Dynamic relationships between oil revenues, government spending and economic growth in an oil-dependent economy

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ABSTRACT

The aim of this paper is to empirically examine the dynamic relationships between oil revenues, government spending and economic growth in the Kingdom of Bahrain. Oil revenues are the main source of financing government expenditures and imports of good and services. Increasing oil prices in the recent years have boosted public expenditures on social and economic infrastructure. In this paper, we investigate whether the huge government spending has enhanced the pace of economic growth or not. To this end, we use a multivariate cointegration analysis and error-correction model and data for 1960–2010. Overall results suggest that oil revenues remain the principal source for growth and the main channel which finance the government spending.

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1. Introduction

Is natural resource-rich a blessing or a curse for a country? This question has generated considerable academic work. Even though, with an extensive literature, a convincing answer is not provided. Furthermore, the relationship between natural resource abundance and economic growth is controversial among scholars. It could not be settled among economists that natural resource abundance is either a curse or a blessing for natural resource-rich countries.

The first body of the literature establishes a negative relationship between resource abundance and poor economic performance (Auty (1986, 1990, 1993, 1998, 2001), Bulmer-Thomas (1994), Gelb (1988), Lal and Myint (1996), Ranis (1991), Sachs and Warner (1995, 1997, 1999)). The results appear to support the "resource curse" hypothesis. Sachs and Warner (1997) find a clear negative relationship between natural resource based exports (agriculture, minerals and fuels) and growth in the period 1970–90 from a sample of 95 developing countries. Two exceptions were Malaysia and Mauritius that sustained 2% per year growth during 1970–80. In the same way, Auty (2001) found that per capita income of resource poor

countries grew between two to three times faster than that of the resource-abundant countries for the period 1960–1990. He admits that crop-led resource abundance would be expected to have lower growth compared to its manufacturing equivalent. Furthermore, mineral driven countries have been among the weakest performers. This so-called "resource curse" has inspired many economists to explain its origins.

Nevertheless, such conclusions exposed above are not without criticism. The results are very sensitive to the period chosen, to the definition of "natural resources" and to the methodology used. Some scholars put forward some doubts about the robustness of these findings due to differences in the measurements of natural resources abundance (Stijns, 2005). Schrank (2004) explains that this evidence does not prove that natural resources abundance of any kind causes poor economic growth even if they are correlated. Correlation does not mean causation. This is what we read in every econometrics manual. Ross (2003) goes further and put forward that the relationship between natural resources abundance and poor economies may be completely spurious by omitting a third variable.

As in most natural resource-rich countries, Bahrain's economic growth has been strongly influenced by the volatility of oil, gas and mineral prices in international markets. This reveals Bahrain's economic dependence on its oil sector even though it is considered as

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the least oil dependent compared to its regional peers. Bahraini growth rates have generally followed a similar path to Saudi growth rates but have been less volatile because of huge gaps in oil and gas production and reserve between the two countries.

Bahrain became one of the first Gulf countries to start diversifying its economy. In the late 70s, the government went one step further in its diversification policy by attracting financial and service institutions to set up regional offices in the country. Moreover, Bahrain was among the first countries in the Middle East and North Africa region to build an industrial base and it has been the most attractive for foreign investors, including regional ones in its industrial development (Looney, 1989). During the past decades, the government has intensified the structural reforms to improve the infrastructure of the kingdom as well as the well being of Bahraini citizens. Bahrain has become an open-ended economy with liberalized trade and capital account. It has also become the hub of international affairs and the preferred destination for investors.[1] Quickly, Bahrain emerged as a key player for banking, Islamic finance, Islamic insurance industry, transportation and communication in the Gulf region and has become home to many multinational firms. Nowadays, the economy has known an unprecedented dynamism, population has been growing drastically and projects have been multiplying. The goal of the Bahraini government in development plans was to reduce the dependence of current expenditures to oil revenues, financing these costs through non-oil sources.

Nevertheless, the slow-down in economic activity between the 1990s and 2000s has caused severe fiscal unbalances for Bahrain and oil revenues decreased drastically.[2] During the last decade, the situation has worsened as the world economy has known a period of severe volatility in oil prices.[3] As a result, Bahrain's fiscal position moved from a minor deficit in 2002 (-0.1% of GDP) to a greater deficit of about 10% of GDP in 2009 due to the drop in oil revenues. Total revenue increased from BD 1.04 billion in 2000 to BD 2.8 billion in 2008 before decreasing to BD 1.7 billion in 2009 (Central Informatics Organisation, 2011). Oil and gas revenues registered a growth from BD 765 million in 2000 to BD 2.3 billion in 2008 before decreasing to BD 1.4 billion in 2009, while non-oil revenues rose from BD 264 million in 2000 to BD 367 million in 2008 before going back BD 262 million in 2009 (Central Informatics Organisation, 2011). This means that the government revenues and the overall fiscal policy in the Kingdom remain hugely based on oil revenues. Oil revenues are the *life blood* of the Bahraini economy (Hamdi and Sbia, 2013a,b).

Regardless of oil revenue volatility, the government has always kept a high level of current expenditures. By contrast, capital or development expenditures are sensitive to fluctuation in oil revenues. These simple and general observations show the vulnerability of the government fiscal situation to unexpected oil revenue shocks. Government cannot adjust its current spending easily in the case of a negative oil market. In this condition, when oil prices go down, the government is not able to reduce the size of its activities immediately, leading to a significant budget deficit (Farzanegan, 2011). This makes budget deficits a critical issue for the government. It is then important to consider a reform of the tax system more seriously.

Given the weight of oil in the small kingdom, this paper sheds light on the importance of oil revenues in financing the government needs and improving the well-being of Bahraini households. Precisely, it aims at investigating the dynamic relationships between oil revenues,

total government expenditures and economic growth in the Kingdom of Bahrain. To the best of our knowledge, this type of question has never been analyzed in modern literature despite the importance of oil in financing the economies of oil-dependent countries.[4] Therefore, this paper is the first attempt in literature to analyze the short-run and long-run relationships between oil revenues, government expenditures and economic growth in the case of an oil-dependent economy. To reach this goal, we use an econometric model based on cointegration and error correction model techniques for a long time series data which covers the period from 1960 to 2010. Overall results suggest that despite the efforts of the Bahraini government to diversify its economy, oil revenues remain the principal source for growth and the main channel that finance government spending as they represent 87.85% of total government revenues in 2011 (Central Informatics Organisation, 2011). Therefore, we encourage the government of Bahraini to continue working on effective growth-oriented strategies and to undertake more structural reforms to promote non-oil sector.

The remainder of the paper is organized as follows: Section 2 provides a theoretical background on the macroeconomic consequences of oil price volatility. Section 3 presents the econometric methodology; Section 4 provides the results while Section 5 concludes.

2. Macroeconomic consequences of oil volatility

Last century, especially post-World-War-II period, has witnessed multiple oil shocks including Suez Crisis of 1956–57, the Arab oil embargo of 1973–1974, the two oil shocks (1973–1979), the Iranian revolution of 1978–1979, the Iran–Iraq War in 80s, the Gulf War in 1990–91, and recently the spike in oil prices in 2007–2008 and 2011.[5] Consequently, economists have attempted to provide arguments to explain the behavior of oil prices and to assess the impact of oil shocks on various economies shedding light on different channels of transmission. Broadly, the behavior of oil prices has been investigated through three main approaches: the economics of exhaustible resources, the supply–demand framework and the informal approach (Fattouh, 2007). These studies were initiated by the pioneering works of Mork and Hall (1980), Sachs (1981), Darby (1982) and Hamilton (1983).

The study of Mork and Hall (1980) constructed and simulated a small macroeconomic model of the United States with energy. Their results reveal that large and unanticipated changes in the price of energy have significant negative effects on the economy. They concluded that oil price shock was a major cause of the 1974–75 recession and inflation. Moreover, they extend the analysis by explaining the role of other factors as the removal of the last price controls of the Economic Stabilization Program, and the slowdown of investment activity. Sachs (1981) explained that oil price peak (1973–74) generated considerable surplus in OPEC countries while it led to alarming deficits in both developed and developing countries. Further, income and consumption were deeply impacted. Darby (1982) conducted tests of the significance of oil-price variables in extended Lucas-Barro real income equations of oil-price variables for different countries including the United States, the United Kingdom, France Canada, Germany, Italy, the Netherlands and Japan. However, he could not establish a substantial relationship between oil prices and macroeconomic variables. Hamilton (1983) analyzed the influence of the oil price boom on the U.S. output. Hamilton's paper is considered as an important turning point in oil-macro research. It revealed the strong relationship between oil price shocks and U.S. recessions in a clear manner. These results were confirmed later on by Hooker (2002), Hamilton (2003) and

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[1] It is worth recalling that in Bahrain there are no taxes imposed on personal income, wealth or capital gains. Furthermore, there are no death duty taxes or inheritance taxes.

[2] This is mainly due to the Gulf wars and the Asian crisis. South Asian countries are the most important trade partners of Bahrain.

[3] For example, average oil price was 12.716 dollars in 1998, 28.831 dollars in 2003 and 97.256 dollars in 2008 (they reached a record in July 2008: 135.09 dollars per barrel). (OECD database 2009).

[4] The paper of Fasano and Wang (2001) is the only available work that analyzes the relationship between fiscal expenditure policy and non-oil real GDP growth in member countries of the Gulf Cooperation Council (GCC). Their model comprises of the three following variables: capital expenditure, recurrent expenditure and GDP.

[5] Hamilton (2011) provides a brilliant survey of oil shocks since 1859 with a particular focus on the events associated with significant changes in oil price.