The dynamics and determinants of Kuwait's long-run economic growth[☆]

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ABSTRACT

This paper develops a quarterly macro-econometric model for the Kuwaiti economy estimated over the period 1979Q2–2013Q1, allowing us to investigate the long-run role of oil income in the development of Kuwait as well as the direct effects of oil revenue, foreign output, and equity price shocks on real output. More specifically, we examine to what extent Kuwaiti real output in the long run is shaped by oil revenue through its impact on capital accumulation, and technological transfers through foreign output. Using the same modelling strategy we also explore the role of oil income in terms of long-run private and public sector output growth (separately). The estimates suggest that real domestic output in the long run is influenced by oil revenues and foreign output (a proxy for technological progress), and technological growth in Kuwait is on a par with the rest of the world. Furthermore, while we show that both oil revenues and foreign output drive growth in the public sector, it seems that technological progress is the main (and only) driver for private sector real growth. Finally, our results show that oil revenue and global equity market shocks have a large and significant long-run impact on Kuwait's real output and public sector GDP. In comparison, the effects of the foreign output shock is muted.

1. Introduction

The ups and downs of Kuwait's economy since the 1970s are often viewed as driven by two main factors: domestic political shocks and the price of oil. While these two factors have been visibly important in shaping economic fluctuations and growth in Kuwait, their effects have been conditioned by and combined with influences from other domestic and global factors. In particular, GDP growth, inflation, interest rates, and equity prices in the rest of the world are likely to have direct or indirect impacts on Kuwait's economy, though little is known about the significance of such effects in Kuwait; or the other five relatively similar Gulf Cooperation Council (GCC) countries (Bahrain, Oman, Qatar, Saudi Arabia, or the UAE) in general. Assessing the role of various factors involved in the country's macroeconomic process is important for understanding the trends and fluctuations in the economy and for forecasting and policy analysis.

To this end we build and estimate a vector autoregressive model with weakly exogenous foreign variable (VARX*) for Kuwait, which we refer to as the K-VARX* model, based on quarterly data covering the period from 1979Q2 to 2013Q1. The model has both real and financial variables: real domestic output, inflation, real exchange rate, oil revenue, global equity prices, foreign real output, as well as foreign inflation and short-term interest rates. The model is developed to address some of the key economic policy issues relevant to Kuwait. For instance, like other Gulf Cooperation Council (GCC) countries, the public sector in Kuwait dominates the economy (accounting for approximately 70% of the total output) and diversification and increasing the role of the private sector has been one of the main policy objectives. Also, while government expenditure is the only policy tool available to the authorities to regulate economic activities within the economy, its effectiveness is not well established. Moreover, to our knowledge, this is the first attempt to model public and private sector outputs separately for oil-based (resource based) economies. Therefore, the main objective of developing the model is to examine the extent to which real GDP, as well as real public and private sector outputs in Kuwait in the long-run are shaped by oil revenues through its impact on capital accumulation and technological transfers through foreign output, and to examine the role of government expenditure in the economy.
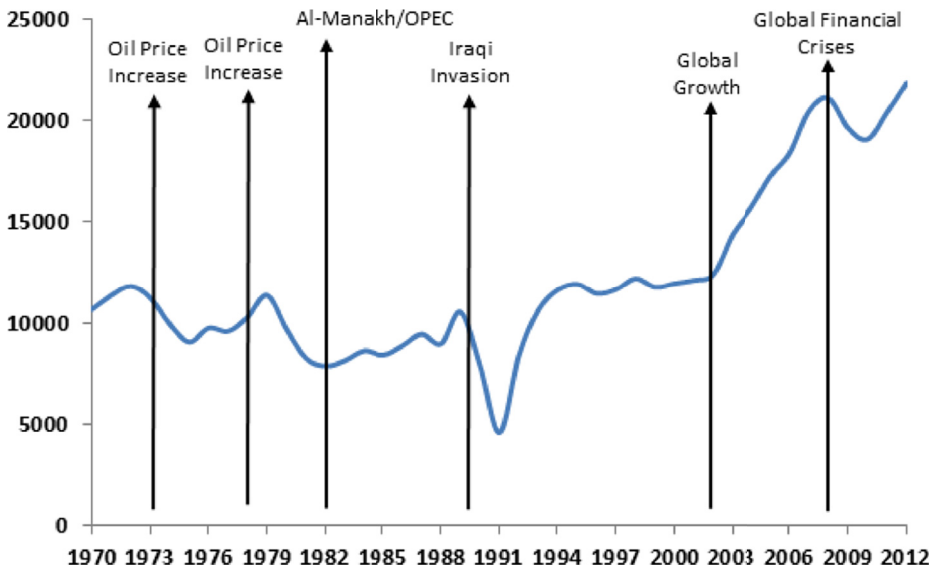
Fig. 1. Kuwait's Real GDP and various External Shocks, in million Kuwaiti Dinar.

As shown in Pesaran and Smith (2006), the VARX* model can be derived as the solution to a small open economy Dynamic Stochastic General Equilibrium (DSGE) model. Therefore, it is possible in principle to impose short- and long-run DSGE-type restrictions on the model, though we shall focus on the long-run relations and leave the short-run parameters unrestricted. We incorporate those key relations from economic theory that can be expected to have an important effect on the Kuwaiti economy. One of these long-run restrictions is the augmented output equation, which postulates a relationship between domestic output, foreign GDP, and real oil income, see Esfahani et al. (2014). Another is the inflation differential equation, which establishes a long-run relation between domestic and foreign inflations.

We estimated the K-VARX* model subject to exact and over-identifying restrictions using quarterly data over the period 1979Q2 to 2031Q1. Having imposed the theory derived over-identifying restrictions, our results show that real domestic output in the long run is influenced by oil revenues and foreign output (a proxy for technological progress), and technological growth in Kuwait is on a par with the rest of the world. Moreover, while we show that both oil revenues and foreign output drive growth in the public sector, it seems that technological progress is the main (and only) driver for private sector real growth.

Finally, using generalized impulse response functions (GIRFs) we investigate the dynamic properties of the various K-VARX* models following shocks to the exogenous variables (oil revenues, foreign output, and global equity markets). We find that oil revenue and global equity market shocks have a large and significant long-run impact on Kuwait's real output and public sector GDP. In comparison, the effects of foreign output shock is muted. However, most interestingly, the responses of the private sector output to the shocks are not statistically significant, implying that Kuwait's private sector is insulated from the rest of the world and suggesting that there are some potential inefficiencies (perhaps in both the institutions and economic policies) when it comes to the private sector.

The rest of this paper is organized as follows. Section 2 provides a brief overview of the Kuwaiti Economy. Section 3 develops a long-run macroeconometric model for Kuwait while Section 4 estimates several different VARX* models for Kuwait imposing long-run restriction based on economic theory. In Section 5 we illustrate how shocks to oil revenue, foreign output, and global equity markets affect Kuwait real GDP, and, finally, we give some concluding remarks in Section 6.

2. Overview of the Kuwaiti Economy

The size and structure of the Kuwaiti economy differ from that of other countries of the world in many respects. On the one hand, in terms of size (i.e., area and population), it is one of the smaller countries of the world, but is rich in hydrocarbon resources (mainly oil), and it has one of the highest per capita incomes in the world.[1] To the world's modern socioeconomic arena, Kuwait is a fairly recent arrival, and it owes its emanation to the discovery of oil in 1938 and its subsequent exportation, which started in 1946. In recent years, as a result of the oil-price driven process, the Kuwaiti economy has enjoyed an impressive economic development. Significant as they may be, the positive developments are not indicative of any sizeable productivity surge across different sectors of the economy and do not mask the structural problems that have been the key characteristics of the Kuwaiti economy for a long time. Indeed, Kuwait's economic performance is constrained by the existence and persistence of internal structural imbalances and exposure to global markets. The internal structural imbalances relate to the dominance of oil in terms of the shares in GDP, exports, and government revenues; dualistic labor market (nationals versus expatriates); a relatively large public sector; and a small non-oil production base. Burney et al. (2016) present a detailed discussion of the nature and degree of these structural imbalances.

Apart from the structural imbalances, Kuwait's economic performance has also been influenced by domestic and external shocks experienced over the years, and exposure to global markets (Fig. 1). The main shocks that have affected the Kuwaiti economy since 1970 have been due to developments in the international oil markets (the oil shock of 1973/74, see Mohaddes (2013) for more details), the Iran-Iraq war (1980–1988), the domestic stock market crisis (Souk Al-Manakh, 1983), Iraqi invasion of Kuwait (August 1990), oil price crash (early 1990s), and global financial crisis (2007).[2] The most serious of these shocks was the Iraqi invasion in August 1990, which damaged the industrial

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[1] The total land area of Kuwait is approximately 17,818 square kilometres, and at the end of 2016 its total population was around 4.2 million, out of which the share of foreigners (or expatriates) was approximately 69%. As for its hydrocarbon resources, at the end of 2015, Kuwait's proven oil reserves were 101,500 million barrels, accounting for approximately 7% of total world reserves, which at the current production rate of 2.9 million barrels per day are expected to last around 100 years (OPEC Annual Statistical Bulletin 2016).

[2] See also Mohaddes and Pesaran (2016, 2017) for an analysis of the macroeconomic implications of the recent plunge in oil prices.