



UNIVERSITI PUTRA MALAYSIA

**THE EFFECTS OF EXCHANGE RATE
CHANGES ON TRADE BALANCE IN SUDAN**

AHMED ABD ALLAH IBRAHIM AHMED

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**THE EFFECTS OF EXCHANGE RATE CHANGES ON TRADE BALANCE IN
SUDAN**

By

AHMED ABD ALLAH IBRAHIM AHMED

**Thesis Submitted in Fulfilment of the Requirement for the Degree of
Doctor of Philosophy in the Graduate School
Universiti Putra Malaysia**

December 2001



Dedicated to:

My sincere wife Tegya and my beloved kids Towsul , Moufq, Mazin and Maaze

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in
fulfilment of the requirement for the degree of Doctor of Philosophy

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Chairman: Professor Mohammed Bin Yusoff, Ph.D.

Faculty: Economics and Management

One of the primary economic objectives of most developing countries is to improve their trade balance. Economists have suggested that trade deficit can be reduced through currency devaluation. This study attempts to determine the effects of devaluation on the trade balance of Sudan and the pass-through effects on Sudan's major export prices by employing Vector Error Correction Model (VECM).

The results from the study suggest that the elasticities of import demand with respect to the price ratio of imports relative to domestic price and domestic income are high, while that of the real effective exchange rate is low. The elasticities of export demand with respect to price ratio of exports relative to foreign price, foreign income and real effective exchange rate are high. In particular, the export demand for cotton and gum arabic are elastic with respect to the exchange rate and the foreign price.

For the trade balance, it is found that the elasticities of trade balance with respect to domestic income, foreign income and real effective exchange rate are all elastic.

The sum of the long-run elasticities of demand of exports and imports with respect to their respective prices is greater than one and therefore the Marshall-Lerner condition is satisfied suggesting that devaluation could be a useful policy to improve the balance of payments. The findings of the study also indicate that there is a significant long-run relationship between the real effective exchange rate and trade balance indicating that devaluation could improve the trade balance in the long-run. The results of pass-through of the export prices of cotton is complete suggesting that Sudan is likely to be a price-taker in international market and therefore, devaluation of Sudanese pound will increase the demand for the export of cotton in the long-run. The pass-through for gum arabic is incomplete suggesting that Sudan is likely to be a price-maker in international market and the devaluation of the Sudanese pound may have little impact on the export demand for gum arabic in the long-run.

Abstrak tesis yang telah dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**KESAN PERUBAHAN KADAR PERTUKARAN KEATAS IMBANGAN
DAGANGAN DI SUDAN**

Oleh

AHMED ABD ALLAH IBRAHIM AHMED

December 2001

Pengerusi: Profesor Mohammed Bin Yusoff, Ph.D.

Fakulti: Ekonomi dan Pengurusan

Salah satu objektif penting bagi negara membangun ialah memperbaiki imbalan pembayaran. Ahli ekonomi mencadangkan penurunan nilai matawang sebagai satu cara untuk maksud tersebut. Kajian ini cuba melihat kesan devaluasi ke atas imbalan pembayaran di Sudan, dan juga kesan "pass through" dengan menggunakan model VECM.

Keputusan ujian menunjukkan keanjalan yang tinggi di antara permintaan import dan nisbah harga import : harga tempatan. Keanjalannya dengan kadar pertukaran efektif adalah rendah. Keanjalan permintaan eksport terhadap nisbah harga export : harga asing, : pendapatan dunia dan kadar pertukaran efektif adalah tinggi. Khususnya, permintaan eksport bagi gum arabik dan kapas adalah anjal terhadap kadar pertukaran dan harga dunia. Bagi imbalan dagangan, kita mendapati ianya adalah anjal terhadap perubahan dalam permintaan domestik, pendapatan dunia dan kadar pertukaran efektif.

Hasil tambah keanjalan bagi eksport dan import adalah lebih besar dari satu yang menunjukkan syarat Marshall-Lerner dapat dipenuhi. Ini bermakna, devaluasi boleh memperbaiki imbalan perdagangan. Kajian juga menunjukkan terdapatnya perhubungan

jangka panjang yang signifikan di antara kadar pertukaran efektif dan imbalan perdagangan yang bermakna devaluasi boleh memperbaiki imbalan perdagangan dalam jangka panjang.

Keputusan bagi "pass through" bagi harga import kapas adalah sempurna, yang menyarankan Sudan adalah "price taker" di pasaran antarabangsa. Dengan itu devaluasi akan meningkatkan lagi permintaan bagi eksport kapas dalam tempoh jangka panjang. "Pass through" bagi gum arabik adalah tidak sempurna yang merunjukkan Sudan adalah "price maker" dalam pasaran antarabangsa dan devaluasi tidak mungkin membawa apa-apa kesan yang positif.

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I certify that an Examination Committee met on 28th December 2001 to conduct the final examination of Ahmed Abd Allah Ibrahim Ahmed, on his Doctor of Philosophy thesis entitled "The Effects of Exchange Rates Changes on Trade Balance in Sudan" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the degree of Doctor of Philosophy. Members of the Examination Committee are as follows:

Zulkarnain Yusoff, Ph.D.
Faculty of Economics and Management
Universiti Putra Malaysia
Selangor Malaysia
(Chairman)

Mohammed Bin Yusoff, Ph.D.
Faculty of Economics and Management
Universiti Putra Malaysia
Selangor Malaysia
(Member)

Ahmad Zubaidi Baharumshah, Ph.D.
Faculty of Economics and Management
Universiti Putra Malaysia
Selangor Malaysia
(Member)

Muzafar Shah Habibullah, Ph.D.
Faculty of Economics and Management
Universiti Putra Malaysia
Selangor Malaysia
(Member)

Shazali Abu Mansur, Ph.D.
Faculty of Economics and Business
Universiti Malaysia Sarawak
Sarawak Malaysia
(Member)

Zulkifli Senteri, Ph.D.
Faculty of Economics
Universiti Kebangsaan Malaysia
Selangor Malaysia
(Independent Examiner)



AINI IDERIS, Ph.D.,
Professor/ Dean of Graduate School
Universiti Putra Malaysia

Date: 7 FEB 2002

The thesis submitted to the Senate of Universiti Putra Malaysia has been accepted as fulfillment of the requirements for the degree of Doctor of Philosophy.



AINI IDERIS, Ph.D.
Professor/ Dean of Graduate School
Universiti Putra Malaysia

Date: 14 MAR 2002

1000495064

DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.



AHMED ABD ALLAH IBRAHIM AHMED

Date: 29 JAN 2002

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CHAPTER I

INTRODUCTION

Background

Economic performance of most developing countries has faced serious economic crises over the past two decades. These crises have manifested themselves in various forms such as low growth rate of gross domestic product (GDP), increasing balance of payments (BOPs) deficits, high foreign debt and debt servicing followed by accumulation of arrears. The causes for this poor economic performance are many and varied. Some of these include deteriorating terms of trade, high interest rate and protectionism and the devaluation of British sterling pound in 1967, French franc in 1969, and the US dollar in 1971 and 1973. The two oil price hikes (1973/74 and 1979/80) caused the balance of payments deterioration for most less developed countries (LDCs). But the most important cause of these economic crises could be the overall macroeconomic mismanagement.

One of the consequences of poor macroeconomic management is the overvaluation of a country's currency. It is defined as a situation where the exchange rate set by the governments is higher than the rate determined by the market forces. It is considered as a potential problem with fixed exchange rate system. A major drawback of overvalued currency is that it discourages exports and makes them overpriced (expensive) in international market, and makes imports cheaper. In such a situation, there are several possible strategies to solving this problem:

First, the country can simply change the official value of its exchange rate so that it equals or is close to its fundamental value (devaluation). Second, the government can restrict international transactions by limiting or taxing imports or capital outflows. Third, the government itself may become a demander or supplier of its currency in the foreign exchange market, an approach used by most of the industrial countries having a fixed exchange rate.

As a result of an overvalued exchange rate a country itself faces balance of payments deficits. It is widely recognised that currency overvaluation is prevalent among LDCs and devaluation is traditionally prescribed as one of the policy instruments to improve export performance in LDCs with overvalued exchange rate. Devaluation is a signal that greater reliance will be placed on the price mechanism. Consequently, in formulating an exchange rate policy, one major concern of policymakers is the responsiveness of trade flows to relative price changes. It is argued that for a small open economy, if the sum of import and export demand of price elasticities is greater than one then a devaluation or a depreciation will have favourable effects on the trade balance in the long-run and this is termed as the Marshall-Lerner condition.

Sudan is the largest country in Africa, with a land area that covers about one million square miles. It is bordered by nine countries and geographically as well as culturally links the Arab World with Sub-Saharan Africa. The country is sparsely populated, made up of a heterogeneous mix of ethnic groups and religions.

The Sudan economic crises can be described in some inter-related phenomena, such as slow growth rate of GDP and increasing balance of payments deficits. As the government budget was worsening, the government has resorted to increasing external loans as well as borrowing from the banking system to finance the deficit. The former raised the country's indebtedness abroad, which led to mount the debts and its services, while the latter was a major cause of excessive monetary growth and inflation. This direct monetization of the deficit has led to a sharp rise in domestic prices (Table 1.1). Besides these economic factors, non-economic factors, namely political instability played a significant role in economic crisis.

Table 1.1: Sudan Macroeconomic Indicators

Year	GDP growth rate (%)	Public Budget (millions of Ls)	Inflation rate (%)	External Debt (billions of US \$)	BOPs (millions of US\$)
1970	na	-0000015.80	043.50	na	-021.10
1971	na	+0000002.70	000.90	na	-016.20
1972	na	-0000006.30	010.10	na	-029.70
1973	na	-0000016.20	016.00	na	+023.60
1974	na	-0000009.60	025.40	na	-019.30
1975	na	-0000074.80	022.60	na	-344.30
1976	na	-0000058.90	001.70	na	-184.30
1977	10.10	-0000168.40	017.20	na	-167.10
1978	00.30	-0000151.70	018.30	na	-099.20
1979	-05.40	-0000135.90	033.90	na	-145.80
1980	-03.20	-0000129.90	027.00	05.20	-519.00
1981	02.08	-0000175.90	022.60	06.20	-628.20
1982	01.40	-0000326.40	027.70	07.20	-349.80
1983	-01.20	-0000326.40	031.10	07.60	-192.60
1984	-07.10	-0000337.20	032.40	08.60	-118.90
1985	-01.30	-0000512.80	046.30	09.10	-409.80
1986	07.60	-0001177.20	029.40	10.00	-202.30
1987	02.50	-0002211.30	025.00	11.60	-330.70
1988	01.80	-0000927.80	049.10	12.00	-282.80
1989	00.30	-0000349.90	074.10	14.80	-192.40
1990	00.60	-0006977.60	067.40	15.30	-246.00
1991	06.30	-0001776.90	122.50	16.10	-272.90
1992	11.80	-0300437.00	119.20	16.10	-158.80
1993	09.80	-0013706.00	101.20	16.60	+041.80
1994	08.90	-0030035.00	115.90	18.70	+019.10
1995	04.50	-0181260.00	069.00	19.30	+063.10
1996	04.70	-0185100.00	130.40	20.30	+037.50
1997	06.10	-1638600.00	047.20	21.50	+018.10

Sources: Bank of Sudan Annual Reports, various issues.

Central Bureau of Statistics, Khartoum, Sudan.

World Debts Tables, various issues.

International Financial Statistics, various issues.

Notes: GDP at constant price (1981/82) and inflation at price of 1990.

Ls= Sudanese pound, BOPs= balance of payments, deficit (-) and surplus(+) and na= not available.

As the economic situations worsened, Sudan devalued the pound (Sudanese currency) by 14.25% on 8th June of 1978, which was the first formal devaluation. Several reasons given for this action are as follows: to prevent the country's import bills from rising to unmanageable level, to encourage exports, to protect the products of local industries from excessive competition from outside and to discourage increased outflow of capital and to accelerate the rate of growth by rationalising the allocation of resources so as to best utilise the Sudan's present and potential comparative advantage particularly in agriculture and agro-industries.

Problem Statement

The implementation of the macroeconomic policies in the agricultural sector and other sectors in the Sudanese economy in the seventies had failed to improve the economy. As a result, the performance of the Sudanese agricultural sector over the last decade is captured by the following characteristics: the production has been below capacity and at a declining growth trend coupled with tremendous variability mainly due to the influence of weather which has exerted a major impact on output and growth. Consequently, the performance of the Sudanese economy was in a steady decline in the seventies. This decline manifested itself in dwindling exports as a result of poor production performance and increasing imports in addition to the policies that directly acted as disincentives to exports hence increasing widely the trade gap, low growth rate of GDP, severe balance of payments problems, intensive

inflationary pressures, a loss of international competitiveness, and mounting external debts and debt servicing obligations (Table 1.1). Inconsistency of economic policies and the poor implementation of development projects resulted in a phenomenal decline in production and productivity, and eventually in economic stagnation. Consequently, Sudan, like most of LDCs, resorted to the International Monetary Fund (IMF) for financial assistance in order to correct its balance of payments deficit. This put the country under the IMF support program.

The IMF diagnosis of the Sudanese currency as being “overvalued” implying that the Sudanese exports will be discouraged and its competitiveness lost in the international market, while imports will become cheap and as a result of an overvalued exchange rate, the country always faces balance of payments problems.

What has become known as the standard IMF model of a desirable economic policy is a condition presented by the IMF to the member country that has resorted to its fund assistance- mainly the LDCs. The Fund's stabilisation (or financial) program, as a package of policies, consists essentially of exchange rate changes, wage restraint, increases in the interest rate, ceilings on domestic credit expansion (monetary contraction), reduction of the fiscal deficit, liberalisation of foreign trade and abolition of subsidies on food and utilities (particularly electricity and transportation) so that the prices of these goods and services reflect market prices.

Devaluation is a government action whereby the official rate of exchange rate between its currency and those of other countries is amended so that the rate of exchange becomes less favourable to the home currency. Devaluations have often been used by developing countries to reduce large external imbalances, correct "overvaluations" of the real exchange rate, increase international competitiveness and promote export growth.

The impact of currency devaluation on the status of the balance of payments has received considerable attention on both theoretical and empirical grounds during the past two decades. A generally accepted conclusion in the literature is that a currency devaluation will improve the balance of payments provided that the Marshall-Lerner condition is satisfied.

The view in the literature and inside the IMF is that, devaluation would improve the trade balance and usually is an important component of orthodox stabilisation programs that most IMF stabilisation programs, for example, rely heavily on it as a macro-remedial policy tool that used to deal with a disequilibrium in the balance of payments. The IMF usually recommends the country to devalue its currency to solve such disequilibrium. Opponents of devaluation have viewed devaluation as stagflationary, causing a decrease in real output and increase in the rate of inflation of domestic economy by raising the price of imported inputs relative to the price of domestic produced goods.