



EXAMINING THE SOURCES OF INFLATION
IN SAUDI ARABIA

BY

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ABSTRACT

Inflationary pressures in Saudi Arabia have been recorded since 2005 after impressive levels of low inflation in the 1980s and 1990s. This increase was combined by oil price boom and increase of food prices. Beside its effect on the prices of imports due to the high openness of Saudi economy, the oil price boom is assumed to exert internal inflationary pressure through the effect on government expenditure and money supply. The main objective of this study, therefore, is to analyze the inflation dynamics in Saudi Arabia on aggregate level and food prices index while accounting for these futures. Specifically, three objectives have been set in this thesis. The first objective is to examine the asymmetric dynamics of government expenditure as the dominant policy in the Saudi economy. The non-linear auto regressive distributed lag (NARDL) model and annual data over 1974-2014 period are used to examine the long and short-run asymmetric effects of oil revenues on government expenditure and its components (current expenditure, and capital expenditure). The results reveal that, in the long-run, more than 60 percent changes of government expenditure are referred to the change of oil revenues. The analysis on disaggregate level shows that Saudi capital expenditure is flexible to the changes of oil revenues. In addition, it is shown that, current expenditure is less elastic to the changes of oil revenues but it responds to such changes in asymmetric ways where the higher response of government expenditure is observed in the case of oil revenues increases. Under the second objective, the study analyses the inflation model in Saudi Arabia and the effect of money supply and external variables on inflation movement. The study uses ARDL model and annual data over the period 1975-2014. The results of the inflation model provide evidence of money supply's important effect on inflation in Saudi Arabia. The results also show the important role the world inflation play in driving the inflationary pressure in Saudi Arabia. In the third objective, the asymmetric relation between oil price and food prices is examined in the context of Phillips curve using annual data over the period 1979 -2014 and NARDL model. The results show the significant and asymmetric effect of oil price on food prices. The implication of this study is that while higher oil price is beneficial, it entails many challenges for the Saudi economy. That is, oil price shocks infuse inflationary pressure in the Saudi economy through its effect on macroeconomic variables (government expenditure and money supply) and increase the cost of imports. Following this, one can conclude that more attention to prevent economic volatility due to fluctuating of oil revenues is needed and could be implemented through fiscal restraints to contain the inflationary pressure in the economy during oil revenues increase. Furthermore, it is of high important to hold the effect of the lack of diversification in productivity as a main concern to prevent the Saudi economy from any external inflationary shock.

خلاصة البحث

بعد الوصول إلى مستويات جيدة من استقرار الأسعار وانخفاض التضخم ظهرت الزيادة المستمرة في الأسعار منذ عام 2005 متزامنة مع ارتفاع أسعار البترول وأسعار الغذاء. إلى جانب تأثيره على أسعار الواردات نتيجة لزيادة درجة انفتاح الاقتصاد السعودي فإن ارتفاع سعر النفط يؤدي إلى ضغوط تضخمية داخلية من خلال تأثيره على الإنفاق الحكومي وعرض النقود. من هنا جاءت أهمية الدراسة والتي تهدف إلى تحليل ديناميكية تضخم المستوى العام للأسعار وكذلك تحليل ديناميكية التضخم في أسعار الغذاء مع الأخذ في الاعتبار هذه الحقائق حيث هدفت الدراسة أولاً إلى اختبار التأثير الغير متباين للإيرادات النفطية على الإنفاق الحكومي ومكوناته (الإنفاق الحكومي الجاري والإنفاق الحكومي الرأسمالي) من خلال استخدام الانحدار الغير الخطي للإبطاء الموزع وبيانات سنوية للفترة (1974-2014)، وقد أظهرت النتائج أنه في الأجل الطويل يرجع أكثر من 60 بالمائة من التغيير في الإنفاق الحكومي إلى التغيير في الإيرادات النفطية، بالإضافة إلى ذلك أظهر التحليل أن الإنفاق الحكومي الرأسمالي مرن للتغيرات في الإنفاق الحكومي في حين أن الإنفاق الجاري أقل مرونة للتغيرات في الإيرادات النفطية ولكن يستجيب لهذه التغيرات بشكل غير متجانس حيث إن الاستجابة الأكبر لهذا المتغير كانت في حالة ارتفاع الإيرادات النفطية. في الهدف الثاني قامت الدراسة بتحليل نموذج التضخم في المملكة العربية السعودية وتأثير عرض النقود والمتغيرات الخارجية على حركة التضخم وقد استخدمت الدراسة نموذج الانحدار الخطي للإبطاء الموزع وبيانات سنوية للفترة 1975-2014. قدمت نتائج هذا النموذج الدلائل على أهمية تأثير عرض النقود على تحديد التضخم في المملكة العربية السعودية كما أظهرت النتائج الدور الذي يلعبه تضخم أسعار العالم الخارجي في خلق الضغوط التضخمية على الأسعار في المملكة العربية السعودية. في الهدف الثالث من هذه الدراسة تم اختبار العلاقة الغير متباينة بين سعر النفط وأسعار الغذاء بالاعتماد على منحنى فليبس للتضخم و باستخدام بيانات سنوية للفترة 1979-2013 ونموذج الانحدار الغير خطي للإبطاء الموزع وقد أظهرت النتائج التأثير المعنوي والغير متباين لسعر النفط على أسعار الغذاء. تخلصت هذه الدراسة إلى أنه بالرغم من أن ارتفاع سعر النفط يعتبر مفيد للاقتصاد السعودي فإنه يضعه أمام عدة تحديات حيث أن ارتفاع سعر النفط يؤدي إلى ضغوط تضخمية في الاقتصاد السعودي من خلال تأثيره على المتغيرات الاقتصادية الكلية مثل الإنفاق الحكومي و عرض النقود وكذلك من خلال ارتفاع تكلفة الواردات وتؤكد هذه الدراسة على الحاجة إلى المزيد من الاهتمام لحماية الاقتصاد من التذبذب في أسعار النفط وذلك من خلال ضبط مستويات الإنفاق الحكومي للسيطرة على الضغوط التضخمية في الاقتصاد خلال فترة زيادة الإيرادات النفطية، بالإضافة إلى ذلك يجب التركيز على تأثير قلة التنوع في الإنتاجية وذلك لحماية الاقتصاد السعودي من أي صدمات تضخمية خارجية.

APPROVAL PAGE

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DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

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I dedicate this work to my mother

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“In the name of Allah, the most gracious the most merciful”.

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LIST OF ABBREVIATIONS

CPI	Consumer Prices Index
FDI	Foreign Direct Investment
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
IMF	International Monetary Fund
MENA	Middle East and North Africa
QTM	Quantity Theory of Money
REDF	Real Estate Development Fund
SAMA	Saudi Arabia Monetary Agency
SCI	Specialised Credit Institution
SDR	Special Drawing Right
SEDC	Saudi Export Development Center
SR	Saudi Riyal
UAE	United Arab Emirate
UK	United Kingdom
US	United State
USD	United State Dollar

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Saudi Arabia grew rapidly during the last four decades following the oil boom in 1972. In recent years, Saudi Arabia has been one of the best performing G-20 economies (IMF, 2013). Its real gross domestic product (GDP) and non-oil GDP growth rates averaged 6.25 percent and 7.75 percent per annum, respectively, between 2008 and 2012. Dependence on oil exports and high level of imports, however, made the Saudi economy vulnerable to external instability, such as the shock in oil price.

The relatively higher rates of inflation since 2005 has emerged as one of the challenges facing Saudi Arabia. After achieving an impressive level of low inflation ranging between zero to negative inflation between 1997 and 2004, inflation was increasing since 2005 and reached its highest level at 10 percent in 2008. The inflation rates decreased after 2008 but remains at relatively higher rate comparing to the previous period (Figure, 1.1). An important policy dimension when discussing inflation is a country monetary policy. In the case of Saudi Arabia, the monetary policy is constrained by its fixed exchange rate regime. Saudi Arabia pegs its currency to the US dollar and to maintain the peg, its monetary policy mimics the monetary policy of USA. Also, Saudi Arabia is an open economy with high capital mobility. It is highly dependent on the imports of goods and services and it is a prices taker in the world markets. Total imports of goods and services relative to non-oil GDP was 43 percent in 2013. As Saudi Arabia is an open economy and the Saudi riyal is pegged to the US dollar, according to the monetary approach to balance of payment, domestic inflation

will converge to the world inflation (Humphrey, 1976; Kemp, 1975). However as Figure (1.1) shows this is not the case for inflation in Saudi Arabia where the domestic inflation is substantially magnified and differ from the United States (US) and world inflation. The divergence of the rates of inflation between Saudi Arabia and the US could be referred to the specific feature of the Saudi economy as an oil-based economy (AlJohani, 1990; Alhamidy, 2010).

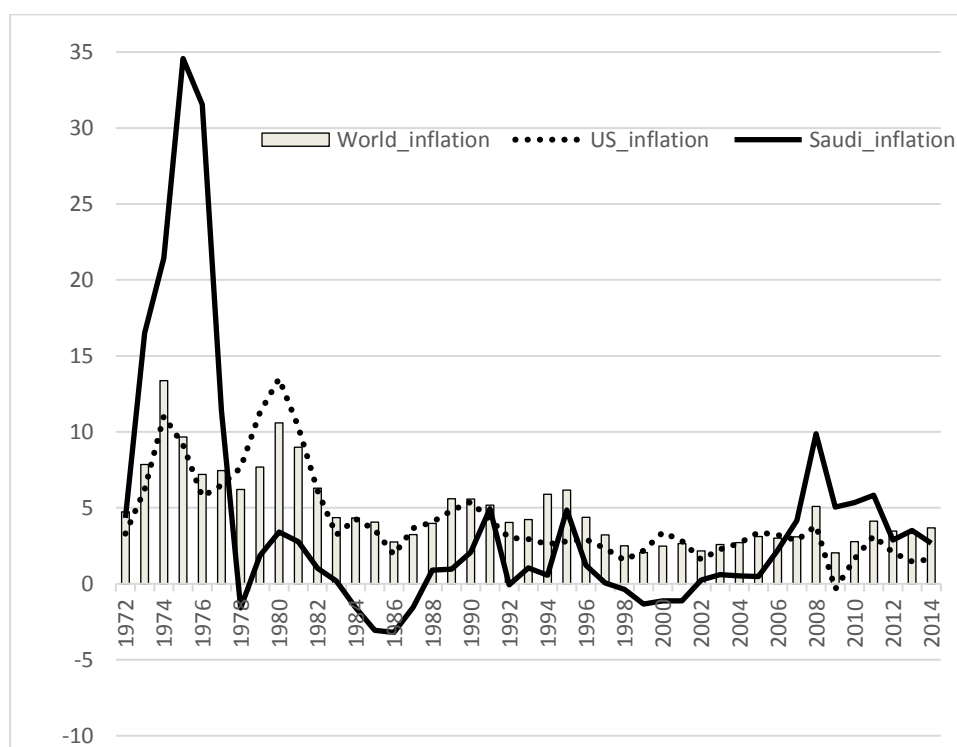


Figure 1.1 The divergence of Saudi inflation than its US and World counterparts
Source: IMF, different issues.

Besides its effect on world inflation through an increase in production costs, the increase in oil price¹ usually results in internal inflationary pressure through its direct effect on government revenues and indirect effect on government expenditure

¹ The oil price is referred to the world prices of crude oil.

(Aljohani, 1990; Hasan & Alogeel, 2008; Alhamidy, 2010; Kandil & Morsey, 2011). The increase in oil price increases the government revenues which motivates the Saudi government to spend more. The effect of government expenditure is transmitted to domestic inflation through its effect on aggregate demand and money supply. According to Alhamidy (2010), government expenditure accounted for 77 percent of total domestic liquidity generated during the period 2003–2007. This is also supported by the finding of the correlation test between money supply and government expenditure during the period 1975-2013 which indicates positive and high correlation between these variables reaching about 98 percent (Appendix A). Government expenditure usually drives the growth of money in the following way. Oil revenues in foreign currency is received directly by the government and transferred to its deposit account at the central bank with no immediate effect on the stock of money in the economy. However, the increase in government revenues stimulates the government to spend more. To finance its expenditure, government exchanges its foreign reserve (generated from oil revenues) with domestic currency from the Saudi Arabia Monetary Agency (SAMA). This leads to an increase in the money stock in Saudi economy.

The increase in money supply following the increase in government expenditure infuses inflationary pressure on the prices level (AlJohani, 1990; Ramady, 2010). However, the excess of the money supply is combined by remittance outflows made by foreign workers which is assumed to have a major role in mitigating inflation (Termos et al. 2013, 2016).

Inflation in Saudi Arabia, therefore, is a paramount issue since external forces initiate it. The Saudi government has tried to reduce inflationary pressure through prices subsidies for essential goods such as foodstuffs and fuel. The prices subsidies result in an increase in the domestic government deficit which is usually financed by issuing new

money due to the primitive tax system (Aljohani, 1990; Ramady, 2010). The continuous adoption of this policy would deteriorate the balance of payment since the subsidies tend to increase the demand for goods and thus increase the level of imports (Aljohani, 1990; Alhamidy, 2010).

This result is unfavourable for policy makers as it implies that international reserves are used to finance consumption instead of promoting economic development. Motivated by these facts, this study aims to analyze the sources of prices instability in Saudi Arabia while considering the following situations:

1. Due to its fixed exchange rate regime and its foreign trade situation, the Saudi economy is highly linked to the international market, and thus, the monetary policy is highly constrained.
2. Oil price plays a major role in affecting macroeconomic variables.
3. Government expenditure is highly sensitive to changes in oil price.
4. Government expenditure has a dominant role in monetary policy. Besides its important role in determining the level of domestic liquidity, government expenditure affects several macroeconomic factors such as the level of employment, the level of imported goods and economic growth.

1.2 STATEMENT OF THE PROBLEM

After a period of prices stability in the 1960s, the Saudi economy has experienced two periods of drastic increase in the inflation rates combined with the oil boom. The first period (1973-1976) which coincides with the Arab-Israeli war, was more severe. The inflation rate during this period averaged 23.1 percent and peaked at 34.4 percent in 1975 (Figure, 1.2). This high level of inflation, according to a number of studies (e.g.

Keran & Almalik, 1997, Looney; 1984, Darrat, 1985; AlJohani, 1990; Albassam, 1999), was caused mainly by excess money supply and excess aggregate demand initiated from the expansionary government spending programs that followed the boom.

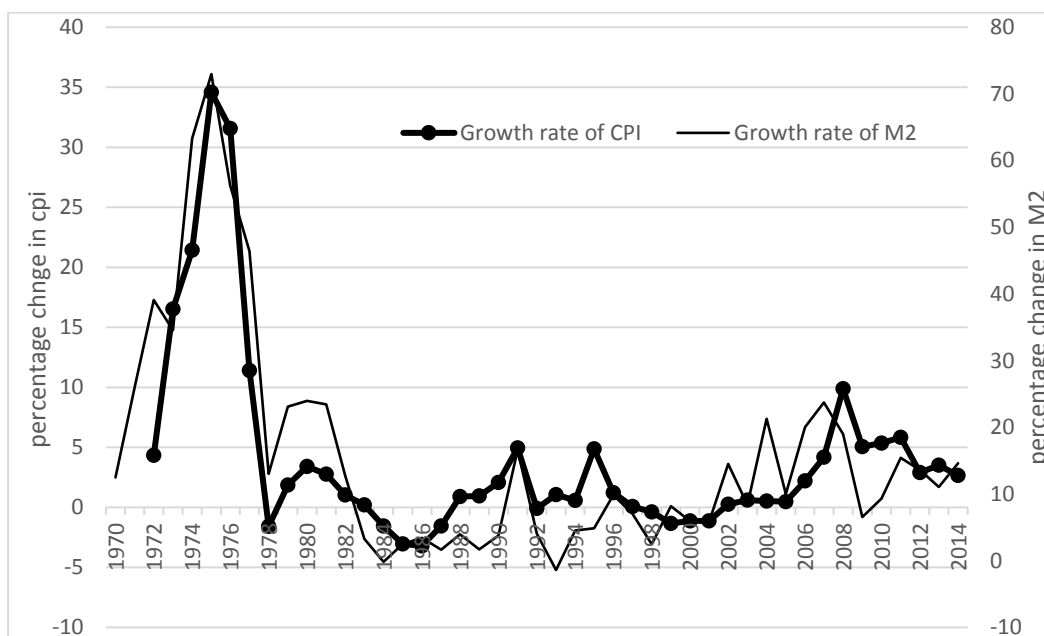


Figure 1.2 Saudi Arabia: CPI inflation and M2 growth², 1970-2014
Source: IMF, different issues.

The policies undertaken by the government to mitigate this level of inflation by cutting some taxes, reducing the cost of main commodities such as foodstuffs and energy through subsidizing and reducing the import tariffs and service charges managed to decrease the level of inflation to 4.2 percent in 1980. During the 1980s and 1990s, the inflation rate in Saudi Arabia fluctuated between disinflation and moderate inflation. In 1986, deflation was recorded at -3.1 percent. This calm trajectory of inflation associated with a decline in oil revenues, slower economic activities, cheap imports due

² M2 is the broad definition of money supply and it is the total of currency in the hand of public, cash and checking deposits and saving deposits.

to low oil price, and low inflationary expectations due to fixed exchange rate policy (SAMBA report, 2010). However, after this period of impressive stability in price levels, inflationary pressures emerged again contemporaneously with the increase in oil price, substantial increase in government expenditure, accelerated rise in money supply, and the devaluation of US dollar between 2004 and 2007. In 2008, the inflation reached its highest level in three decades at nearly 10 percent. Even though it eased after 2008, it remained at considerably higher levels during 2009-2013 compared to the levels during the 1980s, 1990s and early 2000s.

The consumer prices indexes at disaggregate levels show how inflation become a more disturbing issue in Saudi Arabia during the last decade. Figure (1.3) and Table (1.1) indicate that the general prices of three main groups have increased dramatically since 2005. The prices level of the first group (renovation, rent, fuel and water) and the second group (other expenses and services) grew by 74.5 percent and almost 59 percent between 2005 and 2012, respectively. The general prices level of the third group (foodstuffs and beverages) rose by 35 percent during 2007-2012 alone (Figure, 1.3). Foodstuffs and beverages carry the largest weight of the cost of the living index between one-quarter and one-third. Thus, the rise in the prices level of the foodstuffs and beverages is one of the major driving forces of inflation. Table (1.1) shows a dramatic and persistent increase in the subgroups of foodstuff that have experienced high inflationary pressure during 2005-2012. The majority of the subgroups in Table (1.1) surpassed the 100 percent increase during this period. The big threat of this phenomena to the welfare of the people stimulated extensive academic discussions and placed the government on alert regarding its socio-economic policy.

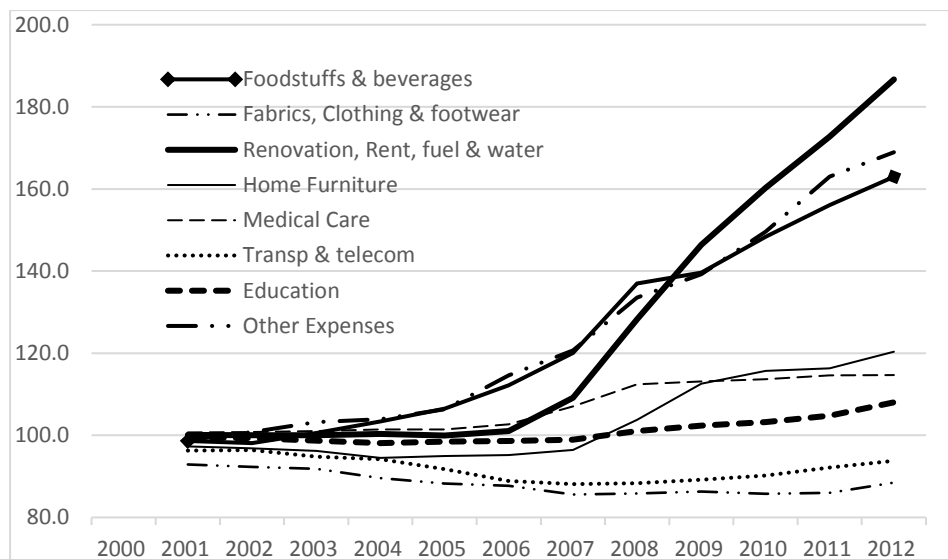


Figure 1.3 Saudi Arabia: consumer prices index by divisions, 2002-2012
 Source: SAMA annual statistical bulletin, 2014.
 Note. Base year is 1999

Table 1.1 Saudi Arabia: Average cost of living index by food subgroup

Index	2005	2006	2007	2008	2009	2010	2011	2012
Meat and Poultry	105.9	112.6	119.5	131.3	136.5	150.9	162.4	166.7
Fish and crustaceans	126.5	142.2	159.3	186.9	192.9	208.1	230.0	259.1
Fresh vegetables	120.9	143.3	160.6	183.1	179.9	206.8	213.3	227.2
Legumes and tubers	125.4	148.8	193.2	211.9	220.3	246.5	254.7	263.7
Fresh fruits	123.3	133.9	150.0	179.6	182.6	187.5	199.7	217.7

Source: SAMA annual report, different issues.

Since 80 percent of food and agricultural commodities in Saudi Arabia are imported, inflation in food prices may be strongly driven by inflation of global food prices. According to Khan (2012), the correlation between food prices in Saudi Arabia and global food prices index reached 70 percent during 2002-2011. The skyrocketing trend between oil price and food prices attracted researchers to investigate whether oil price shocks cause inflation of global food prices. The oil price shocks are transmitted to food prices via several channels. For example, it is often argued that prices of agricultural commodities will be affected by an increase in oil price to the extent that