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2008

## The effects of the fluctuations in oil prices on the performance of the Libyan economy

Abdusalam F. Yahia  
*University of Wollongong*

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# **THE EFFECTS OF THE FLUCTUATIONS IN OIL PRICES ON THE PERFORMANCE OF THE LIBYAN ECONOMY**

A thesis submitted in fulfilment of the  
requirement for the award of the degree

**DOCTOR OF PHILOSOPHY**

From

**UNIVERSITY OF WOLLONGONG**

By

**ABDUSALAM FARAJ YAHIA**

**BS in Economics (Libya)  
MA In Economics (Libya)**

**School of Economics  
Faculty of Commerce  
University of Wollongong  
Australia  
2008**

## **DECLARATION**

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This thesis is submitted to the University of Wollongong in fulfilment of the requirement for the Degree of Doctor of Philosophy

This thesis represents my own work and contains no material, which has been previously submitted, for a degree or diploma at this university or any other institution, except where acknowledgement is made.

**Abdusalam F. Yahia**

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---

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## PREFACE

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The Socialist People's Libyan Arab Jamahiriya is a small oil-producing developing economy in North Africa. Its economy depends heavily on oil revenue. Oil exports accounted for 92-97 percent of annual total Libyan exports and contributed 40-60 percent of annual GDP during the period 1963-2006. The Libyan economy, like other Middle Eastern oil producers, has been subject to several strong external shocks resulting from fluctuations in oil prices since September 1973.

Economic conditions of the Libyan economy worsened in the 1990's as a result of international sanctions. Since the ending of the UN sanctions in 1999, Libya has been implementing measures to reform and open its economy. Libya needs strong and sustained economic growth to meet the demands of its rapidly growing labour force, which require high investment in physical and human capital and an efficient use of the country's resources. However, the achievement of these objectives depends on oil prices.

The aim of this thesis is to find out the impact of the fluctuations in oil prices on the performance of the Libyan economy during the period of 1963-2004. The thesis tries to contribute to literature by examining the effects of fluctuations in oil prices on Libyan economic growth; Libyan investment; the patterns of Libyan imports and trade relationship with its major trading partners. This thesis also attempts to assess the impact of fluctuation in oil prices on the performance of the Libyan balance of payments.

Many researchers devoted their time and skill in tackling problems related to trade and growth. However, the impact of fluctuations in oil exports on the performance of oil-producing economies came to the interest of some researchers only recently and more precisely since the oil embargo in late 1973. Despite the growing literature on the impact of fluctuations in oil exports on the performance of oil-producing countries in the Middle East, it appears that many gaps still exist in the current literature. In particular no attempt has been made to examine the impact of fluctuations in oil prices

on the performance of the Libyan economy and in particular on Libyan economic growth, Libyan gross fixed capital formation, Libyan imports, the feedback effects in Libyan trade with its major importers and effects of fluctuations in oil prices on the performance of the Libyan balances of payments.

Sophisticated economic models and econometric techniques have been utilized in this thesis in order to achieve its objectives. These models and techniques include single equation models, simultaneous equations models, forecasting models and co-integration analysis.

The fluctuations in oil prices had very important effects on the Libyan labor force, sectoral employment, Libyan social and development indicators, contribution of various economic activities, Libyan expenditure, Libyan composition of foreign trade and Libyan balance of payments.

The impact of fluctuations in oil prices on Libyan economic growth using the “export as an engine of growth model” and applying a “Koyck distributed lag scheme” suggest that there are spread effects from oil exports to the rest of the economy. However, when both the component and inflationary effects are excluded (but not the real gain from the rise in export prices) the results suggest no evidence of spread effects. This conclusion is supported by sectoral output analysis. The use of co-integration analysis to examine the long-term trade relationship between Libyan GDP and its oil exports suggest that there is no long-term relationship between Libyan oil exports and non-oil GDP. In other words, the two variables do drift too far apart from each other over time.

The impact of fluctuations in oil prices on investment in the Libyan economy was assessed using an accelerator model of investment to capture investment behavior in the Libyan economy. It was revealed that the Libyan capital formation is strongly influenced by spending on components of aggregate demand other than investment and the downturn in oil prices had a serious adverse effect on investment. There seems to be an existence of some bottlenecks. Also, investment in the Libyan economy was mainly autonomous public investment in infrastructure. To find out if there is a long-term



relationship between investment and other components of aggregate demand (private consumption + public consumption + net exports) in the Libyan economy, the co-integration technique was used. The long-run elasticity of investment expenditure in the Libyan economy, with respect to Libyan expenditure on other components of aggregate demand, was higher than the short-run elasticity during the period of boom of oil exports. However, there is no evidence of long-term relationships between investment and other components of aggregate demand in the Libyan economy.

The analyses of the trade relationship between Libya and its major trading partners, using a simultaneous-equations model, suggest that an increase in Libyan's exports to a major trading partner contributes to growth in Libyan GDP. The increase in Libyan income expands its imports from its major trading partners. This in turn contributed to growth in the income of the trade partners. The level of Libyan imports from its major trading partners does not seem to have any significant effect on the level of the GDP of its major trading partners except Greece, Turkey and Tunisia.

The relationship between imports of various commodity groups and per capita income in the Libyan economy during variety periods of fluctuation in oil prices were evaluated using two-digit SIT classifications and five forms of import income function. It has been indicated that the reduction in oil revenue during the period of low oil prices has completely upset the import-income relationship, which was developed during the boom years, while the rise in oil revenue has recreated an improvement in the relationship.

Single and simultaneous-equations models are developed and tested to examine the impact of the external and internal forces on Libyan balance of payments. The results are used in forecasting the future behavior of this balance under various scenarios. The analysis indicates that the ratio of trade balance to GDP has fluctuated sharply with changes in the world price of oil. The decline in oil exports combined with deficit in the services balance and net current transfers depleted the gains from trade surplus in the Libyan economy. This resulted in a continuous decline in the current account surplus.

## Papers of this Ph.D. Degree Published and Accepted for Publication in International Refereed Journals

1. "Impact of Fluctuations in Oil Prices on Libyan Economic Growth", *The Middle East Business and Economic Review*, Vol. 19. No. 1, June 2007, pp.39-55.
2. "Impact of Fluctuations in Oil Prices on Investment in the Libyan Economy", *Global Review of Business and Economic Research*, vol.3, no.1, January-June 2007, pp. 1-12.
3. "Impact of Fluctuations in Oil Prices on Libyan Balance of Payments", *International Journal of Applied Business and Economic Review*, Vol.5, No.2, December 2007, pp.147-163
4. " Trade Relationship between Libya and its Major Trading Partners" accepted and scheduled for publication in the *Journal of World Economic Review*, Vol. 2, No. 1, June, 2008
5. "The Effect of the Fluctuations in Oil Prices on the Import Patterns of the Libyan Economy" accepted and scheduled for publication in the *Middle East Business and Economic Review*, Vol. 20, No. 1, June, 2008.

## Papers of this Ph.D. Degree Presented in International Conferences in Two Countries

- 1: A paper entitled "The impact of economic sanctions and oil price fluctuations on employment in the Libyan Economy" has been presented in the 48th Annual Conference of the New Zealand Association of Economists held on 27-28 June 2007, Christchurch.
- 2: A paper entitled "The impact of fluctuation in oil prices on Libyan trade with its major trading partners ", has been presented at the Monash University, Malaysian Conference entitled "Business, Environment, International Competitiveness and sustainable Development of the Asia Pacific Economies " held on 3-4 December 2007.

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