create an expectation of increasing those prices in the future as well. This will increase current demand, which is in turn followed by raising new prices, and so on (Nily, 2015). Pieces of evidence of Iranian housing markets (in 2012) and Iranian exchange and gold markets (in 2012 and 2018) indicated the precarious results. In 2011, the land price index raised from 32 to 50. Appreciation of exchange rate in Iran in spring 2018 rose in such a terrible situation that it moved up in a full-blown format. Figure (2) indicates the increasing trend in both liquidity and the monetary base.

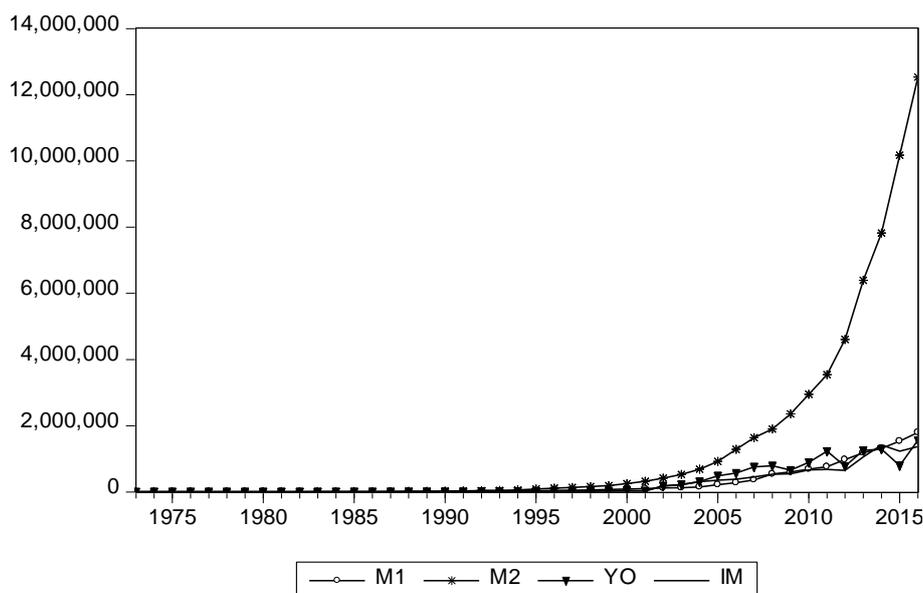


Figure 2: Trend of Liquidity, Total Import, Monetary Base and Oil Revenue

Source: Research results

In figure (2), M_1 refers to monetary Base, M_2 , liquidity IM, the total import and YO , oil revenue (all in billion RIs). As figure (2) indicates, the ultimate consequence of the above trend in Iranian case is increasing prices and pure speculation on one hand, and declining in productivity and real economic growth on the other hand. All of the above findings are obvious symptoms of Dutch Disease and DRR in the Iranian economy. The third potential channel for benefiting from oil revenue in the Iranian economy is keeping new revenue in “national development fund”. This is a very helpful solution. It is at the same time a means to bail out the economy from DRR cases. For, by using that manner, it firstly can distribute the benefit of oil revenue among all generations rather than just the current one. Secondly, in this case, the government can invest that revenue in improving infrastructural issues of the economy. The final channel of using oil revenue is investing it abroad and using its return for financing current expenditures. By benefiting oil revenue in this way, one can prevent the DRR on one hand and will enhance economic growth and social welfare on the other. This, in turn, will potentially improve the satisfaction of citizens as well. Operating these functions by governments are in direction with training in promoting good governance, settling rentier state issue and resolving resource curse. In other words, it is a package to save the economy from a bad triangle case in the Iranian economy. One prominent decision in the 1997-2004 administration in Iran was passing the first law for saving the economy from Dutch Disease. According to Article 60 in Third plan law, the government had to establish the so-called, “exchange reserve account” or latter “exchange reserve fund” (PB, 2005). According to that account or that fund, the government was obliged to open two new accounts in the central bank; exchange reserve account and domestic reserve account. Based on that law it was supposed that the government deposits some part of crude oil revenue deposited on that account since 2001 and afterward. This was somehow similar to Norway's solution in combating Dutch Disease and could be an efficient way to harness DRR in Iran. Unfortunately, that account in the subsequent administration (2005-2013) loosed its identity and was converted to a new source of government rent. Some studies prove that the Dutch Disease trend in Iran was declining relatively after working on that account (Sadeghi et al.,

2014). This declining trend of Dutch Disease, unfortunately, was banned after ruling new administration (2005-2013). Administration in question swept out the mentioned account altogether. Another deficiency in the Iranian economy which affects the trend of DRR is the lack of an efficient institutional environment. In other words, good institutions can help the economy to cure DRR cases. Remarkable studies have demonstrated the positive relationship between good governance on one hand and resolving Dutch Disease and DRR on the other (Shaffer, 2012; Tepperman, 2016; Hendrix and Noland, 2014; Bruekner et al., 2016; Manaldo, 2016). Hence, in countries with good institutions, there is a lower economic corruption, property ownership is supported, and there is a positive relationship between natural resources on one hand and economic growth on the other (Mehlum et al., 2006). Alternatively, providing a good institutional framework can help to cure DRR cases on one hand, and the natural resources are used with much more productivity on the other hand. Not surprisingly, the however performance of the majority of oil exporters in Middle Eastern countries is not compatible with the mentioned trend. Rather they suffer from painful Dutch Disease unsustainable economic growth, high economic corruption, and weak governance. The accountability of governments in some of these countries is very low, there are no sufficient democratic institutions, but there is plenty of natural resources (Pourjavan et al., 2013; WB, 2017; Okombo et al., 2011; Bergguen and Gardels, 2012). Not surprisingly, the Iranian economy does have the worst circumstances among all other oil-exporting countries. For, the ratio of Iranian tax to GDP is less than 7 percent, which is at the bottom of tax ranking lists. The rate of tax on GDP for developed countries is above 30%, and for developing countries, it is above 15%. Actually, one can easily realize that by such a taxing framework and with high public expenditure, the Iranian government is mainly relying on oil revenue for financing its expenditures. Consequently, the Iranian economy is involved in a specific DRR case. Iranian government expenditure is close to 20% of GDP. Therefore and according to a rule of the thumb and based on public sector theories, the Iranian government is structurally bankrupt. Because economically speaking, she does have about 13% of GDP deficit ($20-7=13$). As the government is mainly relying on oil revenue in financing its expenditure, reducing oil revenue will lead to a public budget deficit.

The bad government will finance the budget deficit by borrowing from the central bank. Operating the above policy will raise the monetary base and liquidity volume. The government will use oil revenue and do not need to think about improving the taxing system. This kind of public sector structure may lead to despotism in the long run as well. Hence suffering the Iranian economy from DRR alongside raising the share of oil in public budget will affect the quality of the taxing system at one hand (Sameti and Darjani, 2013; WillemSen, 2018) and does impose a negative impact on political and institutional structure too. This, in turn, confirms significantly the key finding of this article, involving the Iranian economy into complicated disease, DRR.

5. Some Frameworks and Outcomes

As the price of Iranian oil is determined in global markets, outside of Iran, oil price depends on different factors including global demand, a supply of oil outside of Iran, global economic crisis and so on. Hence the oil price and oil revenue in Iran are fluctuating rapidly (Zaranejad et al., 2012; Greffin and Teece, 2018). This, in turn, led to an uncertain situation in economic activities and effects on trends of macro variables. Figure 3 illustrates some dimensions of the case in question.

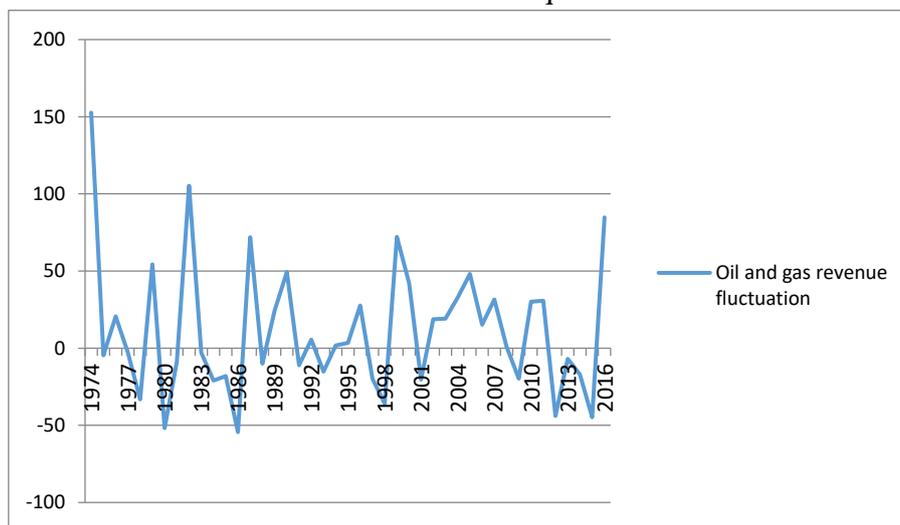


Figure 3: Iranian Oil and Gas Revenue Fluctuations

Source: Research results

One possible outcome of the above process would be a budget deficit,

a higher inflation rate, setting aside helpful projects, etc. It is also foreseeable that due to new joint comprehensive plan of action, JCPOA sanction(activating in November 2018), the Iranian oil revenue may face with much more rapid fluctuations in 2019, and afterward. The above uncertain situation would amaze economic agents to decide rationally. Thus, investors may do not invest sufficiently in productive areas. Similarly, in such circumstances, foreign investment will decline too. This trend will decrease overall economic productivities and increase non-productive and rentier ones (Shahbazy and Afarineshfar, 2015). Another crucial problem in the Iranian case is the lack of optimum management. Several studies indicate that the main reason behind the failure of countries with abundant natural resources is mismanagement of the public sector (Holder, 2006; Busse and Groning, 2011; Freer, 2018). Interestingly, bad governance on one hand and DRR on the other do have Grangerian (bilateral) relationship. That is, DRR and its subsystems worsen the governance and Vice versa. In Iran for instance, there is a positive relationship between economic corruption and oil revenue. Sufficient pieces of evidence indicate that countries involving in DRR or each of its sub-sectors suffer from low productivity (at least in the long-run). This is not only compatible with Iranian case (Shakeri et al., 2013; Mehrgan et al., 2014), but also is consistent with other countries (Sachs and Warner, 2001; Algieri, 2004; Comes and Kalecheva, 2007; Corden, 2011 and Albertus and Menaldo, 2018). Iran is the fourth oil exporter in the world and benefits from this cheap blessing¹. It owns about 15% of the proven oil reserves in the world. It also possesses about 16% of the proven gas resource in the world. It is a prevalent debate that Iran does posse at least 160 billion barrels of oil reserves and 35 trillion cubic meters of gas reserves. Iran is located in a Middle Eastern area where contains arguably about 65% of worldly sources of energy. Actually and, due to imposing the DRR phenomenon, the Iranian economy suffers from low efficiency, low productivity uncertain revenue and fragile import and export. Any oil shock, for instance, leads to a 25 percent increase in import and decrease in non-oil exports (Golchin poor, 2014 and OPEC, 2018). Imposing DRR on the Iranian economy has imposed a fragile trend in macro variables and

1. as the extraction cost of a barrel of petroleum is less than 7 dollars, by assuming 40 dollars market price for each barrel, oil is very productive (and a very cheap blessing).

unstable movement of productive sectors. Figure (4) indicates the value-added of 4 main sectors of the Iranian economy. VS refers to services, VI for industry, VO for oil and VA for agriculture.

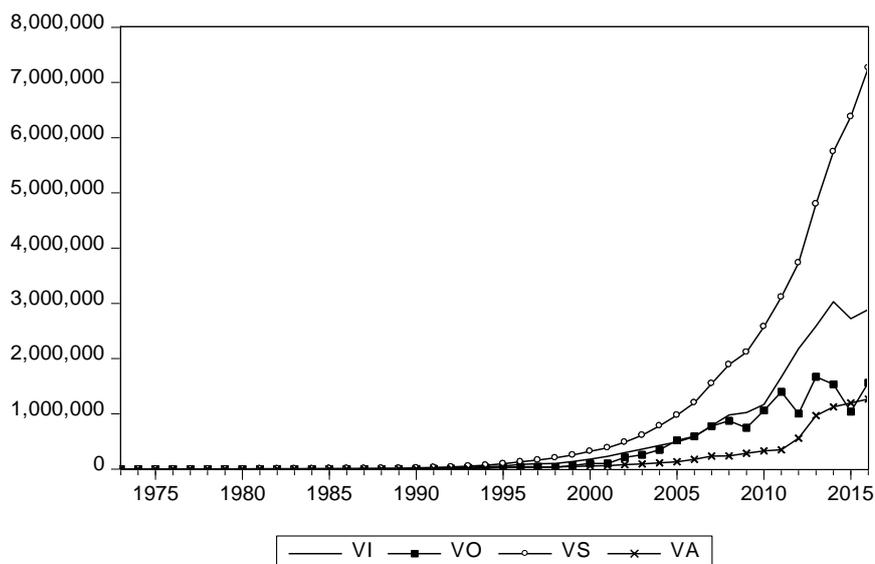


Figure 4: Value Added of Main Sectors in the Iranian Economy

Source: Research results

Figure (4) illustrates that the service and industrial sectors interact positively with oil shocks. The value-added of agriculture and oil is very low. Meanwhile, the Iranian economy suffers from unproductive services. Thus, high-level VS does not necessarily indicate an acceptable service trend. Another challengeable case in utilizing oil revenue in Iran is the share of that revenue in public expenditure. From 1965 through 2012, the average share of oil revenue of government income was 56 percent. Government expenditure from oil revenue on average has been above 50% in the past 45 years. That ratio declined to 45% in 1978 due to the limitations of the revolution. Due to a reduction in global demand for crude oil, its price fell in the 2015-2018 period. As figure (5) indicates the share of oil revenue in public expenditures has been rapidly fluctuating from 1973 through 2017.

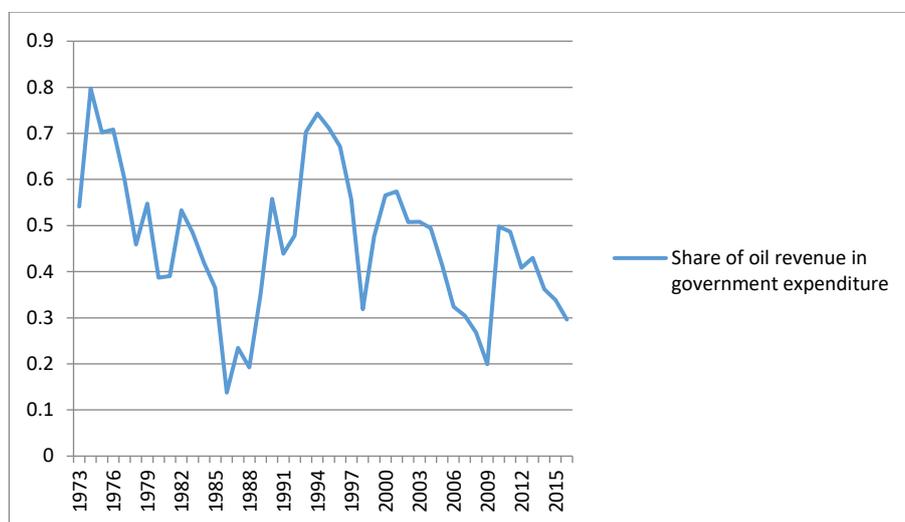


Figure 5: Share of Oil Revenue in Government Expenditure

Source: Research results

One Symptom of Dutch Disease is the increase in the share of government expenditure in oil revenues. Here we investigate the trend of this variable. It is noted that this index has major fluctuations and is highly dependent on oil incomes. Hence, as the Iranian public budget is mainly dependent on the oil revenue, the trend of macro variables would be unstable in principle. In the high price condition of oil revenue, the GDP generally increases. The outcome, however, depends on the direction of the factor movement. If the new income is used in productive capital formation framework, it would be promising. If new income is used, however, for current expenditure, there are no efficient outlooks for the future of the economy. In the Iranian economy, the major part of resource rent is utilized for current expenditures. As figure (6) indicates the current expenditures include a great part of new income. In this figure GT is a total payment of government, GO is share of government expenditure in oil income, GC is Constructional payment and YO is Oil income. Another difficulty in the Iranian economy, which is again related to DRR, is the huge role of government and her crowding out effect on private sector activities. This is also another symptom of Dutch Disease on one hand and bad governance on the other (Nily et al., 2008). Ultimately Iranian economy is still striving with Dutch Disease, is facing with rentier state and the resource curse,

DRR; a characteristic triangle. Saving the Iranian economy from DRR would provide sufficient ground for bailing out from other obstacles. Hence, DRR is the number one and ultra-challenge in this economy.

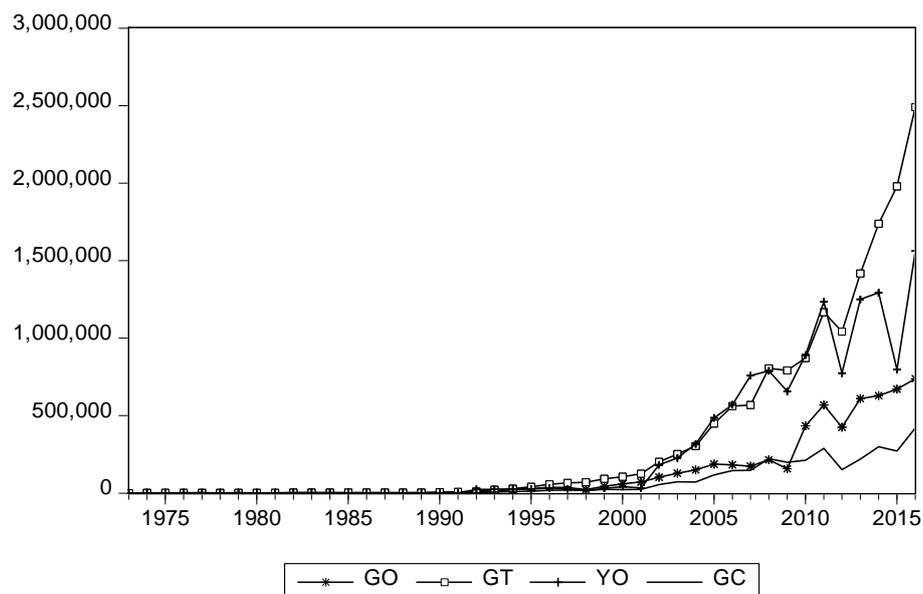


Figure 6: Total Payment, Current and Constructional Payment, and Oil Income
Source: Research results

6. Conclusion

- a) According to the findings of this article, the Iranian economy is obviously involving in Dutch Disease. In addition to Dutch Disease, this economy is moving in the direction with resource curse and rentier state. These 3 difficulties have made very complex and specific triangles. This article is analyzing the triangle in question.
- b) According to the findings of this article, some obvious outcomes of overcoming this specific triangle on the Iranian economy can be mentioned typically. The demotion of competitiveness of tradable commodities, strict dependence of economy to crude oil income and its consequent fluctuations, less developed private sector and non-standardized taxing system are some problematic issues, which are effects of dominating DRR on the Iranian economy.

- c) Property rights deficiencies, non-reasonable and non-accountable government intervention in private sector activities, and weak institutional environment are predominating the major part of the Iranian economy. The real impacts of such deficiencies can support and firm the bad triangles of this article, DRR. The weak and undeveloped private sector cannot pay sufficient tax, thus, government expenditure is mainly financed by oil revenue. This obviously enters the economy into the DRR phenomenon. According to the other findings of this work, the Iranian public sector is, economically speaking, bankrupt. For, her natural and economic income (amount of received tax) is less than 7 percent of GDP; her expenditure is, however, around 20 percent of GDP. In other words, she suffers from structural bankruptcy.
- d) Based on this article if we can constrain the main challenges of the Iranian economy into 1- high unemployment, 2- low economic growth, 3- environmental hardships and water shortage, 4- Financial and banking crisis, and 5- Dutch disease, it seems that Dutch Disease and its related affiliations (rentier state and resource curse) is the first ultra-challenge. Reforming the public sector structure and moving towards healthier and efficient management are prerequisites for solving other challenges (unemployment, low growth environmental hardships and so on). Continuation of DRR has reached a situation as such which some may believe that the Iranian economy is facing a terrible deadlock.
- e) This reality should be institutionalized in the mentality of key policymakers that crude oil and gas are belonging to all generations and not to the current generation alone. Thus, policymakers are responsible to provide sufficient and suitable grounds for flourishing hard-working culture, and taxing culture rather than rentier culture and relying on crude oil revenue. By restructuring the good governance, Iranian citizens can follow Norwegian citizens to save their economy from Dutch Disease and DRR.
- f) For bailing out economic disease as such (Dutch Disease, DRR,), it is required urgently that financing public expenditure separate from crude oil revenue. If operating this strategy is not accessible

immediately and right away, it is feasible in a gradual manner. For instance, it is recommended that at least 30 percent of crude oil revenue be kept by "national development fund" to be used for the promotion of health and education. That new asset can be invested abroad as well. The government can utilize the returns of stored capital in question, for financing her current expenditures. The remaining parts of public expenditure should be financed by the standard taxing system. It is recommended that compound taxing be applied in Iran. Iranian taxing capacity studies indicate that taxing income can achieve 17% of GDP in mid-run. Restructuring governance itself can improve the taxing system in the Iranian economy.

- g) According to another finding of this article, for curing Dutch Disease and DRR in the Iranian economy taking some steps is necessary. Firstly, it is improving the competitiveness of non-oil tradable commodities. Secondly, is preventing the exchange rate fluctuations. This is feasible by absorbing new oil revenue gradually, and not in all of the sudden framework (Iranian case). Investing the new oil revenue abroad is one byproduct of this issue. Thirdly, productive investment should be encouraged greatly. The fiscal discipline of the public sector and independence of the central bank are very influential factors in achieving this target. Fourthly, diversification of exporting commodities is very helpful in curing DRR too. Resolution of in-transparent property rights between the public and private sector and improving other institutional frameworks are the fifth step here. Economizing energy consumption and levying compound tax could be the sixth step in combating with Dutch Disease and DRR. Neglecting Dutch Disease and DRR in Iran is moving in the direction with gradual collapsing economic system.

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