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DEALING WITH ECONOMIC SUSTAINABILITY CHALLENGES EVOLVING FROM DECLINING OIL PRODUCTION IN SAUDI ARABIA

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DEALING WITH ECONOMIC SUSTAINABILITY CHALLENGES EVOLVING
FROM DECLINING OIL PRODUCTION IN SAUDI ARABIA

By

Mazen Matooq Aboudah

A THESIS

Submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

In Applied Natural Resource Economics

MICHIGAN TECHNOLOGICAL UNIVERSITY

2015

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This thesis has been approved in partial fulfillment of the requirements for the Degree of
MASTER OF SCIENCE in Applied Natural Resource Economics.

School of Business and Economics

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Dedication

I would like to dedicate this thesis to my family and to my country Saudi Arabia.

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Preface

This thesis is submitted for Master degree at the Michigan Technological University. The research described here was conducted under the supervision of Dr. Gary Campbell in the School of Business and Economics at Michigan Technological University. The copyright permissions of two figures are included in the Appendix.

Abstract

The objective of this research is to examine how Saudi Arabia can effectively deal with economic sustainability challenges arising from declining oil production. The methodology for the paper involved examining the background of Saudi Arabia's oil industry in regard to present production patterns, the role of the country's oil industry in the economy and the significance of governmental efforts in attempting to remove Saudi Arabia's excessive dependence on the oil sector. In recognizing that Saudi Arabia's current circumstances clearly require the government to implement measures that allow the economy to become less dependent on oil, it was felt necessary to examine different models of diversification in other parts of the world. In particular, the model followed by Norway has been analyzed in great depth because it will serve Saudi exceptionally well in adopting the same to achieve its diversification objectives.

A case study was conducted on how Norway succeeded in its diversification programs and how it achieved a positive turnaround from dependence on the oil sector. The case study allowed making a comparison of the two countries' strategies and further paved the way for Saudi Arabia to adopt diversification strategies based on Norway's success in its different sectors. On the basis of evidence emerging from the analysis of Saudi Arabia's demographics it became apparent that there is need to make efforts towards increasing government expenditures in order to strengthen human resources and to provide better healthcare, transport, municipal services and housing to citizens. In addition, the research concluded from an analysis of the Saudi Arabia's demographics that provisions will have to be made for establishing larger numbers of institutions of

higher education. Only then can the younger generation become technically and professionally skilled in taking over the job responsibilities presently held by expatriates.

Introduction

The objective of any country that strives to compete in the quickly changing global environment is to make its economy more robust, thus creating additional jobs and wealth for the nation as a whole so that its citizens can enjoy higher standards of living. In addition, the changed economic environment further encourages the expansion of new technologies and knowledge, which in turn ensures stability in the political environment. For Saudi Arabia, it is important to have a diversified economy that is complemented by a large number of economic activities. Only then can the economy experience sustained growth and prosperity. It has been established through research that there is a strong relationship between economic diversity and sustained growth. Furthermore, a diversified economy reduces economic volatility and enhances the number of activities in terms of real activity outcomes (Elbadawi, 2011).

Saudi Arabia's economy may improve through the use of appropriate metrics, allowing its policy makers to evaluate major economic dimensions and the manner in which they create the potential for promoting long-term sustained economic growth. In this regard, Shediak et al. (2008) held that it is not necessary for a nation rich in hydrocarbon, such as Saudi Arabia, to suffer from inadequate economic diversification. This is amply demonstrated by the example of Norway, which has succeeded in diversifying its economic sectors and thus has become free from dependency on the volatile oil sector. The objective for Saudi Arabia should be to seek diversification in its economic base by way of reallocating resources in input distribution and economic output. A balanced level of interventionist policy should be framed so that private and

public stakeholders can extract benefits from the addition of capital and labor in productive economic areas. Such areas are positive aspects, which provide long-term sustainability as well as the growth of new technologies and knowledge.

Although Saudi Arabia is a monarchy, it is essentially a welfare state, which is why it is of vital importance for it to shift from its present reliance on oil revenues and instead target economic diversification. This shift is imperative if it is to steer clear of the problems that will inevitably occur as a result of depletion within oil reserves in due course. First, oil reserves will be exhausted soon and there will be a need for other revenue sources to run the economy after the oil fields dry up. Second, although oil has been the main source of revenue for the country for several decades, volatility in oil prices leads to erratic economic growth, which adversely impacts the developmental goals of the government. The need to diversify the Saudi economy is apparent from the fact that, although the government had revenues of \$350 billion from oil exports in 2012, it had to spend \$230 billion on its budget expenditures alone the same year. As a welfare state, the Saudi government has had to consistently spend money on creating additional infrastructure; providing better educational facilities, health care, and housing; and creating employment opportunities for the quickly increasing population. It is apparent from a study of Saudi Arabia's budgetary policies from 2002 to 2012 that it has been allocating substantial funds for investment programs directed at improving long-term sustainability in economic growth and increasing employment opportunities for its population. The country has so far been focusing on human resource development, communications, transport, infrastructure development, health care, and social

development (Al Masah Capital, 2013). In light of the given issues and circumstances and the fact that Saudi Arabia is flush with massive oil reserves and cash flows, it is important to examine how the country will sustain its economy in the coming decades. The objective of this paper is to examine the current economic and social circumstances in the country and to find ways of economic diversification so that dependence on oil revenues is reduced on a consistent basis.

The methodology for this paper will be to examine the background of the oil industry in the context of present production patterns, the role of the oil industry in Saudi Arabia's economy, and what the Saudi government is doing to remove its total dependency on the oil sector. This perspective is extremely important in examining and finding solutions in light of the need for economic diversification. In addition, a detailed analysis will be made of Saudi Arabia's demographics, which will provide a basis to determine the present strengths and weaknesses of the country in terms of its potential and abilities to introduce diversification in removing dependence on the oil sector. Outlining the demographics and the role of the oil industry in Saudi Arabia will make it possible to frame strategies that will gradually strengthen the economy in meeting long-term objectives of diversification and promote consistent growth in other sectors of the economy. In addition to making an analysis of the oil industry, there is a need to examine the current efforts being made by Saudi Arabia toward diversification, and the outcome of such efforts will be evaluated in determining the success of the government's initiatives in this regard. This will serve the purpose of identifying the strengths and weaknesses of Saudi Arabia, which will further provide a basis for exploiting the

strengths in the country's favor. In addition, remedial measures can be initiated in removing the weaknesses so that proper utilization can be made of the country's resources.

As part of the analysis from different perspectives, reference will be constantly made to research reports and government data in substantiating the reasons for the given conclusions. Doing so will add value and strength to the reasoning provided for the given outcomes. A thorough literature review will be conducted in the process of examining the current practices of diversification, and a theoretical basis will be used in explaining the current economic patterns in the country. Economic concepts that can be used in improving the economic performance in different sectors will also be addressed. Given that the present circumstances clearly warrant immediate implementation of measures in Saudi Arabia that steer the economy away from dependence on oil, it is imperative to examine varied models of diversification. Varied models such as those followed by Norway serve as a perfect example of how diversification programs can be successfully adopted to alleviate the risks associated with depending on a single resource for the generation of the country's national income. Modeling the same actions will allow Saudi Arabia to achieve success in diversification within other sectors, which will strengthen the overall economy in providing proper means for the coming generation to sustain itself without placing much reliance on oil. After an examination of the available information on the basis of available data and performance patterns of the Saudi economy, an analysis will be made of the background of Saudi Arabia's oil production and the role of oil in the economy. The same will be related to the demographics of the country, after which

research reports and data from various sources will be examined in substantiating the basis of the given outcomes. A case study of Norway will be presented to highlight how the country made rapid strides in diversification programs to achieve a positive turnaround from dependence on the oil sector. On the basis of Norway's success story, a comparison will be made with Saudi Arabia's strategies by highlighting the impact of oil and non-oil revenues on gross domestic product (GDP). This comparison will facilitate making a conclusion about the options that are available to Saudi Arabia.

PART I

Chapter 1: The Demographics of Saudi Arabia

The data in Table 1.1, compiled by the Organization of the Petroleum-Exporting Countries (OPEC), show the demographics and economic position of Saudi Arabia.

Table 1.1. Saudi Arabia: Facts and Figures

Land area (1,000 sq km)	2,150
Population density (inhabitants per sq km)	14
GDP per capita (\$)	24,847
GDP at market prices (million \$)	745,273
Value of exports (million \$)	377,013
Value of petroleum exports (million \$)	321,723
Current account balance (million \$)	129,813
Proven crude oil reserves (million barrels)	265,789
Proven natural gas reserves (billion cu. m.)	8,317
Crude oil production* (1,000 b/d)	9,637
Marketed production of natural gas (million cu. m.)	100,030
Refinery capacity (1,000 b/cd)	2,507
Output of refined petroleum products (1,000 b/d)	1,841.7
Oil demand (1,000 b/d)	2,994
Crude oil exports (1,000 b/d)	7,571
Exports of petroleum products (1,000 b/d)	794.0
Natural gas exports (million cu. m.)	--

*Including share of production from Neutral Zone, b/d (barrels per day), cu. m. (cubic meters), b/cd (barrels per calendar day)

Source: OPEC. 2014. *Saudi Arabia Facts and Figures*.

http://www.opec.org/opec_web/en/about_us/169.htm

Table 1.2. Saudi Arabia: Demographics

Population	27,345,986 Note: immigrants make up more than 30% of the total population, according to UN data (2013) (July 2014 est.)
Age structure	0–14 years: 27.6% (male 3,869,961/female 3,681,616) 15–24 years: 19.3% (male 2,832,538/female 2,458,339) 25–54 years: 45.4% (male 7,086,004/female 5,323,373) 55–64 years: 4.5% (male 674,571/female 555,136) 65 years and over: 3.2% (male 444,302/female 420,146) (2014 est.)
Dependency ratios	Total dependency ratio: 46.1% Youth dependency ratio: 41.8% Elderly dependency ratio: 4.3% Potential support ratio: 23.5% (2014 est.)
Median age	Total: 26.4 years Male: 27.3 years Female: 25.3 years (2014 est.)
Religions	Muslim (official; citizens are 85–90% Sunni and 10–15% Shia), other (includes Eastern Orthodox, Protestant, Roman Catholic, Jewish, Hindu, Buddhist, and Sikh) (2012 est.)
Languages	Arabic (official)
Literacy	Definition: age 15 and over can read and write Total population: 87.2% Male: 90.8% Female: 82.2% (2011 est.)
Education expenditures	5.1% of GDP (2008)

Source: Index Mundi. 2014. *Saudi Arabia Demographics Profile 2014*.

http://www.indexmundi.com/saudi_arabia/demographics_profile.html

The total population of Saudi Arabia is 27,345,986, of which about 30 percent are immigrants. People in the 25- to 54-year-old bracket hold the greatest share of the

population, at 45.4 percent. The second highest percentage regarding population structure is of children ages 0 to 14 years; they account for 27.6 percent of the population. People 15- to 24-years-old comprise 19.3 percent; the next largest group is ages 55 to 64 years (4.5 percent). Only 3.2 percent of the population are over 65 years of age. The total dependency ratio in the country is 46.1 percent, whereas the youth dependency ratio, meaning the percentage of people under 25 years of age that is economically dependent on other income producing adults, is 41.8 percent. The total median age in the country is 26.4 years (males 27.3 years and females 25.3 years). The official religion of Saudi Arabia is Islam (Muslim), and Muslims comprise between 85 and 90 percent of the population. The other religious groups represented are Christians, Hindus, Jews, Buddhists, and Sikhs. Arabic is the country's official language, and 87.2 percent of the population is considered to be literate. However, education expenditures within the government comprise only 5.1 percent of the GDP.

The given demographics can be used in diagnosing the problems currently faced in Saudi Arabia, particularly in regard to enhancing education and literacy rates, as well as framing policies directed at improving the professional and technical skills of Saudi youth. The demographic data are clearly indicative of a wide sex gap because the ratio of females to males is dismally low. This pattern occurs because of the large percentage of the population of male immigrants. It is obvious that with the introduction of diversification measures and efforts to enhance technical and professional skills among Saudi youth, the country will become more self-reliant, thus creating a better gender balance. In a population that exceeds 27 million, immigrants account for 30 percent of the

population yet occupy most available jobs, leaving few jobs for the local working population. The percentage of young people that are economically dependent on adults is 41.8 percent, which indicates that a large number of youth are without jobs or a source of livelihood. Given that the median age is 26.4 years, it is apparent that the majority of the population is young and must be provided with educational and employment opportunities. In view of the fact that 82.3 percent of the country's population lives in urban areas, there is ample ground for the government to make immediate arrangements for better employment and business opportunities, particularly because urbanization is increasing at a rate of 2.38 percent every year (Index Mundi, 2014).

In Saudi Arabia, a marked lack of priority is being given to the expansion of institutional human development efforts in addressing the increasing challenges of attaining sustained and inclusive societal development. There is a major mismatch between employment opportunities and skill sets among youth. In effect, the position of youth employment in Saudi Arabia can be improved only if jobs are created at a quicker pace. Moreover, severe challenges are associated with providing children with an efficient primary and secondary schooling. It is extremely important for Saudi Arabia to overcome this issue because of the need to prepare the younger population for the future, especially one that does not guarantee opportunities presently available within the oil sector. Only such measures will ensure long-term sustained growth and development of Saudi societies in the future.

The country needs to formulate strategies to introduce varied youth-targeted programs focused on developing capacities of younger generations and on better national

objectives in order to achieve them. Indeed, there are major challenges in achieving the type of quality education that is necessary to put the country on the path of sustained development and economic growth. A crucial factor is education, as well as finding solutions to problems relative to the majority of the country's youthful population within the labor market. It is necessary to ensure an ongoing developmental program that will allow youth to acquire the knowledge, skills and competency levels that match the increasing competition, which is expected to continue for decades to come.

The country also needs to resolve the problem of illiteracy and high percentages of school dropouts. According to data, only 87.2 percent of the total population is literate; the literacy rate for males is 90.8 percent and 82.2 percent for females. Presently, only 5.1 percent of the country's GDP is allocated for education, which is not enough to meet the increasing needs of Saudi youth who may be empowered by higher education to attain competency levels at par with international standards. Only then can the Saudi workforce acquire skill levels to increase productivity without being dependent on immigrants. The goal should be to make it a national priority to expand the country's economic base and ensure spatial and institutional diversification. Doing so will result in diversifying the country's revenue and income base, thus leading to sustainability by way of consistent increases in quality of life and standards of living.

Saudi Arabia has implemented some measures to bring employment opportunities to the young; however, they have not been very effective. In combating the problems associated with education, the Saudi government has launched a National Youth Strategy directed at integrating challenges of employment creation and enhancing educational

competencies. The Ministry of Education has started implementing policies including educational reform, and the capacity of the Ministry to deliver better quality education has been strengthened. Early childhood education is being given priority to resolve the problem of illiteracy and to reduce school dropout numbers. The objective is to ensure a general improvement in private-sector competency (United Nations, 2012). However, such initiatives involve routine efforts that are invariably implemented with the development and growth of societies. Attaining a knowledge-based society is a precondition for diversification, the stimulus for which will have to be provided through efforts to attain higher education.

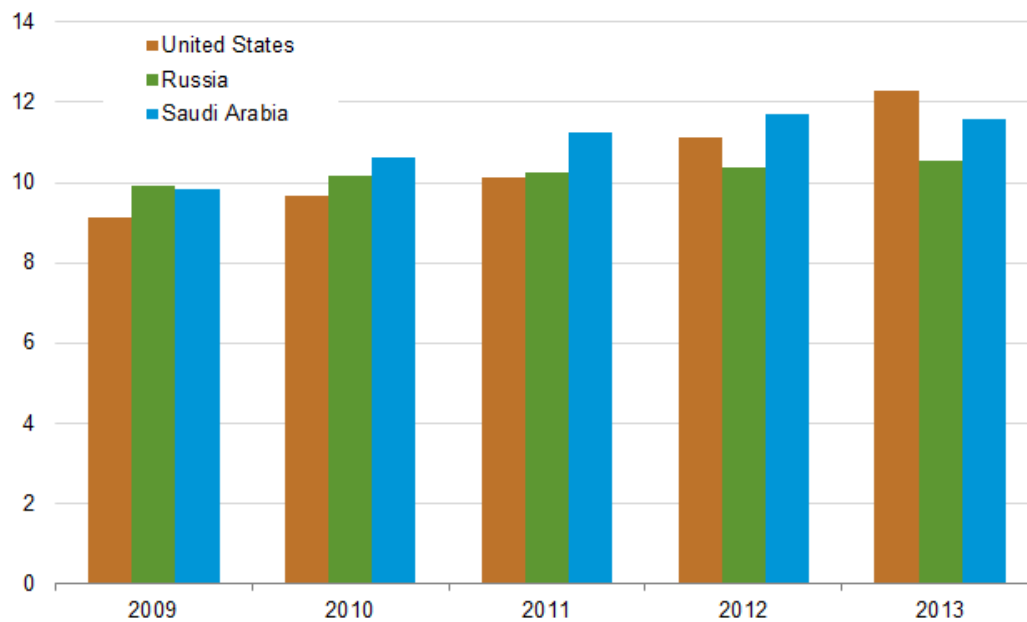
Chapter 2: Background: Saudi Arabia's Oil Production and Role of Oil in the Economy

The growth during the period 2009–2013 is of importance from the perspective of global and domestic production, apparent in Figure 2.1, which compares the production of oil and related products in Saudi Arabia, Russia and the United States. Saudi Arabia holds third position in the global production of petroleum products and crude petroleum after the United States and Russia, respectively (EIA, 2014). Saudi Arabia currently accounts for 18 percent of the global oil reserves and is the world's biggest exporter of petroleum products. It also has the distinction of having the greatest capacity to produce crude oil on a global market. In 2013, Saudi Arabia was the world's second largest producer of petroleum after the United States. Saudi Arabia's economy is heavily dependent on the oil sector, which is apparent from the fact that in 2013, petroleum

products accounted for 85 percent of its total export revenues. Saudi Arabia currently has the world's biggest oil projects and continues to expand its facilities in the areas of petrochemicals, refining, gas and electric power. It is acknowledged to presently have oil reserves of at least 266 million barrels, which accounts for almost 18 percent of the total reserves in the world. In 2013, Saudi Arabia produced 11.6 million barrels of petroleum, of which 9.6 million was crude oil while the remainder was non-crude petroleum products. In comparison with 2012, oil production in Saudi Arabia was reduced by 0.13 million barrels, which was the first instance of declining production after 2009. Production was reduced in compliance with the OPEC requirements of maintaining a given production level, the need for which arose from enhanced oil production by the United States and Canada. Nevertheless, Saudi Arabia continues to be the world leader in the production capacity of crude oil, which is expected to exceed 12 million barrels by the end of 2014. However, Saudi Arabia does not currently have any plans for increasing production capacity.

Petroleum and other liquid fuels production

million barrels per day



Source: U.S. Energy Information Administration, International Energy Statistics



Note: Total petroleum and other liquid fuels include crude oil and lease condensate, natural gas plant liquids, other liquids, and refinery processing gain.

Figure 2.1. Petroleum Production: Comparison among United States, Russia and Saudi Arabia

Source: EIA. 2014. *Saudi Arabia*. <https://www.eia.gov/beta/international/analysis.cfm?iso=SAU>

Most of Saudi Arabia's economic activities are under strict government control because of its massive oil reserves. Holding about 18 percent of the world's total oil reserves, the country has for several years been the number-one oil exporter in the world. Thanks to this position, the country has considerable clout among OPEC countries. It is therefore not surprising that the oil sector contributes more than 85 percent of the country's total revenues. In addition, the sector also accounts for 50 percent of the country's GDP. Saudi Arabia realizes that it must diversify in other sectors of the economy, and therefore the government has already started taking initiative to promote

the development of the private sector and improve the skills of Saudi nationals. Efforts toward diversification are directed toward the improvement of sectors such as petrochemicals, natural gas exploration, telecommunications and power generation. Presently, more than five million foreign workers in the country are contributing to the country's economy, mainly in its service and oil sectors. At the same time, there is heavy unemployment among Saudi nationals, which is why the government is struggling to find viable options of employment for them. The government is aware that it has enough time to create an economic environment so that market forces adjust automatically (Forbes, 2014).

PART II

Chapter 3: Need for Diversity: Impact of Oil and Non-Oil Revenues on Gross Domestic Product

From 1980 to 2006 the share of the oil sector in the overall GDP of Saudi Arabia declined from 70 percent to 45 percent. There is no doubt that the Saudi government understands the importance of diversification programs; however, until recently, the focus was on developing industries that used oil and petro chemicals. Huge industrial projects, such as the Yanbu'al-Bahr and Jubail, were completed by 1989, but to function effectively they needed oil. The country's focus on the oil industry and the lack of labor diversification has proven to be major impediments in developing a sustainable economy in Saudi Arabia. As of now, there is a strong need for economic reforms in Saudi Arabia because of declining per capita incomes and increasing government deficits as apparent from the available data analyzed in this paper. A good way to judge the quality of economic activities currently being carried out in Saudi Arabia is to use data on non-oil GDP. Although the oil sector contributes significantly to the country's GDP, that sector is strongly impacted by volatility in global oil prices and thus proves to be a very ambiguous means to determine economic growth (Saudi Arabia, 2007).

It is apparent that Saudi Arabia currently faces major challenges in increasing employment and improving the quality of its labor force across all economic sectors, which implies that there is scope for improving labor participation in the country because

it is currently below the education and skill levels prevailing in other developing nations.

Figure 3.1 reveals that unemployment in the country continues to remain high:



Figure 3.1. Unemployment in Saudi Arabia

Source: Trading Economics. 2015. Saudi Arabia Unemployment Rate 1969-2015.

<http://www.tradingeconomics.com/saudi-arabia/unemployment-rate>

The current economic fluctuations faced by Saudi Arabia exist primarily on account of a quickly increasing population and continued reliance on export earnings from oil. However, although the price of oil has been highly volatile and unstable across the past few decades, one pattern is clear: dependence on oil has not proven to be appropriate in providing for the constantly increasing employment needs of a growing population. The appropriate investments have not been made in infrastructure and diversification of the economy, which would remove dependency of the economy on oil alone. Al-Daweesh (2011) has cited the example of the United States, where in 1977 1.5 barrels were required to generate GDP of \$1,000. However, in 2000, only 0.8 barrels

were required to generate the same GDP. Hence it is not a good idea to continue remaining dependent on oil revenues on a consistent basis. As Figure 3.2 shows, Saudi Arabia's GDP has been consistently increasing—from \$328 billion in 2006 to \$745 billion in 2014.

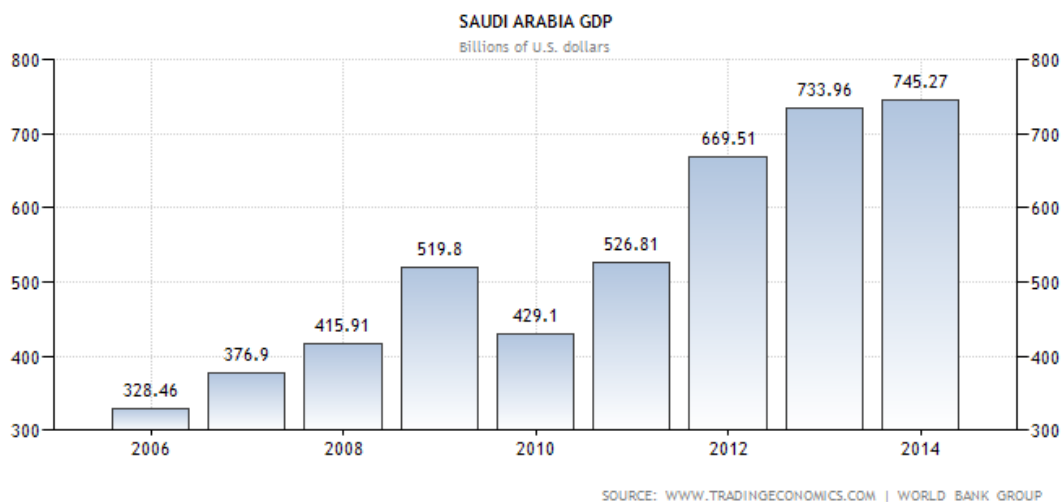


Figure 3.2. Saudi Arabia Gross Domestic Product – 2006 to 2014

Source: Trading Economics. 2015. *Saudi Arabia GDP Growth Rate 1969-2015*. <http://www.tradingeconomics.com/saudi-arabia/gdp-growth>

Because the Saudi Riyal is pegged with the U.S. dollar, foreign exchange interventions prove to be a stop-gap measure; when they are used to affect exchange rates, foreign exchange reserves increase, making it difficult for the government to use them effectively. In addition, cost implications increase by way of government debt aimed at clearing domestic liquidity at a higher rate of interest. Foreign exchange rates have not been used frequently in Saudi Arabia because of rare instances of disturbances in forward markets, which are resolved through exchange rate speculation (Al-Hamidi,

2010). As Figure 3.3 shows, the per capita GDP in Saudi Arabia was \$13,303 in 2006 and increased to \$18,033 in 2014.

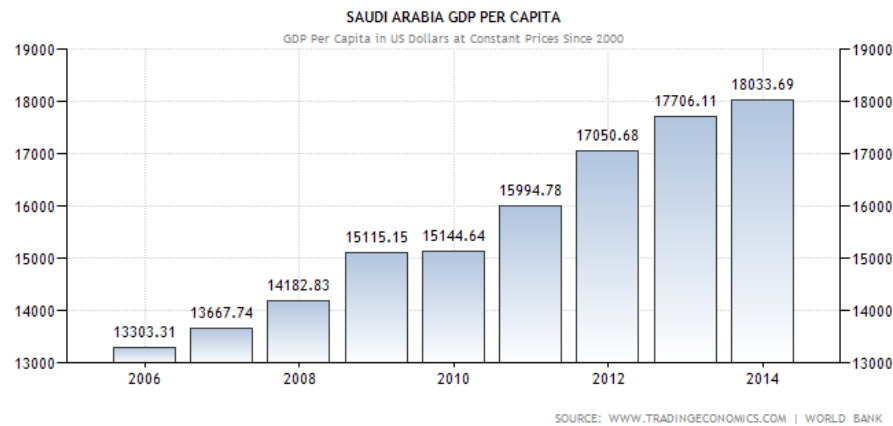


Figure 3.3. Saudi Arabia GDP per capita – 2006 to 2014

Source: Trading Economics. 2015. Saudi Arabia GDP Growth Rate 1969-2015.
<http://www.tradingeconomics.com/saudi-arabia/gdp-growth>

According to data gathered by Saudi Arabia's Central Department of Statistics & Information (Trading Economics, 2015), the growth rate of GDP in the country has constantly varied between 2006 and 2014. It was 4.5 percent in 2006, 2 percent in 2008, less than 1 percent in 2010, and 10 percent in 2010 (see Diagram 3.4). However, it declined again to 6.2 percent in 2014.

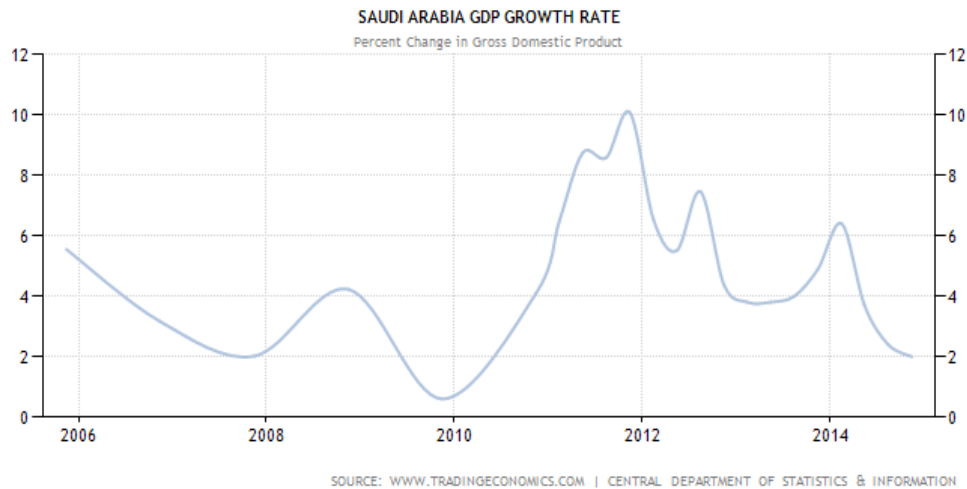


Figure 3.4. Saudi Arabia GDP Growth Rate – 2006 to 2014

Source: Trading Economics. 2015. *Saudi Arabia GDP Growth Rate 1969-2015*. <http://www.tradingeconomics.com/saudi-arabia/gdp-growth>

Given that the Saudi economy is primarily dependent on oil revenues, the constantly declining growth rate in GDP is clearly indicative of the fact that oil revenues are no longer providing the required growth because of constant patterns of volatility in global oil rates.

Figure 3.5 shows that the average annual rate of economic growth in Saudi Arabia in 2014 was 3.6 percent, compared with 2.7 percent in 2013. According to the budget statement provided by Jadwa Investment (2014), the oil sector grew by 1.7 percent in 2014, while non-oil rate of growth stood at 5.2 percent in the same year. In addition, the private sector expanded at the rate of 5.7 percent. It is also known that lesser oil revenues resulted in lesser current account surplus. Nevertheless, the rate of growth of GDP increased to 3.8 percent in 2014. It is possible that this trend will continue in the coming

years given the major focus on diversification of the economy. It is noteworthy that inflation declined in 2014, which creates the potential for witnessing higher growth rates and better economic results in 2015. This clearly indicates the massive potential that lies in focusing on diversification programs. Even though oil revenues in 2014 were lesser in comparison to the previous year, they increased by 1.7 percent. However, Jadwa Investment (2015) has contended that patterns of increase in oil production by 1 percent and increased oil revenues have emerged because the base year was changed to 2010. Nevertheless, it cannot be denied that in 2014, the major contribution to higher economic growth was by the non-oil sector, which grew by 5.2 percent.

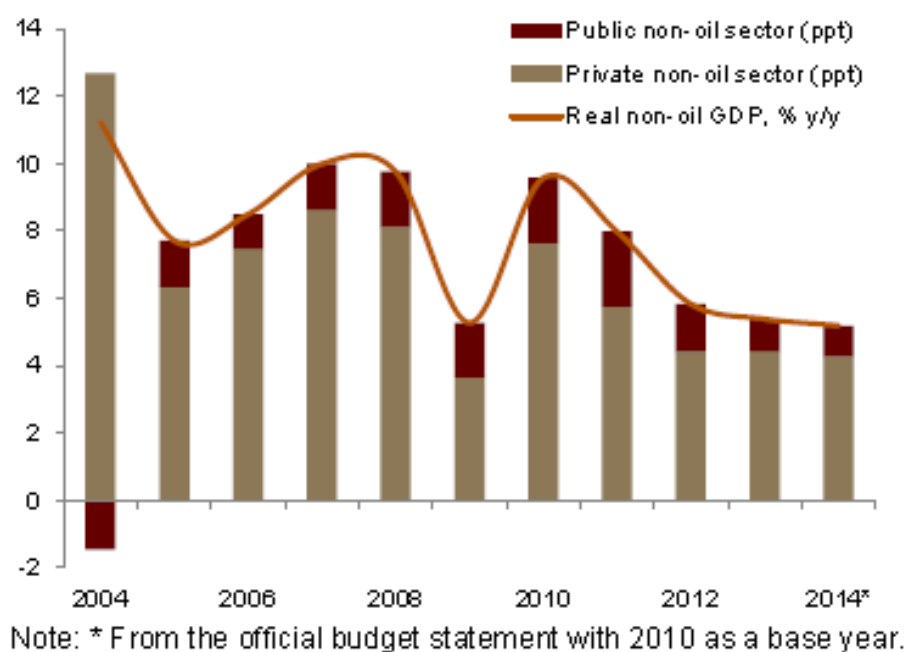


Figure 3.5. Saudi Arabia – Non-oil GDP Growth

Source: Jadwa Investment. 2015. *Saudi Arabia's 2015 Fiscal Budget*.
www.jadwa.com/en/download/2015-budget/2015-saudi-budget

The report issued by Jadwa Investment (2014) indicates that the value of government services increased by 3.7 percent in 2014, which is particularly robust in the face of 5.7 percent growth in the non-oil private sector. In fact, this increase was expected in light of constantly increasing government spending over the past few years, which was undertaken to increase diversification and reduce excessive dependence on oil revenues. This increased spending has given a boost to consumer confidence and made banks more comfortable, thus allowing them to create a better lending atmosphere in spite of regional disturbances and lesser-than-expected economic growth. Sectors such as communications, transport, non-oil industries and construction are expected to grow rapidly in the future because the Saudi government has undertaken diversification measures during the past few years. Construction has been growing at an average rate of 6.7 percent since 2004, while non-oil industries have been growing at 6.5 percent, accompanied by better capacity and higher productivity of products such as plastics and petrochemicals. Communication and transport have grown at 6.1 percent and have posted good performance because of massive development of transport projects. In addition, capacity, retail and wholesale sectors have grown at 6 percent, which indicates a decline in the effects of reforms introduced in the labor sector. During the same period the financial sector grew at 4.5 percent. All such developments are clearly indicative of added initiatives to diversify the economy. Saudi Arabia is witnessing signs of positive economic developments and such efforts should continue with the same intensity to remove excessive dependence on oil.

The analysis of the economic data of Saudi Arabia reveals that overall macro performance in the past few years has been favorable, although at a slow pace. In the past three years, Saudi Arabia has been pumping lesser amounts of oil, which has led to a small decline in the overall revenues emanating from the sector. A noteworthy development has been the lowest fiscal surplus achieved by the economy in the past three years, which is attributed to the reduction in oil revenues and greater capital expenditures being made by the government. The monetary environment in the country is better now because of the lower rate of inflation that was brought about by monetary policies directed in this regard (see Figure 3.6).

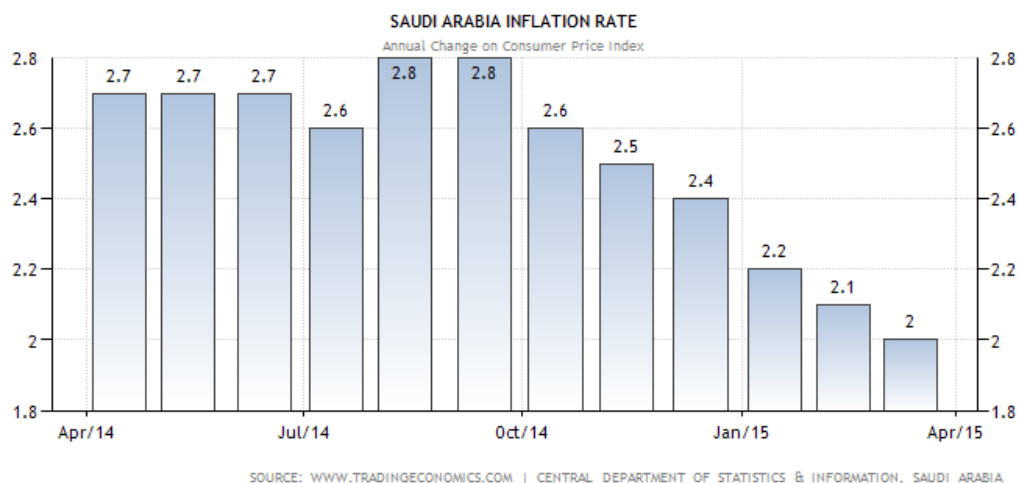


Figure 3.6. Saudi Arabia Inflation Rate

Source: Trading Economics. 2015. *Saudi Arabia Inflation Rate*.

<http://www.tradingeconomics.com/saudi-arabia/inflation-cpi>

The country is now characterized by a strong banking sector, thanks to constant increases in banking activities, which are good indicators of financial strength and soundness. Saudi Arabia has been experiencing growth in economic activities on a continuous basis in spite of tight budgets in most sectors. The past two years have seen massive outflow of expatriates from the country, which gave a jolt to the economy as a result of the vacuum created for skills and competent workforce, but the situation has now improved. This action was undertaken by the Saudi government to provide more job opportunities to its own nationals, which was very important in recognizing the need to improve the economic status of Saudi nationals. All these measures have created a positive impact by giving a push to the GDP growth rate (Bank Audi, 2015).

Alshahrani and Alsadiq (2014) investigated the responses of government expenditures in relation to the shocks to the economy emanating from reduction in oil revenues in view of the massive dependence of Saudi Arabia on oil revenues. Diagram 3.7 shows that with the increase in oil revenues there was an increase in the size of sectors such as defense, education, housing and health care, although the responses are different in terms of force and point in time. However, the maximum impact occurred on defense expenditures. On average, there has been 2 percent growth in defense expenditures with every 10 percent increase in oil revenues. Also, there is always an immediate augmentation in expenditures on education, but the maximum increase occurs in the medium term. The same pattern is observed in the other two sectors, health care and housing. The data indicate that the Saudi government is prone to increase expenditures in response to an increase in oil revenues, which implies that with

implementation of diversification programs, oil revenues are bound to decline, thus creating the need for enhanced revenues from other sectors, set to occur only in the long term. In view of the given circumstances, Saudi Arabia will have to mobilize additional funding from other sources before positive outcomes emerge from diversification of the economy.

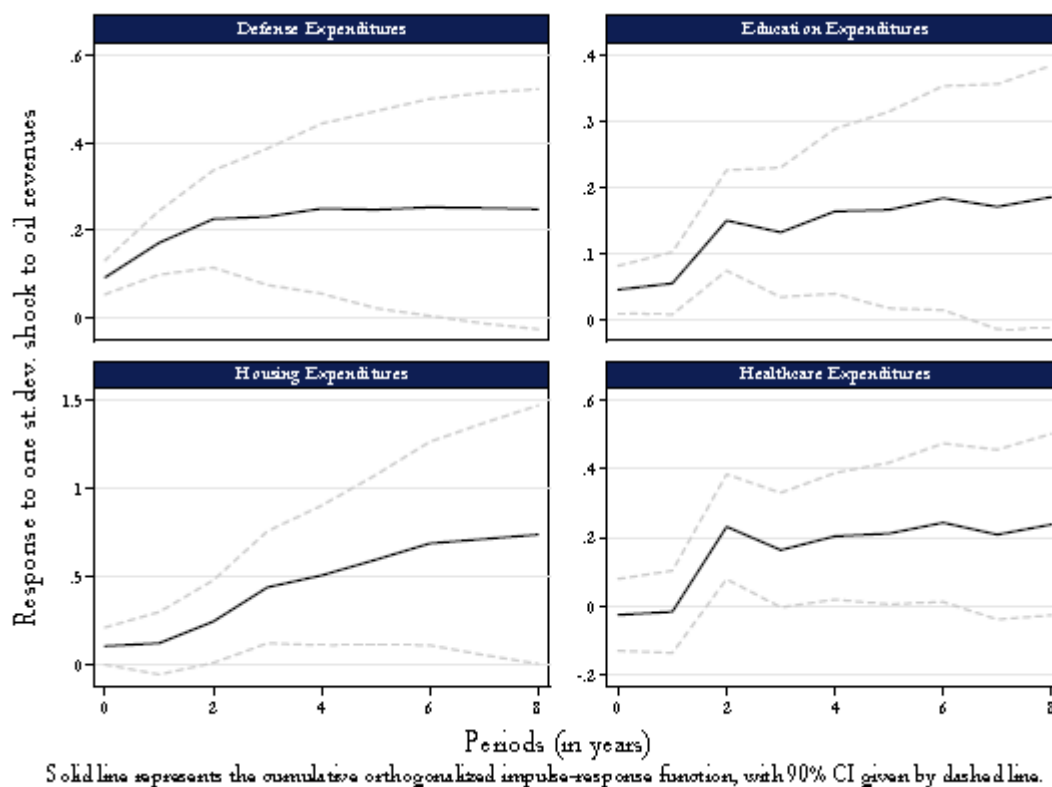


Figure 3.7. Saudi Arabia: Expenditures of Oil Revenues

Source: Alshahrani, S. A., and Alsadiq, A. J. 2014. Economic Growth and Government Spending in Saudi Arabia: An Empirical Investigation. IMF Working Paper WP/14/3.

Through the use of knowledge economy Saudi Arabia can achieve greater diversification, which will provide a major impetus in creating greater wealth for the country in the long term. In this context information technology is considered to be a major area that can be tapped to achieve long-term economic objectives. It is necessary to identify areas in which private investments can be made, which in turn can be accompanied by government interventions. The government has a major role to play in areas such as health care and education, while the private sector can be encouraged in other areas such as developing major infrastructure and communications projects. The government has to also play a major role in the improvement of skills of its people. For example, the government can assist businesses by creating an environment in which people develop added skills in communications technology. By improving the quality of tertiary and secondary education, the government can improve the quality of the work force, which will then become more competent and skilled in handling new technologies. A good education will allow Saudi nationals to become eligible for technical and management jobs that were until now being given to expatriates. The government has a crucial role to play in developing research and development (R&D) facilities and activities in the country because such activities are in very low ebb currently (Al-Daweesh, 2011).

According to Alshahrani and Alsadiq (2014), the relationship between economic growth and other economic sectors is best evaluated by determining the real growth rate of non-oil GDP per capita. The economic sectors that have a strong bearing in assessing the impact of real non-oil revenues are public investments, current and capital

expenditures, health care, defense, education and housing. An analysis of the relationship among private domestic investment, total expenditures and economic growth makes it apparent that in the short term the main factors impacting economic growth are expenditures on education and health care, in addition to public investments, openness of the business environment, and private domestic investments. The capital for funding such expenses will come from the savings accumulated in the public funds that will be set up in keeping with the strategies adopted by Norway to reduce its dependence on oil revenues. The main factors impacting economic growth in the long term are government expenditures on health care, human capital and education, in addition to capital expenditures and private domestic investments. Saudi Arabia's experiences thus far have shown a strong necessity to introduce measures that encourage private domestic investments. This goal can be achieved if the government is proactive in making public investments and increasing expenditures on public health care. Moreover, the government must remove trade barriers to achieve higher rates of growth and to bring greater efficacy in housing and availability of funding for the same. A good option is to provide for government expenditures directed at maintaining current social projects and infrastructure as well as to establish new projects. It is important that new projects should be set up in places providing public services and potential to conduct R&D activities and develop human resources. It is better for the government to seek involvement of the private sector in new private and public projects because doing so will lead to higher and quicker growth. The private sector can be encouraged and supported by way of subsidies funded through oil revenues, which will provide a basis for accountability and efficacy of

the different functions. Such measures will also assist in achieving fiscal consistency in the medium and long term through diversification of sources of non-oil revenues. It will also improve efficiency in terms of expenditures made by developing a medium-term spending structure.

In view of the massive size of the oil sector in Saudi Arabia, fiscal and monetary policies can be used as important macroeconomic tools for maintaining economic stability in the country. Large-scale fiscal expenditure programs funded through public savings generated on the same lines as Norway should be introduced and viewed as investments for future generations. These will allow business entities to resist the adversities arising from international financial crisis situations. Moreover, a discreet program must be introduced to effectively manage the funds directed to the different sectors, which in turn will help to achieve sustainability in economic growth. Of course, the implementation of all programs should be done while ensuring the improvement of the overall business atmosphere in the economy. It is imperative for the Saudi government to mobilize additional savings by investing a substantial percentage of its current oil revenues in non-oil investments abroad in order to generate high returns on a consistent basis, and such capital flows could then be used for diversification and educational and health care programs, leading to higher productivity and standards of living in the long term. Currently, the most immediate step for Saudi Arabia should be to allocate a major portion of its oil rents toward savings at the national level, which should be carefully invested with the prime objective of safeguarding the interests of social welfare after the available oil and mineral resources are exhausted.

Chapter 4: Literature Review

The issues faced by Saudi Arabia on account of its depleting oil reserves and consequent economic complexities are best understood by referring to the literature on investment of rents from exhaustible resources and on the “resource curse” that characterizes economies that are heavily reliant on natural resources for generation of their national incomes. In effect, according to Albassam (2014), countries relying heavily on natural resources do not make appropriate efforts toward diversifying their income resources, which in turn results in negative consequences on the country’s overall economic development. From another perspective, Hartwick (1977) held that an economy is said to be sustainable only if future generations are able to benefit in terms of the same standards of living as enjoyed by the population in the present times.

Hartwick (1977) held that an essential condition for maintaining economic sustainability is that the actual amount of the capital must be always kept intact. The objective of keeping capital intact is to ensure a constant flow of income in the coming times, which requires a minimum amount of wealth that generates the same flow of incomes. The argument flows from the fact that if one wants to have a constant interest income from a bank account, the principal amount must not be reduced. Growth in population is a common phenomenon, which requires that the country’s capital should keep increasing in order to maintain the capital/labor ratio. Hartwick (1977) was able to prove that the capital that was reinvested was equal to the rents emanating from extraction of resources. He came up with the term *hotelling rent*, which is the variation between marginal extraction cost of oil and the price of marginal ton of oil extracted.

Hartwick's Rule is now used in framing investment policies relative to sustainability of consumption patterns. The basis lies in the fact that only reinvestment of rent resources will result in sustainability of maintenance of consumption levels. Economies such as Norway have demonstrated that the potential for consumption increases if larger amounts of resource rents are reinvested in real capital. In essence, every additional unit of reinvestment implies that a certain percentage of additional population can be managed effectively in keeping up with the same per capita consumption levels. However, in order to maintain sustainability, there should be no real depreciation in capital.

It is known that there is decline in physical capital because of depreciation and shortening impact accruing from population growth. However, problems do not arise as long as the required amount of savings is done, which allows productivity per worker to be maintained. But with increase in population, greater amounts must be saved to maintain the same levels of consumption. Queens University (2015) has highlighted that the amount of stocks of exhaustible resources such as oil is bound to decline over time and that output per worker can be maintained only if the hoteling rent is reinvested. This implies that the increase in population can be economically tolerated (in terms of maintaining the same standards of living) only if greater amounts of hoteling rents are reinvested. It is also apparent under the circumstances that productivity per worker cannot be maintained if both population growth and depreciation keep increasing at a constant rate.

It is possible to harvest renewable resources on a sustainable basis given the fact that the optimum amount to be harvested annually is dependent on prevailing interest

rate, demand and supply, and the rate of growth of the biological resource. But it is unfortunate that renewable resources are extracted excessively because governments are not proactive. There will be constant increase in demand with increase in population, which will result in reaching the maximum yield of sustainability. This kind of situation warrants greater investments to make up for the lessening amount of resource extracted per person. It is in this context that proactive countries such as Norway have introduced systems of financing funds, such as the Government Petroleum Fund, that actually make up for government deficits. Norway makes use of a percentage of the fund to reserves foreign exchange to ensure that its currency does not appreciate excessively because of heavy demand for its oil resources. It is important to avoid the “Dutch Disease,” which pertains to high demand for export commodities causing the country’s currency to appreciate, which in turn causes harm to other export sectors. Therefore, Hartwick’s Rule requires resource rents to be reinvested to have consistent increase in real capital. A country may make a lot of investments but the value of its resources depreciates faster if appropriate reinvestment is not made as per Hartwick’s Rule, meaning that if an economy is to be sustainable it must make investments from real savings (Queens University, 2015).

Countries that are heavily reliant on natural resources often suffer from a resource curse, which describes the situation when a subject country is heavily dependent on a resource and does not make concerted efforts toward diversification of its income resources. Hence, there is an adverse impact on the country’s rate of growth and on the social and political environment. It is apparent that Saudi Arabia is a country that falls in

the category of nations suffering from the resource curse. There is a strong connection between the resource curse and political risks, and also between political risks and the country's dependence on the given natural resource. In addition, there are major risks for business actors engaged in activities involving the extraction and production of the natural resource. The link between political risks and natural risks is not restricted to adversely impacting resource contracts for businesses involved in production of the resource. Investors in such a sector are adversely impacted by heavy political risks because the government has constantly reducing means to keep up with its reputation. In fact, the natural resource curse theory provides that not only may resource-rich nations suffer by way of unfavorable endowment, but they may also eventually experience lesser overall performance in comparison with countries that may not be resource rich. Nevertheless, natural resources can prove to be abundant if the government can effectively manage financial and institutional systems. A clear link is thus evident between the resource curse theory and economic diversification. In fact, the resource curse theory allows economies to identify the negative impacts on the economy accruing from depending on a single means of generating the country's national income (Albassam, 2014).

The best solution for Saudi Arabia is provided through the working of Hartwick's theory, which provides guidance to "invest all profits and rents from exhaustible resources in reproducible capital such as machines. This solves the ethical problem of the present generation shortchanging future generations by over consuming the current product, partly ascribable to current use of exhaustible resources" (Hartwick, 1977, p.

972). Such a strategy allows substitution of the stocks of resources that cannot be renewed through investments in real capital, such as education, roads and infrastructure. Such investments ensure that the country's population does not face decline in standards of living in the future, particularly in the context of future generations. In fact, Hartwick (1977) held that investing of resource rent implied that a nation must invest all revenues emanating from exhaustible resources into instruments that yield maximum profits on the resource investments made by way of present revenues. It is known that actual savings accrue with such strategies because the current revenues are not spent but invested proactively to yield better returns in the future, which can be constructively utilized for the betterment of societies. Hartwick's vision is aptly supported by the arguments put forth by Askari and Jaber (1998), who have highlighted that oil-exporting countries should not maintain the wrong notion about the real value of their net national product (NNP) because "the ratio of the conventionally measured NNP to the theoretically correct one is inversely related to the real rate of return on investment and to the life of oil reserves" (p. 187). This theoretically implies that Saudi Arabia will face reducing levels of NNP. It is in this context that Askari and Jaber have held that it is very important for such countries to achieve a positive savings during the period when oil reserves are large so that they achieve favorable returns on their investments.

PART III

Chapter 5: Analysis

The problems faced by Saudi Arabia because of not diversifying earlier are apparent from a comparison of its real per capita income with that of Norway. As Figure 5.1 shows, Saudi Arabia's per capita income was a little higher than that of Norway before 1983 but the difference became much larger during the 1980s after Saudi Arabia made rapid progress because of changes in oil markets. Increasing oil prices during the period led to considerable increase in government expenditures on infrastructure projects that improved Saudi Arabia's economic development. During this period, the Saudi per capita income was much higher than that of Norway and the United States. But the subsequent pattern of declining oil prices reduced oil revenues for Saudi Arabia and it had to reduce its spending. Consequently, the country's GDP declined by almost 50 percent from 1981 to 1987. The pattern had begun in which huge income gaps were created, which continued to widen into the 1990s. According to Al-Sadiq (2014), several factors contributed to this trend, the main ones being government policy and lack of convergence. In effect, the country's extreme reliance on the capital-intensive hydrocarbon segment led to inconsistent distribution in incomes (Al-Sadiq, 2014).

It is perhaps from this perspective that a comparison of the per capita incomes of Saudi Arabia and Norway reveals astonishing outcomes (see Figure 4.1). In Norway, per capita income increased from \$25,000 in 1980 to \$50,000 in 2008. In contrast, the per capita income in Saudi Arabia declined from \$35,000 in 1980 to about \$15,000 in 1990

and rose subsequently in 2008 to \$20,000. Norway's per capita income increased steadily and eventually crossed the average of all Organisation for Economic Co-operation and Development (OECD) nations (Elbadawi, 2011). Saudi Arabia's per capita income stagnated after the 1980s.

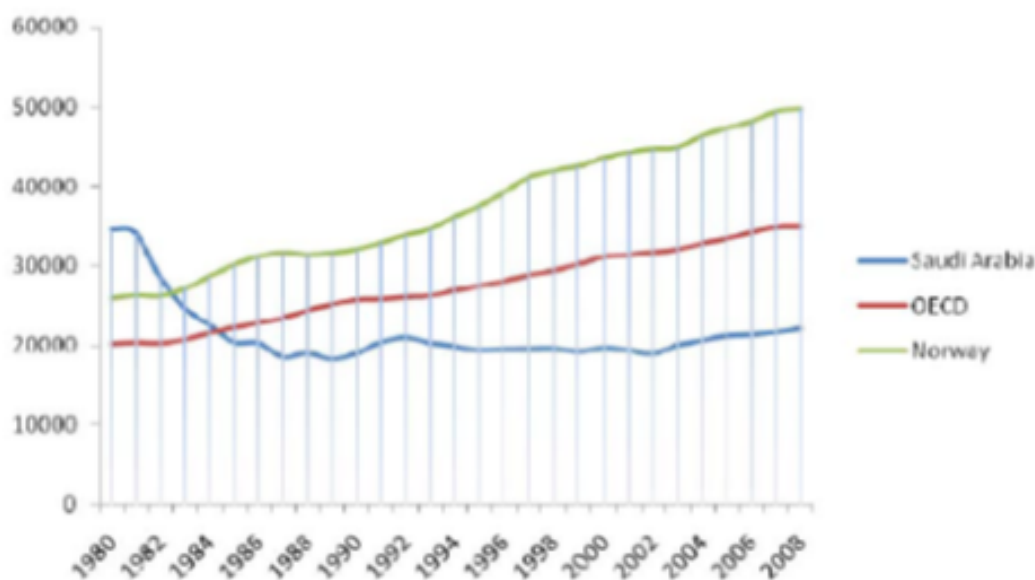


Figure 5.1. Evolution of Income in Saudi Arabia, the OECD and Norway

Source: Elbadawi, I. A. 2011, November 6. *Oil, Economic Diversification and Development in the Arab World*. Workshop on “Natural Resources and Economic Diversification: Towards a Research Agenda for ERF,” Cairo, Egypt.

Although some oil-rich states have the potential to achieve high-income levels and economic growth, they also stagnate, even at negative levels, which often depicts their poor adaptability to changing economic circumstances and developments. Norway was able to achieve exemplary economic growth because of its democratic practices

paired with the ability to impose strong checks and balances in providing for a greater amount of public goods. Such measures helped Norway to limit embezzlements and allow it to make greater provision for public goods with fewer resources. Norway is a perfect example of a country that was strategic in allocating huge amounts of its oil and mineral rents toward savings that were carefully invested with the prime objective of safeguarding the interests of social welfare after the available oil and mineral resources were exhausted (Ross, 2012). It makes good economic sense for Saudi Arabia to get involved in greater levels of diversification as it prepared to secure the economic stability of coming generations. This objective is best done through investments in economically diverse projects. It is important to note that the current political environment is an essential determinant of the manner in which oil rents can be managed. A pertinent example in this regard is that of Norway, which implemented policies that allowed it to manage its oil revenues efficiently facilitating the country to achieve the economic and social success that it now enjoys (Elbadawi, 2011).

After 1980, the rate of increase in oil production declined continuously. Between 1965 and 1980 the production had increased to about ten million barrels a day, but between 1980 and 2010 the production per day has been almost the same. Norway is no longer entirely dependent on oil revenues as its oil and gas sectors now account for only about 25 percent of its GDP. The circumstances are different in Saudi Arabia, but it would do well to follow the example of Norway, which has demonstrated that by adopting sustained and strong policy measures by focusing on diversification, it is possible to create a positive chain reaction across all sectors in the economy. For

example, Norway established a sovereign wealth fund that was funded with returns on oil profits invested in other countries. This fund, known as the Government Pension Fund Global, insulated the economy from shocks emanating from vulnerability of oil prices and reduced excessive liquidity in the country's economic sectors. Norway's government wealth fund is considered to be the world's largest sovereign wealth fund, which is worth \$882 billion (Ellyatt and Bishop, 2015). In addition, the country made investments in capital and labor and introduced higher levels of technology and knowledge in its industrial sector. Consequently, the manufacturing sector in Norway flourished and is now completely independent of the oil sector. The example of Norway is a clear indication that any country that is rich in a single resource must be cautious by ensuring that it diversifies into different sectors, so that there is no pattern of economic concentration (Shediac et al., 2008).

Although Saudi Arabia is an oil rich country, it has never reached the high per capita income that is enjoyed by the most developed countries. Despite having reached the glorious period in which it enjoyed prosperity to such an extent that it could dictate its own terms regarding global oil prices, Saudi Arabia never reached anywhere near to achieving a status of higher per capita income than developed nations. In effect, this was the result of Saudi Arabia not investing its oil revenues judiciously in line with the policies adopted by countries such as Norway. Elbadawi (2009) has referred to this shortcoming as the resource curse, which relates to the situation in which the full impact of such a situation will not be perceived. The solution to the problem lies in understanding that the income accruing from oil revenues is much different from incomes

emanating from other options of renewable energy. This has major connotations for the nation's ability to create wealth. It is important to understand from Saudi Arabia's perspective that if it makes a realistic evaluation of the production, consumption and export patterns of its stocks of oil for funding and creation of other assets, the actual wealth of the country will be diversified from what it may appear to be in terms of value of its oil reserves. Theoretically, if Saudi Arabia prepares for the depletion impact of its oil reserves while projecting its national income, the majority of the oil exports will tend to reduce the country's natural capital at a quicker pace in comparison to the rate at which new capital is being created. It can thus be said that Saudi Arabia is actually not generating any new savings, which again implies that even if Saudi Arabia has managed to sustain higher welfare and income levels, that cannot be maintained at the same rate in the future. Because of this reality, Saudi Arabia has not yet succeeded in achieving the high-income levels enjoyed by developed nations. In worse situations, the constant accrual of negative savings will go to such an extent that the nation may experience reduction in real incomes in comparison to the time when it was experiencing a boom.

Saudi Arabia is among the fastest developing economies in the Middle East but it continues to rely heavily on the oil sector. Government expenditures are accounted for in terms of subsidies, salaries and consumption, which include government expenditures on strengthening human resources and providing health care, transport, municipal services and housing. The government needs to strengthen its expenditure policies on human resources (Alshahrani and Alsadiq, 2014). In light of the sustainability issue in regard to streamlining oil production, so that the country does not have to face shortfall in the

future, a possible solution for Saudi Arabia is to curtail production and manage demand so that prices are maintained at stable levels. Meanwhile, this solution would also ensure the continued dominance of the country in international oil markets. This pattern was seen in Saudi Arabia in the past in the 1970s and 1990 when it succeeded in controlling the international oil process. However, things are different now because of the increasing oil production by the United States and Argentina, which have greater oil productivity than Saudi Arabia. Nevertheless, the Saudi government has already initiated such actions, which is apparent from Figure 5.1, which depicts reduced oil production in 2010. Saudi Arabia reduced production of oil to keep oil prices in check.

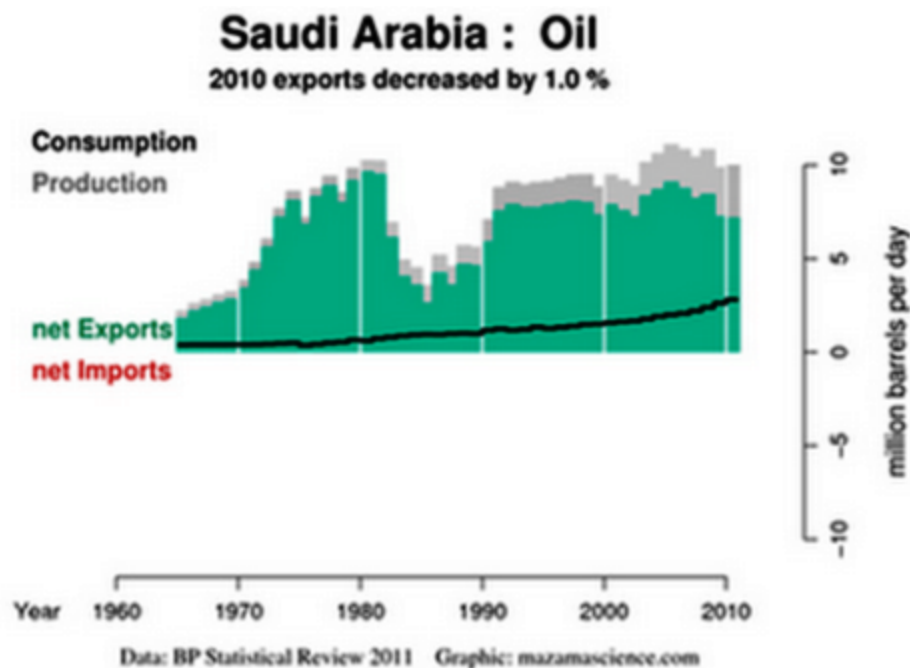


Figure 5.2. Saudi Oil Production

Source: Summers, D. 2014. *How Saudi Arabia Will Influence the Oil Market to Benefit Their Economy?* <http://oilprice.com/Energy/Crude-Oil/How-Saudi-Arabia-Will-Influence-the-Oil-Market-to-Benefit-their-Economy.html>

The impact of resource depletion needs to be examined by the Saudi government by appropriately accounting for the reduced production of oil so that the evolving patterns of citizen well-being can be effectively measured. It is extremely important to balance domestic capital markets and domestic investments into renewable stocks in terms of other kinds of wealth. Now, it appears that Saudi Arabia will face difficulties in maintaining the current levels of welfare and income in the long term because they had generated negative actual savings in the past. Under the circumstances, Saudi Arabia will become considerably deficient by way of accumulating replaceable tangibly produced capital resources. Although Saudi Arabia can be said to have accumulated more capital than other big oil producers, it still falls short of accumulating the required stock of capital to sustain the same levels and standards as it has been enjoying so far. Elbadawi (2009) has cited the World Bank in stating that although hydrocarbon revenues increased considerably after 2000 in Saudi Arabia, the share of domestic investments did not increase at the same rates. At the same time, there is no stability in the relation between domestic investments and hydrocarbon revenues.

Saudi Arabia has been slow in removing limitations on foreign companies to have complete ownership of assets accumulated through foreign investments. Those foreign investors that attempt to access the Saudi \$745 billion economy, often only have the choice of equity swaps and exchange-traded funds (Khan, Cammeltoft, and Sharif, 2014). This means that the growth of the non-oil industries continues to be dependent on government spending. Given that fiscal policies play an important role, such circumstances have led to the creation of a strong relationship between government

expenditures and non-oil industrial activities. More particularly, business cycles in relation to non-oil industries are inclined to change in keeping with large-scale expansion programs emanating from government expenditures. Al-Sadiq (2014) has held that because of such patterns, the four major sectors of construction, wholesale and retail trade, real estate and government services have been fluctuating because of impact from changing oil prices. This clearly indicates that the non-oil sector is not able to get disconnected from the curse of natural resources.

It appears that the best solution for Saudi Arabia's basic problems, other than restructuring educational and training programs, introducing labor market reforms, and laying emphasis on capital expenditures by the government, is to enhance private-sector involvement through diversification programs. This is best done by focusing on labor-intensive and export-oriented sectors that are not impacted by pricing and production volatilities of the oil sector. Given that the country has a young population (almost half of the people are age 25 or under) and given that the economy continues to be characterized by high youth unemployment, it is important to address the factors that impact the future of labor markets. This is more pertinent in view of the fact that the Saudi Arabian population will almost double by 2025. The apparent demographic and economic challenges have been impacting the future of labor markets in the country. About 4 million jobs need to be created in the coming ten years but the objective appears to be difficult to achieve in the present circumstances. The public sector has done the maximum possible in this regard, while the diversification programs have so far not been adequate in resolving the issues. In order to achieve comprehensive and consistent

growth in guiding the economy toward a well-meaning convergence point, the government should start implementing extensive reforms to impact markets within commodity and financial sectors. This will invariably result in an improved overall business atmosphere, better use of authority, and stronger policy and institutional structures. Greater focus should be made on improving productivity, and entrepreneurs should be encouraged to establish small- and medium-scale industries to make diversification more effective. The economy will receive a further boost if the government adopts liberal policies of attracting foreign direct investments (Al-Sadiq, 2014).

In regard to the issue of whether the Saudi economy can effectively congregate in the coming future, it is important to recognize that the country's economic framework is presently such that it leads to greater income disparity because of lack of an effectively devised strategy that guarantees diversified development by way of income-enhancing commercial sectors. Saudi Arabia has never been able to reach the per capita income levels of advanced nations because of its inherent economic and political characteristics. First, the country is heavily dependent on the oil sector, which continues to be its main source of revenues. However, in addition to being characterized with high volatility, this source of revenue will soon get exhausted. Second, the country's population and unemployment are growing at a high rate, while the rate of return on investment in human resources also continues to be low. In view of such challenges, it is necessary for the economy to undergo added diversification and structural change. The Saudi attempts so far to distribute oil wealth by means of public sector services and subsidies have not

yielded positive results nor have income inequalities declined. Hence, a better solution is to adopt a multifaceted approach in order to achieve wider socioeconomic resolutions in putting the economy on a path of consistent growth. The country's major dependability on unpredictable revenues from the oil sector has made matters more complex in framing efficient government and macro-economic policies. In fact, through the creation of ambiguity, such fluctuating patterns create negative impacts on economic activities in the non-oil sectors, thus depressing investments in the private sector. In addition, consumption of oil has been constantly increasing for several years, and such patterns of high consumption along with price volatility have created a bleak future through negative effects on current and fiscal accounting balances. Although Saudi Arabia has framed strong counter-cyclical policies in effectively dealing with sequential volatility in oil prices, constant reduction in price levels will impact the economy adversely. Although establishing a sovereign welfare-funding scheme has been helping the authorities in adopting efficient expenditure patterns despite the shock waves emanating from international markets, the problems relative to a high rate of youth unemployment continue to persist.

Under the circumstances, the adversities associated with depleting oil resources are inevitable. In view of the sustainability issues relative to streamlining of production, which will allow the country to avoid shortfalls in future, Saudi Arabia must take major initiatives toward curtailing current production and managing demand in ways that prove to be favorable to the Saudi economy in both the short and long term. This strategy will add to the country's ability to dominate international oil markets. In addition, much needs

to be done by Saudi Arabia in terms of taking initiatives for diversification so that future generations do not have to face economic hardships and reduced potential for economic development. The obvious answer is to take proactive actions to diversify the economy and make the country's youth-concentrated population more capable so that they can steer the country toward rapid and consistent economic development. The Saudi Arabian mindset must be changed, particularly in the context of attaining greater professionalism, skills and management abilities to establish new projects. Sustained efforts will have to be made in developing the service and industrial sectors; the outcomes will be apparent over time only after the present generation becomes well equipped with the required knowledge and skills to become a part of the envisaged growth. Top priority must be given to the development of human resources to effectively meet the increasing challenges of attaining sustained and inclusive societal development. In addition, measures have to be taken toward investing current revenues effectively in keeping with time-tested theoretical procedures as outlined in the paper. This will add to the resources available to future generations to meet with the increasing competition and with the demand for further investments to sustain the economy. There is no denying that to achieve sustainability in the future, the Saudi government has no other option but to extract incentives through diversification by moving its economy away from complete reliance on oil.

For Saudi Arabia, oil resources will likely be depleted within the next few generations and such a situation warrants that a substantial part of the oil rents must be saved and cautiously invested to avoid abrupt disintegration of social welfare measures. It

makes good economic sense for Saudi Arabia to implement diversification measures through systems of enhanced savings for the coming generations, which is best done by means of economic diversity. In addition, other than long-term goals of saving for the benefit of the coming generations, one major goal in the short and medium term should be to get involved in macroeconomic strategies directed at insulating monetary and fiscal policies in ways that they are safeguarded from volatility related to oil price variations. Although these are the solutions for oil-producing countries, Saudi Arabia has not as yet fully developed efficient stabilization policies to check counter-cyclical patterns. Moreover, the country is characterized by institutional weak points because of patterns of inappropriate strategies of monetary policies and exchange rate practices. Other weaknesses in the economy include imperfection in domestic financial markets and recurring credit limitations in global markets. Saudi Arabia must initiate measures to check low credibility emanating from counter-cyclical monetary and fiscal policies and their outcomes so that there is no contradiction in the policies. Nevertheless, Saudi Arabia has major strengths that will hold it in good stead to meet the emerging challenges.

Although the Saudi economy has been growing consistently for the past few decades, the country's per capita income has not yet reached levels prevailing in developed nations. In fact, income disparities have increased because of lack of diversification in production activities relative to investments in non-oil sectors that have the potential of creating greater employment. In addition, high growth in population and inability of the government to remove hurdles in foreign investments have increased

inequality in incomes. The answer for Saudi Arabia lies in transforming the economy and diversifying policy measures that focus on creating employment opportunities; only then can the country achieve high economic standards existing in developed nations.

PART IV

Chapter 6: Case Study of Norway

By the late 1990s, Norway had become the world's second largest oil exporter, second only to Saudi Arabia. Its oil sector had become a major contributor in boosting the economy. However, absorption of oil revenues became a major challenge for the government because of the need to introduce and implement good wealth management strategies that implied postponing the use of oil revenues until the time they could be efficiently used in the domestic economy. The current rate of oil production has already surpassed the peak and is now on a constant decline, which is quite natural in view of the exhaustible nature of the resource. Hence, it was imperative for the Norwegian government to introduce alternative businesses in order to maintain value creation for citizens beyond the oil era. It is thus important to investigate the potential of sustainable energy production in Norway that would lead to enhanced value creation. The main factors that influence policy-making in this regard are the drivers that impact climate and energy security policies. This is a lesson for Saudi Arabia because of its complete ignorance regarding the issue of sustainable energy. Norway has been very proactive in developing viable alternatives by developing industries based on sustainable energy and production methods that have the capability of substituting for the waning value creation from the oil and gas sector in the country. Norway recognized that being dependent on its oil fortunes in the long term was highly risky and realized that there was a strong need to utilize its oil revenues judiciously by way of savings that could be invested in

international markets. The challenges for Norway proved formidable given its quickly aging population that would soon need to be provided with pension and retirement benefits. It is in this context that the Norwegian government implemented a number of measures to create an alternative economy by transitioning to a diversified economy characterized by stability and environmentally friendly processes. George (2014) noted that the task has been very daunting in view of the country's major reliance on oil revenues and the oil industry, which is known to greatly pollute the environment. Achieving higher standards of sustainable energy is presently not applicable for Saudi Arabia because its main concern is to diversify the economic environment to reduce total dependency on oil. The issue of sustainable energy may not be very crucial for Saudi Arabia because it has more urgent needs by way of diversifying the economy. But eventually the country will have to adopt policies to achieve this objective once diversification programs succeed.

The Norwegian government's objective was to construct a more practicable society by building on the country's productivity and natural resources through efficient and innovative processes. For Saudi Arabia, this aspect is concerned more with the adoption of innovative ways of diversification. In Norway, this was to be done by focusing on sustainable solutions for the betterment of the economy, environment and citizens. The same objectives should have been framed by Saudi Arabia. For Norway, the approaches in this regard focused on introducing measures that would lead to sustainability, which would further drive a positive change toward hydrogen as a substitute for energy. The basic requirement for achieving this objective was to develop

technology and to remove lack of clarity emanating from research and increasing competition. Moreover, measures had to be taken so that the public was convinced about the viability of hydrogen as a substitute for oil. Hydrogen infrastructure and other facilities had to be provided by establishing large-scale production through effective handling of carbon dioxide so that the resource could then be provided to customers through pipelines or trucks. In this regard, Hexeberg (2014) has argued that experience with hydrogen has been good particularly in the context of steam processing with water electrolysis and natural gas.

It is now recognized that the energy markets of the world will be largely reliant on reduced oil and gas supplies from locations that are mostly characterized by political instability, thus entailing high investment hazards. It will be more difficult to keep producing high quantities of fossil fuels because of such constraints, which in turn will create greater insecurity in the supply of energy resources. In addition, climate change over time will have a negative impact on human societies. In this regard, Karstad (2009) has held that the total cost of such changes will amount to \$129 per metric ton by the close of the 21st century and will keep increasing because of the unalterable changes in climate. To meet the challenges, three times the present consumption of fossil fuels will be required to mitigate the adversities arising from the same. Thus, a vicious cycle will continue, becoming more severe in the coming times in terms of harming the environment, human societies and other living beings on the planet. Norway recognized the need to create ways of developing sources of renewable energy at reasonable costs. Such measures would help the country in creating value, developing energy security, and

mitigating climate change. Future value creation becomes possible only if innovative measures are taken such as developing offshore wind production facilities that will be equipped to provide the required power in European markets. According to Karstad (2009), this will enhance value in Norway as much as 10 percent by 2100, but to make this achievement, Norway will have to develop its facilities to create competitive advantage in the context of the European markets. The Norwegian government is in the process of including environmental costs of carbon dioxide emission in energy costs by imposing a carbon tax of \$90 per ton on all manufacturing industries. The policy provides for recycling carbon tax into renewable energy investments and establishing enhanced facilities for research and development in renewable energy.

As per the World Energy Outlook report issued by the International Energy Agency (2004), there has been quick growth in the demand for energy, which in turn has increased apprehensions about the environment and energy security, which is why Norway has given much importance to sustaining the present energy system by making added efforts toward developing and using new and better technology for energy production. This led to efforts toward using hydrogen fuel cells technology, which holds the promise of transforming the global energy scenario by way of greater efficiency and almost zero emission levels of greenhouse gases. Norway has collaborated with its industrial sector and has subsidized the establishment of fuel cells infrastructure by way of funding programs and tax incentives. Innovation in the oil and gas sector in Norway is done mostly by industries with a little involvement by the government. Norway has been proactive in dealing with the impending situation that will arise once its oil reserves are

exhausted. Discovery of oil during the 1960s made Norway among the world's richest nations. Consequently, the nation has long been providing high wages and free educational facilities to its citizens. In fact, the country continues to play a dominating role in the global oil markets because almost 70 percent of its exports are still hydrocarbons. But Norway has been careful and has taken measures to avoid being entirely dependent on oil in order to ensure the welfare of its citizens. The oil market is highly volatile and Norway does not want to be dependent on risky propositions in the future. The country has already accumulated huge savings from oil revenues that have been discreetly invested in global markets. George (2014) has argued that Norwegians are fully aware about the need to change toward a renewable and sustainable status and such change is viewed as a good opportunity for reviving the country's conventional industrial setup that was, until recently, dependent on fisheries and agriculture. The Norwegian government is supportive in such transition by providing subsidies and other facilities such as funding for R&D activities.

Hannesson (2001) has pointed out that by the late 1990s Norway was the second biggest oil-exporting country in the world, next only to Saudi Arabia, and the petroleum sector became a major boost for its economy. The absorption of oil revenues became a major challenge for the government. Good wealth management implied postponing the use of oil revenues until the time they could be efficiently used in the domestic economy instead of transforming them into permanent wealth. Hence, the main issue was to determine the areas from which oil could be extracted in order to ensure sustainability in keeping with the needs of the country and in enhancing its capability to constructively

use oil revenues. Oil was saved underground, in a kind of investment policy that would act as a buffer in difficult times. It was at this time that the policy makers in the country decided to invest oil revenues abroad, with the objective being to transform oil rents into permanent assets. The Government Petroleum Fund was set up in 1990 but deposits commenced only in 1995 because of recession in the intervening period. The Fund was to be made permanent and its income was to be used to defray government expenditures such as retirement payments and public spending. Consequently, the savings of public money has been significantly high. More than half the revenue flows from oil have been invested in the fund every year since 1996. The accumulated wealth is being discounted at the rate of 4 percent every year in per capita terms, and if this trend continues, only 3.4 percent would actually be spent by the government, the remainder being saved. However, Hannesson (2001) has argued that if the government is to meet the increasing retirement burden in the coming times, a greater amount needs to be saved. The Petroleum Fund is invested entirely in other countries with the objective of reducing demand pressure in the national economy and diversifying. The money is mostly invested in company shares and government bonds in various countries, while Bank of Norway manages the funds.

Further insights have been provided through Revenue Watch (2013) in the context of the country's Government Pension Fund Global that was set up in 1990 with the objective of stabilizing oil revenue flows and saving for coming generations. Although the Government Pension Fund Global refers to pension, it is not yet bound by any pension obligations. It is controlled by the Ministry of Finance on behalf of the country's citizens and is managed by the Norges Bank Investment, which is Norway's central bank.

The non-oil structural deficit of the fund is limited to 4 percent and it is fully included in the country's yearly budget, while all withdrawals are required to be approved by the parliament. The objective of the fund is to work as a savings and stabilization fund and to be used as a tool of fiscal policy in managing the consistent and sustainable long-term inclusion of oil revenues in the country's economy. This allows the government to adjust fiscal policy and respond to volatility in oil revenues, deficit in federal budgets, internal economic instability and financial issues pertaining to the country's quickly increasing aging population. Nergaard (2009) has stated that in the beginning of 2009, the Norwegian government enhanced public spending by NOK 14 billion under its Euro-Crisis-Package whereby funds were provided for introducing energy-efficiency initiatives and expanding railways in addition to conducting research and developing offshore facilities for production of wind power. Social partners of the government have since been raising several climate issues for which the main motivator has been the major challenges posed by the economy's dependence on energy and the need to comply with international agreements that require reduction of greenhouse gas.

Deposits made in the Government Pension Fund Global comprise all petroleum revenues, royalties and dividends after deduction of government investments in economic initiatives and operating expenses of the state. Deposits also include sale proceeds of Statoil shares and of other national oil companies and returns of invested revenues. Agreement was arrived at in 2001 among all political parties in Norway to the effect that the country's non-structural oil deficit will never be allowed to exceed 4 percent. This figure is considered to be the long-term real rate of return on the investments made in the

Government Pension Fund Global. The government cannot withdraw the capital funds as dictated by the Norwegian parliament. The working of the Government Pension Fund Global and its viability are aptly represented in Figure 6.1.

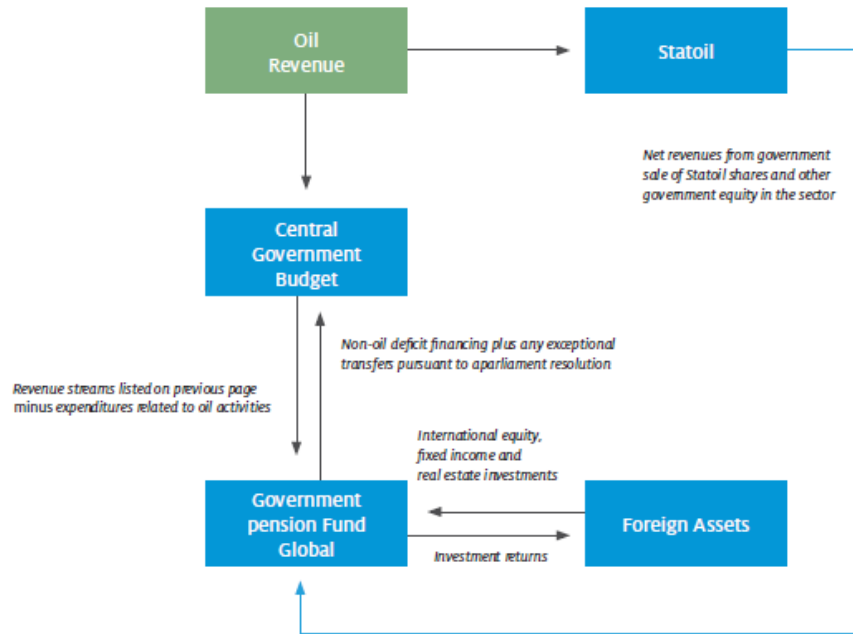


Figure 6.1. Government Pension Fund Global – Flow of Funds

Source: Revenue Watch. 2013 (Natural Resource Governance Institute). *Norway: Government Pension Fund Global*. http://ccsi.columbia.edu/files/2014/04/nrf_Norway_July2013_RWI_VCC.pdf

The Ministry of Finance in Norway is the investment authority that manages the Government Pension Fund Global in complying with the goal to achieve the highest possible rate of return. But these objectives can be achieved only by following policies of sustainable development based on the best possible social, environmental and economic policies. Allocation and diversification of investments are made on the basis of

geography and asset categories, the main characteristics being long-term investment, diversification and the following of ethical investment practices. Any one company cannot own more than 10 percent of the total investments and all investing companies are guided by strict risk-taking procedures through effective control of investment managers. The policy strictly provides that the assets from the Fund cannot and should not be invested in Norway. In attempts to counter the adversities arising from the global recession of 2008–2009, the Norwegian government enhanced public spending and the enhanced amount was used for increasing public expenditures and investments on public infrastructure such as railways and roads. These measures were introduced to give a boost to the construction sector, which in turn provided greater employment opportunities. At the same time, measures were also taken to increase initiatives for renewable energy and reduction in carbon dioxide emission levels. The government anticipates that the initiatives taken through the action plans will result in lesser emission of greenhouse gases and a better environmental position for the country.

It is noteworthy that the Norwegian government has taken several green initiatives in achieving energy efficiency. In 2009, the total amount invested in the Government Pension Fund Global was over NOK 2.5 billion, after which efforts were intensified in developing renewable heating solutions and energy-efficient processes in the industrial, wind power and construction sectors. The measures are directed at increasing demand for environmentally friendly and energy-efficient solutions that will lead to further increase in employment opportunities in the construction sector. Additional funding of NOK 75 million has been provided for research and development,

particularly in the area of wind power production. NOK 50 million have also been allocated for establishing recharging facilities for electric cars, while another NOK 50 million have been provided for bio-energy facilities. An additional amount of NOK 500 million was allocated in 2009 for developing cycle and walk pathways. The net implications of these measures have been improvement in the employment situation and thus better living standards for citizens. The Ministry of Finance implements environmental policies and ensures follow-up measures in this regard. The Norwegian government has also introduced climate quotas and entered into agreements with the global community with the objective of reducing nitrogen oxide emissions. Awareness-raising measures in regard to climate-associated issues have also been taken, such as the website named State of the Environment Norway, which provides the latest information to the public about environmental issues. The government has been providing funding to several non-governmental organizations to encourage them to carry out awareness-enhancement programs on greenhouse gas emission and consumption patterns.

The Norwegian government provides stimulus packages and financial support for eco innovation whereby construction companies are funded under the newly implemented policy and are required to adhere to the newly introduced construction standards. These facilities are provided under the stimulus package and are mostly directed at improving bio-energy and offshore wind power. Support is provided for entrepreneurial schemes related to green start-ups, a major element of which is Green Tourism. Other initiatives related to establishing bio-energy for SMEs in Norway wish to expand in international markets in areas such as tidal energy, wave energy and wind power. Training programs

are being conducted to train workers so that they effectively cope with the changes emanating from adopting the green economy. Investment schemes have been introduced for the production of goods and services that create additional jobs.

Norway is rich in both fossil and renewable energy. It has large capacities for producing hydro power, which now meets almost half the country's energy needs. Moreover, there is massive potential for thermal power, biomass energy and wind energy as other sources of energy. Norway is among the biggest oil- and gas-exporting countries. However, because the majority of the country's fossil energy is exported, its use within the country is not well accounted for in the context of national emission measurements. However, fossil energy utilized in producing natural gas, oil and diesel is well accounted for in this regard. The greatest greenhouse gas emission in Norway occurs by way of oil and gas production, industrial production and transportation. However, despite the proactive measures taken by Norway to mitigate the risks emanating from oil production, it needs to take further initiatives in ensuring greater returns on its investments so that future generations do not suffer on account of inadequate measures taken to offset the adversities arising from declining availability of fossil fuel resources. In effect, there is no scope to ignore the physical reality while making policies and strategic plans. There is a strong need to make strategies to safeguard the energy resources of the welfare society while mitigating environmental hazards and adverse effects emanating from the use of fossil fuels. Although the Norwegian government has taken initiatives in introducing alternative businesses to maintain value creation for citizens beyond the oil era, proactive actions must be taken to make best possible use of technologically viable options.

Chapter 7: Learning from the Norway Case Study and What Saudi

Arabia Can Do

Saudi Arabia did realize in the 1970s the significance of working toward establishing a sustainable economy so that total dependence on oil could be eventually eliminated. Economic diversification has the potential of creating jobs and stimulating the entire economy in enhancing industrial productivity and improving the services sectors. The government implemented ten five-year plans from 1970 onward in attempting to diversify economic sources so that other productive sectors contribute more to the country's national income. From 1970 to 1995, the focus was on boosting the agricultural sector by providing subsidies to farmers. The government mobilized investments but success was not achieved because of the lack of water resources. During 1981 to 1985 there was a negative growth pattern in per capita GDP despite the fact that average oil prices were going up. This pattern happened because the country's national debt had gone up and much of the revenues were used in repaying the same. The Gulf War during this period also had negative repercussions. It was only in the five-year plan commencing in 2011 that the Saudi government began making major investments abroad in order to seek rents from positive returns in international projects. The Saudi government owns all major companies such as ARAMCO (Saudi Arabian Oil Company), Saudi Electric Company and Saudi Basic Industries Corporation. Moreover, the government owns almost a 70 percent stake in the country's banking sector with almost a majority holding in agencies such as the Public Pension Agency, Public Investment Fund and General Organization for Social Insurance. Because of a lack of governmental participation and

encouragement, the private sector in Saudi Arabia has not grown consistently during the five-year plan periods. Against a planned growth rate of 14 percent, the agricultural sector grew at only 11.4 percent during the first plan period commencing in 1970.

7.1. Comparison between Saudi Arabia's Old Diversification Plan and Norway's Diversification Plan

For Norway, absorbing oil revenues was a major challenge during the 1990s because of the need to implement efficient wealth management strategies that could result in the postponement of using oil revenues up to a time when they could be productively invested in the domestic economy. The Norwegian government understood the need to create alternative businesses to create value for its citizens. It can be said of Norway that it was more proactive than Saudi Arabia in establishing industries and manufacturing facilities that depended on sustainable energy. The government realized the best way to utilize current oil revenues was to invest them judiciously in international markets. The challenges in this regard were further accentuated by a quickly increasing percentage of the aging population in the country because they would have to be provided with retirement benefits and old-age pension. The government focused on sustainable solutions to improve the economy, the environment and the living standards of its citizens. The viability of hydrogen as a substitute was found to be positive and a hydrogen infrastructure was established to deal effectively with emissions of carbon dioxide from current oil production methods.

In view of the failure to uplift the agriculture sector, the Saudi government invested oil revenues to uplift the services sector but it contributed only 8 percent to the GDP against a planned rate of 13 percent in the five-year plan that commenced in 1980. This primarily happened because the government was unable to effectively reduce the private sector's dependence on government support by way of subsidies and funding. In contrast, Norway was able to develop renewable energy sources at reasonable costs and created the potential for future value creation by enhancing its comparative advantage in the context of producing renewable energy. It imposed a carbon tax of \$90 per ton of carbon dioxide on all manufacturing establishments to offset environmental costs by way of carbon dioxide emissions. The revenues collected through such taxes were invested in establishing renewable energy production and research facilities. The Norwegian government placed emphasis on hydrogen fuel cells technology, which holds the promise of transforming the global energy scenario in terms of greater efficiency and almost zero emission levels of greenhouse gases. It introduced funding programs and provided tax incentives to industries involved in such activities.

Norway accumulated huge savings from oil revenues, which have been discreetly invested in international markets. In addition, the government and many big companies in the country have been constantly occupied in finding viable solutions for ensuring a consistent flow of revenues for the country. The efforts have been mostly focused on innovating and transforming toward renewable energy sources and creating a sustainable economy. In effect, the realization to make such changes was considered to be a good opportunity for reviving the country's conventional industrial set-up, which was mostly

dependent on fisheries and agriculture. During the 1990s, Norway was second in the world in oil exports, next only to Saudi Arabia, and the petroleum sector was the main contributor in boosting its economy initially. Unlike Saudi Arabia, Norway realized that it had to adopt good wealth management strategies, which included postponing the use of oil revenues until the time they could be efficiently used in the domestic economy instead of transforming them into permanent wealth. It adopted strategies of preserving its oil fields so that oil was extracted from areas that ensured sustainability in production. Another strategy was saving oil under the ground, which created a buffer for use during difficult times.

The Saudi government's five-year plan that commenced in 1985 is considered to be the most successful because efforts toward economic diversification started bearing positive results. The oil sector's contribution to the GDP was reduced by 23 percent and the private sector's share increased by 11.56 percent. Moreover, oil exports were decreased by 17.5 percent, while oil revenues also declined by 10.5 percent. Major industrial centers were established that gave a boost to industrial activities and development of related infrastructure. It was at this time that unemployment came down in comparison with previous periods. However, from 1999 onward the private sector again received a setback and the government had to again make hectic efforts to diversify sources of income. The economy faced major challenges during and after the plan period 1995–1999 because unemployment increased drastically among a quickly increasing young population. Further complexities such as lack of appropriate educational facilities, health care and infrastructure developed as a result of the decline in the role of the private

sector. The Norwegian government invested its oil revenues in international companies, funds and projects so that oil rents were transformed into permanent assets. It established the Government Petroleum Fund in 1990 and regulations provided that the income from the same would be used to meet government expenditures relative to public spending and retirement payments. The accumulated wealth is being discounted at the rate of 4 percent every year in per capita terms. Consequently, only 3.4 percent of the fund is being actually spent and if this pattern continues, the accumulated savings will keep multiplying for use by future generations.

From 2000 onward, the Saudi government took different initiatives to attract foreign investments and encourage tourism and other service sectors in order to reduce unemployment. But the policies did not succeed in diversifying the economy or in reducing unemployment. The rate of unemployment increased to 12.1 percent in 2012, a clear indication of the failure of the diversification efforts made by the Saudi government. It is quite apparent that tourism and other service sectors did not grow because of low standards of education and lack of appropriate training arrangements. The Norwegian government has increased public spending by NOK 14 billion under its program that provides funding for energy-efficiency initiatives and for expanding railways. It also provides for conducting research and developing offshore facilities for production of wind power. Norway has been using ethical investment practices, which is apparent from the fact that a single company cannot own more than 10 percent of the total investments in companies involved in diversification efforts. In addition, all investing companies have to abide by strict risk-taking procedures under the effective control of investment

managers. The policy dictates that the assets from the Fund cannot and should not be invested in Norway. During the global recession of 2008–2009, the Norwegian government enhanced public spending to increase investments in public infrastructure such as railways and roads. In contrast to the ways in which the Saudi government allocates its expenditures only for limited public initiatives, deposits made in Norway's Government Pension Fund Global comprise all petroleum revenues, royalties and dividends after deduction of government investments in economic initiatives and operating expenses of the state. In addition, deposits to the Fund also include sale proceeds of shares of Statoil and of other national oil companies and returns on invested revenues. It is clear that Saudi initiatives lack such elements, which is perhaps the main reason why its strategies have not been successful in achieving diversification goals in the economy, despite several decades of effort.

7.2. Saudi Arabia's Diversification Efforts So Far

Economic diversification is recognized as an important means to achieve sustained economic growth, particularly for economies such as Saudi Arabia that have been dependent on a single natural resource. When an economy is primarily dependent on a single resource, there is immense danger of economic collapse and instability. For Saudi Arabia, oil proved to be a boon in creating a distinct economic advantage at a time when the world was highly apprehensive about the abundant availability of energy resources that were crucial for maintaining industrial development after the end of World War II. Saudi Arabia's oil reserves provided the much needed economic boost but in due course, the volatility in international oil markets and extreme dependence on oil reserves

created situations that demanded the taking of immediate measures so that the country's economy could continue to maintain its strength. From the 1970s on, the Saudi government has realized the necessity to diversify its economy so that hardships are not faced by future generations (Albassam, 2014). Economic diversification is known to contribute to the creation of additional jobs, to reduce the government's monopoly, and to improve the overall economic environment in the country. With improved infrastructure and encouragement to foreign investments, more jobs are created in addition to creating circumstances that eventually warrant the establishment of improved educational standards and centers of higher learning. The Saudi Arabian government has implemented ten major five-year plans that commenced in the 1970s. A major objective of such plans was economic diversification. The government's initiatives in diversifying the economy are best examined by analyzing the Saudi Arabian economy from the perspectives of the oil sector's contribution to the GDP, private sector's contribution to the GDP, contribution of exports in the economy, and extent to which oil revenues are a part of the GDP. However, despite four decades of implementing development plans aimed at diversifying the economy, Saudi Arabia has not made significant strides in reducing its dependence on the oil sector, which continues to remain the dominant engine driving the economy. Research clearly indicates a strong need for the Saudi Arabian government to reconsider its diversification strategies in creating better tools of governance.

According to Albassam (2014), during the period 1970–1995, Saudi Arabia focused on giving a boost to its agricultural sector to diversify the economy. The policy

entailed the provision of subsidies and loans to agriculturists to finance crops and agricultural activities. Although investors were attracted, the efforts did not succeed because a strong agricultural sector could not be developed that had the potential of contributing to economic growth on a consistent basis. Major losses were suffered in 1995 in water and irrigation resources that adversely impacted water reserve levels. Eventually, the government had to withdraw support to the agricultural sector because of scarcity of water in its desert regions. During the period 1970–75, the envisaged rate of growth of the agricultural sector was 14 percent but it was only 11.4 percent. Thereafter the government focused on the services sector and during the period 1975–1979, oil revenues were invested with the objective of making the sector account for 13 percent of the GDP. However, by 1980, the services sector could contribute only 8 percent to the GDP. This was because of the government's failure to effectively reduce the dependence of the private sector on the government, which controlled a majority of the projects in the country. The next stage of the plan, from 1985 to 1989, was successful because of more focused efforts toward economic diversification. The GDP's share of the oil sector declined by 23 percent, while that of the private sector increased by 11.56 percent. In addition, oil exports decreased by 17.51 percent and oil revenues also were reduced by 10.48 percent. The industrial cities of Yanbu and Jubail were set up in 1975, which held promise of creating additional employment. Many industrial establishments arose and eventually resulted in an enhanced share of the private sector in the GDP. However, after 1999, the rate of unemployment increased constantly, thus driving the government to make hectic efforts to diversify income resources and arrange for the transfer of advanced

technology. These strategies required the government to introduce new schemes for attracting foreign investments.

The efforts of the Saudi government toward diversification of the economy since the 1970s are best examined by analyzing parameters such as contribution of oil in the GDP, contribution of the private sector in the GDP, contribution of exports in the economy, and extent to which oil revenues are a part of the GDP. Table 7.2.1 depicts the average contribution of every diversification variable for each of the different plan periods.

Table 7.2.1. Saudi Economic Diversification Variables (Average)

	Oil Sector as a % of GDP	Oil Revenues as a % of Total Revenues	Oil as a % of the country's Exports	Private Sector as a % of GDP
1970–1975	58.02	90.56	99.49	27.70
1976–1980	56.59	88.80	99.65	34.20
1981–1985	48.38	79.53	98.43	38.06
1986–1990	25.14	62.02	87.95	49.65
1991–1995	36.00	73.78	90.95	40.13
1996–2000	34.28	70.66	87.30	41.25
2001–2005	39.72	80.93	87.04	38.92
2006–2010	49.12	88.22	88.13	34.48
2011–2013	48.22	91.05	86.92	35.61

Source: Albassam, B. A. A. 2014. *Economic Diversification in Saudi Arabia*. Elsevier Editorial System.

As Table 7.2.1 shows, the share of the oil sector in the GDP is clearly indicative of trends that the sector does not enjoy any stability because much depends on the movement of oil prices in international markets. Therefore, it is clear that there is much

less economic diversification. Diversified sources of national income are considered to be a strong indicator of diversification in the economy. However, extreme dependence on a single source of income is clearly indicative of the economy being in the grip of international price movements of oil, which again is an indicator of much less diversification in the economy. The export figures determine the economic structure and productivity levels in the economy. It is known that economies with a broader range of goods and services are considered to be healthy and more productive in comparison with economies that depend on very few items of export. The fact that oil accounted for 86 percent of the total exports during the period 2010 to 2013 is a clear indication of the country's extreme dependence on oil for its exports income. This is the outcome despite several years of efforts to diversify the economy. During the period 2010 to 2013, the private sector in Saudi Arabia accounted for 35 percent of the country's GDP, which was almost the same during previous plan periods. Economists generally believe that the excessive reliance of the Saudi economy on oil and also the dominance of the public sector have left very few chances for the private sector to play a greater role in the country's development and economic growth (Albassam, 2014).

Saudi Arabia still needs to do a lot in order to be called a diversified economy. It is apparent from the above data that oil continues to dominate in almost all economic sectors, while the private sector continues to depend a great deal on government spending and investments. In order to achieve better diversification outcomes, the Saudi government has to make plans that facilitate the achievement of diversification goals. The plans have to be specific and inclusive of clear-cut objectives of economic

diversification. Past strategies have to be given up and new realistic plans framed that are achievable in keeping with the needs of the economy. Unless a strong and independent private sector becomes dominant in the economy, diversification objectives cannot be achieved. The government has so far not been able to effectively support non-oil sectors and other activities such as agriculture and industrial growth.

It is true that the Saudi government framed ten development plans from the 1970s onward (each of five years' duration), but oil continues to remain the most dominating sector and not much headway has been made in diversification of the economy, which also means that the prospects of the country have not improved much from the perspective of reduction of unemployment, higher wages for Saudi nationals, better infrastructure, and higher standards of living. Oil continues to be the main driver of the economy. The country has so far not implemented a suitable and measurable plan that is supportive of non-oil sectors and their greater role in economic growth. The required measures by way of new regulations that attract greater foreign investments have not been taken. In addition, measures have not been taken by the government to attract higher levels of foreign technology. This has prevented the private sector from becoming stronger as it continues to remain dependent on government expenditures and projects. Unless the Saudi government recognizes diversification as an efficient means for better governance, the dependence on the oil sector cannot be reduced. Only then will more employment opportunities be created because of the achievement of greater competitive advantage in other economic sectors.

PART V

Chapter 8: Options for Saudi Arabia Based on Norway's Success Story

Norway is a small country and has costly and peripheral markets, but despite the major economic challenges it confronted in the face of declining oil production, it has now become one of the most prosperous countries in the world. Norway succeeded not because of its abundant supplies of oil and gas but because it was able to adopt proactive and stable macro-economic policies and to establish strong public institutions. The country was able to achieve extraordinarily high productivity by efficiently utilizing its labor force. The best measure of its success is that Norway was able to achieve equality among its homogeneous population, which in turn resulted in social stability. Nevertheless, Norway cannot afford to be complacent because the economy still needs to be more open and diversified; it has already started making further efforts by focusing on evolving from reliance on natural resources to being a knowledge-based economy.

Under such circumstances it is no surprise that oil projects are being done away with in view of low oil prices and falling production. Despite being the ideal model for efficiently utilizing its natural resources to develop a flourishing and rich economy, Norway is not protected against the adverse impacts of falling oil prices. This is apparent from the fact that the share prices of Statoil, which is the country's national oil company and is owned by the government, have been reduced by almost half after July 2014. Many of its offshore rigs are now lying idle because of low profitability. Figure 8.1 is indicative of the declining oil production in Norway.

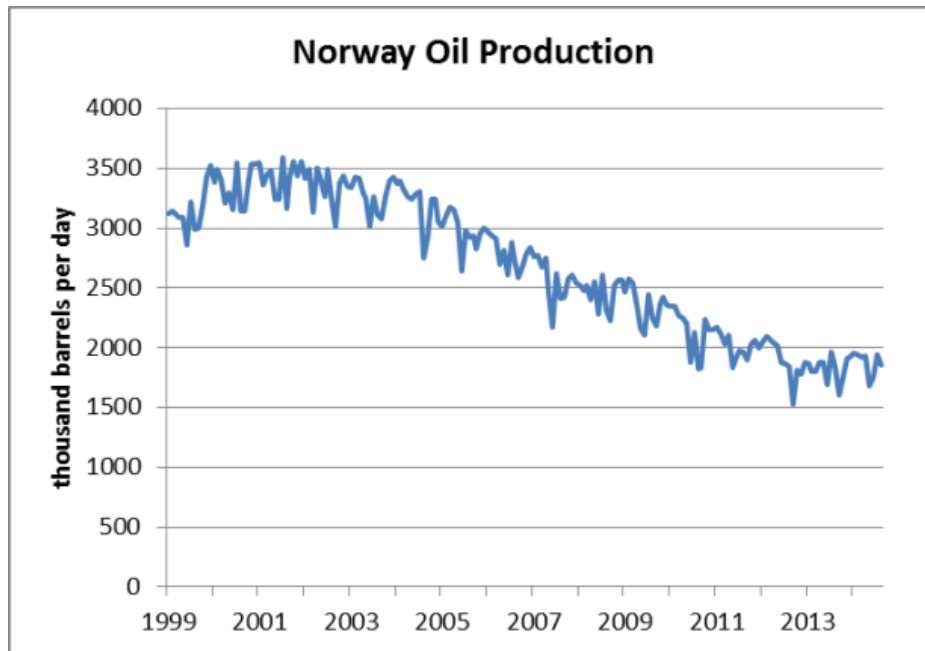


Figure 8.1. Declining Oil Production in Norway

Source: Cunningham, N. 2014. *Norway's Oil Decline Accelerating*.

<http://oilprice.com/Energy/Crude-Oil/Norways-Oil-Decline-Accelerating.html>

Reduced investments in the oil sector have been adversely impacting the labor market because almost 10,000 oil workers in the country are already without jobs as a result of reduced spending in the industry (Cunningham, 2014). The country has no option because with declining oil reserves and declining productivity, it needs to find additional ways of maintaining its current levels of prosperity. Absorption of oil revenues had become a major challenge for Norway because such revenues had to be efficiently used in the domestic economy. The country was proactive in developing viable alternatives in response to the declining rate of value creation from its oil and gas sector. The government implemented varied measures to develop an alternative economy in order to transition from oil dependence to a diversified economy characterized by

stability and environmentally friendly procedures. It also made efforts toward developing and using new and better technology for energy production. Norway was able to accumulate massive savings emanating from oil revenues that were judiciously invested in international markets.

A unique Norwegian effort has been the introduction of the Government Pension Fund Global that was established in 1990 with the goal of saving for future generations. Deposits in the Fund were made from oil revenues, royalties and dividends emanating from international investments. In addition, the government took many green initiatives to achieve energy efficiency and to enhance demand for energy-efficient and environmentally friendly solutions that had the potential of increasing employment opportunities in sectors other than oil. Provision was made for funding research efforts in the area of wind power production so that there are no power issues in the future. All this became possible because the government realized the need to safeguard the energy resources of the welfare society and to mitigate environmental risks and harms resulting from the use of fossil fuels.

Leskinen (2012) has argued that Norway is a constitutional monarchy and parliamentary democracy but is not a part of the European Union although it actively participates in the European Economic Area, which means that it is a European partner in ensuring larger market access to European Union members. Norway is an example of success in achieving economic diversification because it could achieve such exemplary growth rates, which are much higher than the average growth rates achieved by other OECD nations. In effect, by 2011, Norway gained the unique position of surpassing the

per-hour productivity in the United States in the manufacturing sector (Leskinen, 2012). This success occurred because manufacturers in the country have been constantly introducing new technologies to increase productivity per worker. The country gives immense value to its labor and focuses on expanding its tertiary sector by expanding the primary and secondary economic sectors. After 2000, much emphasis has been placed on the expansion of education, construction, oil and gas services, financial services and real estate, which are sectors that have been growing constantly at rates between 3.5 and 5.5 percent. Although there has been growth in the manufacturing sector, it is lower, in the range of 1.5 to 3.5 percent. By shifting toward the tertiary sector, Norway was able to steer away from the increasingly low-cost competitive manufacturing environment emerging in countries such as China. In addition, the structure of Norway's economy is such that it was possible to improve its terms of trade and balance-of-payments position in comparison to other developed countries. This is evident from the fact that between 1911 and 2011, the value of Norway's exports increased by more than 85 percent and imports declined significantly (Leskinen, 2012).

Norway has the distinct advantage of being endowed with minerals, timber and fish resources, which it has gainfully used in reducing its reliance on the oil industry. The country produces almost its entire requirement of electricity through hydroelectric power, which implies it does not have to depend on oil to meet its electricity needs (Leskinen, 2012). In the context of efficient use of its oil resources and diversification strategies to offset the imminent threats, Norway has been administering its petroleum sector through the following entities:

1. The country's national oil company Statoil, which works toward engaging in commercial hydrocarbon functions.
2. Norway has authorized the Ministry of Trade to frame policy in regard to administering state ownership on the lines of the models adopted by countries such as Sweden, Denmark and Singapore.
3. The Ministry of Petroleum and Energy supervises and provides technical assistance.

Norway has been successful in the efficient management of its hydrocarbons, which is why its strategies in this regard are being considered and adopted by other nations across the world. In essence, the Norwegian model works best in conditions when strong political competition is effectively combined with high institutional capacities, which is not applicable to Saudi Arabia. The political leadership should have the ability to implement regulatory functions and to consolidate policy and commercial functions. Therefore, nations that do not have the required institutional capacities will not be able to separate the different functions. But Saudi Arabia is in a strong position to effect such changes although it has not yet been able to achieve such a status. In the case of Saudi Arabia, although the country experienced substantial economic growth until the year 2011, per capita real incomes have not reached the same levels as that of Norway and other developed nations. Rather, income disparities have increased because of the country's failure to achieve diversification of productivity away from capital-intensive hydrocarbons to non-oil sectors that have the potential to generate additional employment. This is a lesson for Saudi Arabia but it is in a different situation here in

comparison with Norway because it has been constantly experiencing high growth in population, while delays in the removal of restrictions on foreign investments have further accentuated the rate of income disparities. Under the circumstances, a key lesson for Saudi Arabia is to introduce diversification strategies that focus on employment generation, which will lead to the achievement of convergence with economies of developed nations. These solutions are best achieved by introducing reforms in labor markets, educational systems and training establishments. In addition, government spending must be prioritized in motivating the private sector to get involved in diversified activities such as labor-intensive and export-oriented production, which is not adversely impacted by volatility in the oil markets.

A major blessing for Saudi Arabia is that about half its population is in the age group of less than 25 years and also that by 2025 the country's population will almost double in comparison to 2011 data. Given that the unemployment rate in the country is presently quite high, the situation proves to be a demographic challenge that impacts the prospects of labor markets. In following the example of Norway, Saudi Arabia should work toward creating a minimum of 4 million jobs in the next ten years. But this is difficult to achieve because the efforts made so far have not borne much fruit. The Saudi government has to vigorously work toward achieving sustainable development and inclusive growth so that the economy is redirected toward a path of convergence. It is known that real per capita incomes in the country have never reached levels prevailing in developed nations because of Saudi's Arabia's excessive dependence on oil revenues for its subsistence and lack of alternative initiatives to diversify the economy. Moreover, the

oil sector is highly volatile, whereas other problems such as high rate of unemployment and population growth and low returns on investments have created major challenges for the country. Because of these circumstances, it has become imperative for Saudi Arabia to undergo structural transformation and diversification. Income disparities can be reduced only if the private sector is empowered through greater support by way of transfer of technology, availability of funding and a liberal market environment.

It appears the best solution is to introduce labor market reforms and to implement policy measures directed at reforming education and training. Capital spending by the government has to be given greater priority, which is the only way to increase private-sector participation. Diversifying the different economic sectors will result in establishment of more labor-intensive and export-oriented industries, which will obviously not be impacted by the extreme volatility in the oil sector. This can be effectively done by implementing large-scale market reforms in the financial and real sectors in order to improve policy-making structures and to improve the institutional and governance environment. Much focus has to be placed on achieving greater efficiency and production, while entrepreneurs have to be motivated through the creation of a small- and medium-scale enterprise sector that emphasizes economic diversification (Al-Sadiq, 2014). In addition, new initiatives have to be taken in the establishment of knowledge-intensive businesses and in implementing policies directed at attracting greater foreign direct investment.

The Saudi economy has been always been dependent on the oil sector, which has contributed a minimum of 30 percent of the yearly GDP on an average basis. In fact, in

recent years, 85 percent of government revenues have been emanating from the oil sector, thus indicating that the economy has been greatly exposed to volatility in oil markets. However, in having been the world's biggest oil producer, Saudi Arabia always played a major role in stabilizing global oil prices. Now that America is becoming the biggest oil producer in the world, Saudi Arabia is in a very vulnerable position because of its sudden decline and inability to influence global oil prices despite its ability to produce oil at much lower costs than the United States. The Saudi economy continues to be excessively dependent on oil and is almost entirely controlled by the government. Such circumstances pose major challenges for companies desiring to enter the Saudi market. However, despite the apparent shortcomings, a number of avenues are open to Saudi Arabia to successfully diversify in other economic sectors and thus remove its extreme dependence on the oil sector. This is best done by following the example of Norway, particularly by establishing a massive public fund that is fed with oil revenues, which in turn are invested in international markets to yield greater returns that can then be used on a consistent basis by future generations to meet public expenditures relative to better education, health care and housing, and the building of infrastructure.

Ever since it experienced its oil boom in the 1970s, Saudi Arabia has followed an expansionary fiscal policy with the objective of fueling welfare and public consumption. Taxation has always been very low, while government spending has focused on providing subsidies on varied goods and services. In addition, the government also focused on keeping a high rate of public-sector employment and on spending heavily on health, education and infrastructure. However, all these activities were never carried out

through efficiently planned strategies, such as government budgets providing for enhanced investment spending even though current expenditures continued to increase because of a higher wage bill and greater provision of subsidies. The economic policies in Saudi Arabia are mostly associated with the fluctuation of the oil prices, which put to question the efficiency of the system during periods of extreme financial instability such as the one that occurred in 1998. It is apparent from such policies that the present model adopted by the Saudi government is not proving to be effective in preparing the economy for efficient diversification into economic sectors that are not dependent on the oil industry. The Saudi economy has not built a considerable amount of savings during the past few decades, which would have allowed it to effectively transition to a more diversified economic structure.

By increasing spending on education, health and additional infrastructure, privatizing some state-owned companies, and restructuring the major public-sector companies, Saudi Arabia can make an effective breakthrough toward diversification. Privatization is best carried out by issuing IPOs for major public-sector companies such as Saudi Electricity Company, which would go a long way in enhancing public confidence as the basic public facilities can then be better managed through public/private partnerships, while the government can focus on the more pertinent issues. The construction sector in the country is very significant but non-listed contracting companies continue to be the main players. This trend needs to be checked because the share of the construction sector in the GDP was about 10 percent in 2010. A quickly

increasing population, increasing industrialization, and enhanced government spending are all creating circumstances that will certainly give a boost to the construction sector.

The banking sector in the country is not very big; the main banks in the public sector are National Commercial Bank, Al Rajhi Bank and Samba Financial Group, which account for almost 45 percent of overall assets. In the private sector, the largest bank is National Commercial Bank, which accounts for almost 80 percent public ownership. A major issue for the country's banking sector is to effectively reduce bank risk aversion, which can be brought with enhancing business confidence and increase of insurance services. Mining and metals have immense potential for Saudi Arabia because they are natural resources that the country can easily exploit in offsetting some part of the losses accruing to reduced production of oil in the near future. There are massive deposits of bauxite, coal, copper, zinc, lead, silver and gold in the vast arid desert regions of the country but lack of water and remote locations of such sources are currently hampering advancements in this regard. Growth and positive outcomes can be achieved by introducing mining reforms and regulations (Kjønigsen, 2011).

In learning from Norway's experience and strategies, Saudi Arabia has to introduce varied policy measures in meeting the challenges from introducing diversification programs, which it will have to be inevitably involved with. Saudi Arabia has to learn from Norway that it has to reduce its massive public sector, which is possible only if the government reduces its dependence on oil, meaning that it will have to provide for its expenditures from other sources. Because the share of the private sector has been very low on a consistent basis, it is important to introduce plans and implement the same

in creating a competitive private sector, which does not survive only through government subsidies. Another major lesson for Saudi Arabia is to generate greater employment opportunities so that there is no unemployment, particularly among its native population. Despite the virtual absence of Saudi women in employment, the unemployment situation remains poor, which is apparent from the fact that about 10 percent of Saudis are currently without employment. In addition, there is large-scale underemployment because a large percentage of the local population are not appropriately compensated in their jobs. Government jobs provide job security and higher wages, while jobs in the private sector are insecure and wages are less. The unemployment situation will further worsen in the country because the large majority of youth who will complete their education soon will not have job opportunities and will remain unemployed unless the government introduces diversification programs that lead to more investments, foreign direct investment and infrastructure development.

There will be increasing mismatch between required skills in the private sector and academic qualifications. Structural reforms directed at achieving long-term and sustainable economic development through efforts of the Saudi-Arabia General Investment Authority and Supreme Economic Council have enhanced Saudi credibility globally and the country received substantial inflows of foreign direct investment, but much needs to be done on several fronts such as consolidating the country's legal structure in the areas of commercial and business laws, associating the national objectives with the country's education systems and the expectations from the private sector, and strengthening the country's financial markets to achieve greater sophistication, stability

and depth, which will lead to greater transparency and enhanced activities by institutional investors. It is also important to make bond markets more accessible and viable and to improve the efficiency of public-sector organizations by implementing fiscal reforms with the objective of controlling government expenditures. This is most effectively done through involvement of the private sector, which will be very effective in diversifying the national economy away from dependence on oil. Enhancing institutional transparency will make foreign investors less apprehensive about social and political risks (Kjønigsen, 2011).

According to Thurber et al. (2011), Saudi Arabia is the most dominating example of the ways in which governments manage their national oil companies in a unitary style. It is obvious that if Saudi Arabia wants to adopt the Norwegian model in achieving successful diversification outcomes, it will have to change its management strategies. The objectives of the Saudi government and the country's major oil company Saudi Aramco have always been well aligned in providing for one another's interests. Aramco's five-year operation plan has government approval, and the company has always flourished as a result of its unique monopoly. In turn, Saudi Aramco has always provided the Saudi government with massive financial support. The Saudi government must introduce legal reforms to boost the authority of its main oil regulator, the Supreme Council on Petroleum and Mineral Affairs, so that it can exert effective control over the public-sector oil companies. In the process, constructive plans can be introduced to revive the economy through well-conceived diversification programs.

Gelb and Grasmann (2010) conducted research on the resource issues faced by Norway and arrived at the broad conclusion that the effects of rich natural resource capital on growth depend on the two major factors of human capital and institutional capital/governance, and if the two are in abundance, there will be positive outcomes in the context of creation of additional resource wealth. If they are in scarcity, the outcomes emerging from the creation of additional resources will be negative. Hence, Saudi Arabia has to learn that structural changes and the creation of a political economy have greatly helped Norway in managing its resources efficiently. Nevertheless, all options are interrelated and if spending by the Saudi government is not adequate, particularly in areas such as planning for public investments and implementation of policies, there will be constraints in regard to capacity building. In addition, the available choices are a factor of the political systems and commercial and business environment prevailing in the country. Because Saudi Arabia is a monarchy, efforts will have to be made to introduce greater public participation in terms of partnerships in the private sector and greater inflows of foreign capital through which multinational companies will be given greater autonomy in terms of functioning and repatriation of profits to the home country. Although oil is representative of the huge wealth of Saudi Arabia, it exposes the economy to larger uncertainties, which can be effectively resolved only by creating symmetry in the loss functions. Saudi Arabia has to realize that Norway has performed better by way of efficiency in diversification programs and steering the economy away from total dependency on the oil industry. This has become possible only because of good governance involving political consensus on the strong need to introduce stability, an

effective and involved technology sector, and the effective involvement of interest groups that can affect restrictions on unproductive spending. Saudi Arabia has to realize that there is no specific formula for creating and developing such circumstances. The government has to adopt approaches that are specific to its own circumstances so that they are feasible in diverting governmental efforts toward effective and productive governance that results in successfully diversifying the economy and steering it away from excessive dependence on oil in the coming times.

PART VI

Conclusion

Saudi Arabia currently accounts for 18 percent of the global oil reserves and is the world's biggest exporter of petroleum products. In addition, it has the distinction of being the country that has the highest capacity in the world to produce crude oil. The oil sector in the country accounts for 45 percent of its GDP and 85 percent of its export revenues. However, in view of the extreme dependence on oil revenues, there is no doubt that Saudi Arabia has to take concrete measures, and the best option in this regard is to diversify the economy in other sectors. The government has already started taking initiatives in promoting development of the private sector and improving the skills of Saudi nationals. Efforts toward diversification are directed toward the improvement of sectors such as petrochemicals, natural gas exploration, telecommunications and power generation. However, the current situation is exacerbated as a result of the large percentage of jobs that are occupied by immigrants within the oil and service sectors. Unemployment among Saudi nationals continues to be high. Given that reduction in supply of oil will be a slow and gradual process and economic impacts will also be slow, the government has enough time to create an economic environment that is conducive to the creation of dominance of sectors other than oil. It is apparent from the research that a lot needs to be done by Saudi Arabia in terms of taking initiatives for diversification so that future generations do not have to face economic hardships and lack of viable economic opportunities. It is only through provision of enhanced educational opportunities by way of higher standards and

establishment of more educational institutions that the current younger generation can become technically and professionally skilled in taking over the job responsibilities presently held by expatriates. A major initiative needs to be taken by the Saudi government in this regard.

Another area of focus for the Saudi government is to spend on renewable energy through investments on research and partnerships, which will lead to the development of new systems of power production directed at harnessing renewable energy to produce power on a consistent basis. There is no doubt that in order to achieve future sustainability, Saudi Arabia should extract incentives through diversification by moving its economy away from complete reliance on oil. The country will do well in replicating the policies followed by Norway, which has been very successful in achieving success in diversifying its economy, away from dependence on the oil sector. Norway has been able to effectively reallocate resources in other core sectors, thus succeeding in distributing its GDP across several sectors that proved to be economically viable. Oil has made Saudi Arabia rich but it has never been able to reach the status enjoyed by developed nations. The country now needs to follow the example of Norway in accumulating its savings accruing from oil revenues and judiciously investing the same to provide for future generations. In addition, the country needs to take immediate measures by increasing government expenditures in order to strengthen human resources and to provide better health care, transport, municipal services and housing to its citizens.

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Appendix 1: Permission for Figure 5.2 Saudi oil production that used in Chapter 5.



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November 30, 2015

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- Revenue Watch is now **Natural Resource Governance Institute**
- Vale Columbia Center is now **Columbia Center on Sustainable Investment**

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