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# **The Economic Analysis of Tariff Reform in Egypt**

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USAID

October 2000

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MPRA Paper No. 41163, posted 09 Sep 2012 18:34 UTC

# **The Economic Analysis of Tariff Reform in Egypt**

## **Volume I: Main Report**

**Prepared for**

**Ministry of Economy  
and Foreign Trade  
*and*  
Ministry of Finance**

**Submitted to**

**USAID  
Economic Growth/Sector Policy  
Cairo, Egypt**

**Submitted by**

**Nathan Associates Inc.**

**October 2000**

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## Acronyms and Abbreviations

CBE	Central Bank of Egypt
DEPRA	Development Economic Policy Reform Analysis
ERP	Effective rate of protection
ERSAP	Economic Reform and Structural Adjustment Program
FDI	Foreign direct investment
GDP	Gross domestic product
I/O	Input-Output
NRP	Nominal rate of protection
NTBs	Non-tariff barriers
REER	Real effective exchange rate
SMEs	Small and medium size enterprises
SOEs	State-owned enterprises
USAID	United States Agency for International Development
WTO	World Trade Organization

**Ministry of Economy and Foreign Trade**  
**Ministry of Finance**

**Preface**

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This report is based on a request for a tariff reform study by the Ministry of Economy and Foreign Trade (MEFT) and the Ministry of Finance (MOF) to the Development Economic Policy Reform Analysis (DEPRA) Project, under contract to the United States Agency for International Development, Cairo, Egypt (USAID/Egypt) (Contract No. 263-C-00-96-00001-00).

The DEPRA project is intended to encourage and support economic reform in Egypt through the provision of technical assistance and services to the MEFT with particular focus on international trade and investment liberalization, deregulation and financial sector strengthening.

The study objective was to evaluate the technical viability of tariff liberalization in Egypt and possible implementation strategies. The report is being published in two volumes: Volume I contains the main report and Volume II contains Annexes I - V. The report was compiled and authored as follows: Main Report: Dr. Montague Lord, team leader; Annex I–Design Options and Sequencing: Mr. Sarath Rajapatirana, international consultant; Annex II–Direct and Macroeconomic Consequences: Ms. Greta Boye, international consultant; Annex III–Industry-Level Analysis: Dr. James Cassing, international consultant, with the collaboration of Dr. Alia El Mahdi, local consultant, Dr. Fatma El Hamidi, international consultant, Dr. Iman Mohamed Ahmed, local consultant, Dr. Omar Salman and Ms. Nabila Al Iskandarani, local consultant; Annex IV–Fiscal Revenue Implications: Dr. Montague Lord, team leader; Annex V–Global Consequences: Dr. Joseph Francois, international consultant. All team members benefited greatly from extensive data and economic information provided by Dr. Suzanne Messiha and the Comp Team of DEPRA. The report was prepared under contract with Nathan Associates Inc.

The team would like to thank the staff at MEFT and MOF for their support. The authors are solely responsible for all opinions expressed in this report, and the conclusions and recommendations do not necessarily reflect opinions or policies of either the Government of Egypt or the U.S. Agency for International Development.



## Executive Summary

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### Introduction

This study evaluates the technical feasibility of tariff liberalization in Egypt and possible implementation strategies. It has been undertaken on behalf of the Ministry of Economy and Foreign Trade and the Ministry of Finance by a consulting team of the Development Economic Policy Reform Analysis Project (DEPRA). The overall purpose of this study is to provide the Ministry of Economy and Foreign Trade and the Ministry of Finance with advice on how to proceed with tariff reform in a manner that is economically and technically viable, supportive of the Government's overall reform program objectives and responsive to private sector needs.

The guidelines for examining alternative tariff liberalization strategies that were communicated to the study team have been that (a) tariff reforms should be as revenue-neutral as possible, (b) the reforms should cause as few disruptions to employment as possible, and (c) the reforms should have a minimal effect on Egypt's important industries. As such, the study aims to develop an action plan for implementing a new round of tariff reform that addresses the fiscal revenue, industrial production and labor adjustment issues of the Egyptian economy. The emphasis is on a practical, action-oriented plan, rather than an academic study.

### Study Coverage

This executive summary provides a brief overview of the six-part study on the Economic Analysis of Tariff Reform in Egypt.<sup>1</sup> The main report, in Volume I, summarizes the results of the study. Volume II contains five annexes, which make up the analytical portion of this study. The annexes begin by examining the deficiencies in the present trade regime and the specific reform agenda that would address those deficiencies (Annex 1). The study then proceeds to quantify the economic effects of the proposed areas of reform focusing on the direct trade effects of tariff changes and the transmission of those trade effects to the economy (Annex II).

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<sup>1</sup> The study was carried out under the direction of Dr. James Walker, DEPRA Trade Liberalization Advisor, Dr. John Suomela, DEPRA Senior Trade Policy Advisor, and Dr. Hafiz Shaltout, USAID/COTR. The authors of the volumes that make up the present report are as follows: Main Report: Dr. Montague Lord, team leader; Annex I—Design Options and Sequencing: Mr. Sarath Rajapatirana, international consultant; Annex II—Direct and Macroeconomic Consequences: Ms. Greta Boye, international consultant; Annex III—Industry-Level Analysis: Dr. James Cassing, international consultant, with the collaboration of Dr. Fatma El Hamidi, international consultant, and the following local consultants: Dr. Alia El Mahdi, Dr. Iman Mohamed Ahmed, Dr. Omar Salman and Ms. Nabila Al Iskandarani; Annex IV—Fiscal Revenue Implications: Dr. Montague Lord, team leader; Annex V—Global Consequences: Dr. Joseph Francois, international consultant. All team members benefited greatly from extensive data and economic information provided by Dr. Suzanne Messiha and the Comp Team of DEPRA.

The results of the national-level detailed product analysis are used in the next part of the study to evaluate the impact of alternative reform strategies on industries (Annex III). As part of the industry-specific analysis, the study evaluates labor- and capital-specific adjustment magnitudes and experiences.

The revenue implications of tariff reforms are considered in a macroeconomic model (Annex IV). Since exchange rate adjustments often accompany trade policy reforms, we also consider exchange rate adjustments that could be revenue-enhancing by removing or reducing currency over-valuation. If trade balances initially worsen with tariff reductions, a devaluation could forestall the need for offsetting adjustments to fiscal and monetary policy.

The study then uses an economy-wide model (Annex V) to determine likely trade and real income shifts in Egypt's participation in the globalization process. The results provide useful insights into the likely economy-wide adjustment magnitudes and adjustment experience under a complete reform of tariffs and taxes.

Following a review of the coverage and major findings of the analytical components of the study, the present volume lays out a strategy for designing and implementing tariff reforms in terms of the underlying principles for such a reform, the cost of non-adjustment, the social benefits versus private costs, the options for liberalizing trade, complementary measures, and the sequencing and timing of those reforms. Although the optimum path for liberalizing trade is one that maximizes net social benefits, consideration is also given to individual effects of the reform measures.

### Existing Tariff Structure

Egypt has implemented six major reforms to its tariff structure since the introduction of the Economic Reform and Structural Adjustment Program (ERSAP) in 1991. Tariff reductions have generally followed the so-called concertina method, whereby the highest rates are lowered to the next highest level. However, tariffs below 30 percent have not been adjusted downward since 1994 and the most recent set of reductions reflect an apparent shift away from a strategy of overall tariff reductions towards one based on a targeted sector-based reductions.

Overall, the trade-weighted average tariff of Egypt is 20 percent (Table ES1). This rate is higher than in any earlier year since the mid-

**Table ES1: Trade-Weighted Average Tariffs of Egypt, 1995/96-1998/99**

1995/96	18.8%
1996/97	18.3%
1997/98	17.9%
1998/99	20.2%
Source: Central Bank of Egypt (CBE), and International Monetary Fund (IMF), <i>International Financial Statistics</i> .	

1990s and it reflects a tariff structure with a wide dispersion of tariffs, tariff escalation, tariff peaks, an anti-export bias, and a high proportion of tariff lines that are in sensitive sectors. Continued application of the present tariff and trade regime would not permit Egypt to exploit its comparative advantage in the production of labor-intensive manufactures,

since the present tariff regime draws resources away from such activities.

### **Tariff Reform Strategies**

To provide the GOE with the broadest set of alternatives, we have examined the consequences of restructuring Egypt's tariffs using the five commonly applied reform strategies:

- *Free Trade.* Although not an often-adopted option, this strategy serves as a benchmark for comparing the consequences of other strategies.
- *Concertina Method.* This strategy aims to gradually reduce individual tariffs from their highest level to their next lowest level. In many countries it is often used to move towards the implementation of a uniform tariff.
- *Two-Tier Method.* This strategy represents a simple form of tariff escalation, which promotes infant industries and those industries with export potential by allowing their inputs to be taxed at a lower rate than competing finished products.
- *Uniform Tariff.* We examine the effects of a single tariff that is revenue neutral. Revenue neutrality in this case is estimated from the direct (partial equilibrium) effects of the tariff, although it is also possible to adopt a revenue neutral strategy at the macroeconomic level that would account for the feedback effects from tariff reforms.
- *Combination of Two-Tier and Uniform Tariff Strategies.* This combination affords domestic industries transitional protection while moving towards a uniform tariff.

### **Direct and Macroeconomic Impact Effects**

Two types of models are used in this study to examine alternative tariff strategies for Egypt. The first, based on partial equilibrium analysis, provides detailed product information on the direct impact of trade liberalization. The second, based on a macroeconomic framework, captures the dynamic feedback effects between import adjustments and the macro-economy. These two approaches complement one another insofar as the first allows us to compare the direct effects of alternative strategies on the structure of imports, while the second lets us assess the effects of those alternative strategies on the national income and financial accounts, as well as the government budget. The results of the partial equilibrium analysis indicate the following:

*Concertina Method.* This approach would reduce the number of tariff bands from 21 to 6 and would also reduce the trade-weighted average tariff for the products selected for this analysis from 18 percent to 13 percent. Applying a 21.5 percent GST on imports would bring about a neutral government revenue effect.

*Two-Tier Method.* The model was solved for a tariff to be applied to inputs of 14 percent that would have a revenue-neutral effect, and a 19 percent tariff for final products. A GST rate of 18.8 percent would result in a neutral government revenue effect compared with the base period.

*Uniform Tariff.* A 15 percent uniform tariff would generate a revenue-neutral effect, and the government revenue effect would be neutral with a GST rate of 18.8 percent. The GST rate is similar to that of the two-tier method because of the similarity in the trade-weighted average tariffs of the two reform strategies.

*Combination of Two-Tier and Uniform Tariff Strategies.* The combination of a two-tier tariff structure in the first three years and a uniform tariff in the fourth and fifth years with the tariffs specified above and an 18.8 percent GST would yield a neutral government revenue effect.

In general, the difference between the partial equilibrium and macroeconomic analyses arises from the transmission of trade adjustments to the open Egyptian economy and the feedback effects that these adjustments in the national income components have on trade. At the macroeconomic level the concertina, two-tier and uniform tariff strategies generally impact the Egyptian economy in similar ways because their average tariffs are quite similar (Table ES2). A lower overall tariff rate from its present high level would stimulate gross capital formation through domestic investment, which in turn would stimulate overall growth of the economy. The increased national income would further stimulate private consumption, while current expenditures of the Government contracted in response to lower trade tax revenue. The GOE would nevertheless receive compensation for the reduced trade tax revenue from increased tax revenue from other sources as a result of the private sector's expanded economic activity and the aforementioned change in the GST rate.

<b>Table ES2</b>				
<b>Multiplier Analysis of Alternative Tariff Structures on Key Macroeconomic Variables</b>				
<b>(Percent change and US dollars)</b>				
	Unit of Account	Multiplier (%)		
		Impact (1 year)	Interim (5 yrs)	Total (20 years)
<b>Imports of goods</b>				
Free Trade	Nominal US\$	1.6%	5.1%	6.6%
Concertina	Nominal US\$	0.2%	0.4%	0.6%
Two-Tier	Nominal US\$	0.2%	0.5%	0.9%
Uniform	Nominal US\$	0.2%	0.6%	0.6%
Combination	Nominal US\$	0.3%	0.6%	0.9%
<b>Imports of goods and nfs</b>				
Free Trade	Constant LE	1.1%	3.2%	4.2%
Concertina	Constant LE	0.2%	0.4%	0.5%
Two-Tier	Constant LE	0.2%	0.4%	0.7%
Uniform	Constant LE	0.2%	0.4%	0.7%
Combination	Constant LE	0.2%	0.5%	0.7%
<b>Trade tax revenue</b>				
Free Trade	Constant LE	-30.8%	-65.7%	-93.6%
Concertina	Constant LE	-16.0%	-19.2%	-21.4%
Two-Tier	Constant LE	-8.0%	-17.8%	-25.2%
Uniform	Constant LE	-8.0%	-17.8%	-25.2%
Combination	Constant LE	-7.9%	-17.7%	-25.2%
<b>Other tax revenue</b>				
Free Trade	Constant LE	0.1%	0.0%	-1.5%
Concertina	Constant LE	0.0%	0.2%	0.3%
Two-Tier	Constant LE	0.0%	0.1%	0.2%
Uniform	Constant LE	0.0%	0.1%	0.2%
Combination	Constant LE	0.0%	0.1%	0.2%
<b>Gross capital formation</b>				
Free Trade	Constant LE	1.7%	4.3%	6.8%
Concertina	Constant LE	0.7%	1.4%	1.8%
Two-Tier	Constant LE	0.4%	1.2%	2.0%
Uniform	Constant LE	0.4%	1.2%	2.0%
Combination	Constant LE	0.4%	1.1%	2.1%
<b>Real GDP</b>				
Free Trade	Constant LE	0.1%	-0.4%	-1.8%
Concertina	Constant LE	0.3%	0.4%	0.3%
Two-Tier	Constant LE	0.1%	0.3%	0.2%
Uniform	Constant LE	0.1%	0.2%	0.2%
Combination	Constant LE	0.1%	0.2%	0.2%

## Industry-Level Adjustments

Disaggregation at the industry level reveals significant heterogeneity across sectors in terms of tariff protection and industry characteristics that include potential impediments to structural adjustments. The study calculates disaggregated estimates of effective rates of protection (ERPs) for the five alternative reform strategies, estimates supply elasticities for the selected industries, and uses the results to quantify the magnitude of the required tariff-induced output adjustment for each tariff strategy. Adjustment-related issues are also considered for factors of production, especially labor and foreign direct investment (FDI).

Overall, the existing mean average ERP for the sample of 46 industries is 65 percent, a rate that is substantially higher than their already high average nominal tariff or rate of protection (NRP) of 25 percent. Agriculture-related industries have the highest mean average ERP (93 percent) of the three sectors, while public and private industrial activities have very similar average ERPs.

The level of effective protection in the sample industries has been calculated under each of the alternative reform strategies, with the following results (Table ES3):

**Table ES3: Industry-Level Effective Protection under Existing and Alternative Reforms (percent)**

	NRP	ERP	ERP under Alternative Reforms	
			Two-Tier	Concertina
<b>Sector Averages:</b>	<b>24.6</b>	<b>64.7</b>	<b>34.3</b>	<b>46.1</b>
Agriculture	25.3	93.0	40.8	62.8
Industrial Public Sector	23.9	51.5	32.7	40.0
Industrial Private Sector	24.6	51.2	30.9	37.9
<b>Sector Standard Deviations:</b>	<b>13.9</b>	<b>75.4</b>	<b>16.4</b>	<b>52.8</b>
Agriculture	19.0	110.9	21.7	75.6
Industrial Public Sector	10.9	39.0	10.2	35.9
Industrial Private Sector	10.4	37.5	9.3	25.6

Source: Volume 5 of present study.

- *Free Trade:* In the absence of any protection, all tariffs would be zero and so the NRPs and the ERPs would also be zero.
- *Uniform Tariffs:* If all tariffs were to be set at the revenue neutral rate of 15 percent, then the ERP for each industry would equal the corresponding 15 percent NRP. The direction of the overall output effects would thus resemble free trade, a compelling argument for uniform tariffs, although the import-competing industries would still be favored over the exporting oriented industries.
- *Two-Tier Tariffs:* The industry-level analysis adopted a tariff for outputs of 19 percent and a tariff for inputs of 14 percent for all industries. Generally, the overall ERP would fall from 65 to 34 percent, with the greatest decline occurring in the

agricultural industries. For the more industrial sectors, both average ERPs of the public and private sectors would fall from 51 to 31 percent.

- *Concertina Tariff*: In general, the concertina approach reduces the effective protection of the industries considerably less than any of the other reform strategies.

The impact of reforms on the output response of the sample of industries was evaluated from supply estimates for each industry. The net effect on output and employment from the alternative reform strategies are the following:

*Uniform Tariff*: With a 15 percent revenue neutral uniform tariff, output for the industrial sector would fall by nearly as much as under free trade. The decline would be caused by Egypt's current tariff escalation: while output tariffs would be reduced, tariffs on tradable inputs would generally be higher, and the resulting cost increases would lead to output reductions.

*Concertina Tariff*: This type of tariff structure generally causes the least contraction in import-competing firms. For industry final goods, tariffs would be maintained at relatively high rates, and input tariffs would be lowered, thereby reducing costs and encouraging output expansion

*Two-Tier Tariff*: With tariffs of 14 percent for inputs and 19 percent for outputs, there would be a more modest output effect than with the uniform tariff since there are relatively higher output tariffs and lower input tariffs than with the uniform tariff reform.

### **Factor Market Adjustments**

Drawing on both the present industry-level analysis and several studies commissioned by the DEpra project, the annexes examine available evidence on the linkage between trade reform, labor and FDI. The evidence suggests that employment and wage effects of trade reform are generally small. First, labor is fairly dynamic in the face of change and real wages are relatively flexible. Second, the informal sector operates outside of much of the regulatory environment, and the lack of compliance and enforcement of labor market regulations allows labor markets to adjust quickly to changing circumstances. Third, trade reforms are often implemented in conjunction with other reforms, including broad-based tax and exchange rate reforms that offset any short-term adjustment costs. Finally, there is clear evidence that trade reforms attract rather than dampen foreign investment because of the positive attitude towards foreign investment directed at export-oriented industries that often accompanies trade reform.

### **Fiscal Revenue Implications**

Fiscal stabilization has been one of the key ingredients for the establishment of the fundamental conditions needed for Egypt's macroeconomic stability. Since taxes on

international trade represent one-fifth of the GOE's total tax revenue, any discussion of trade liberalization must weigh the fiscal revenue implications against efforts to further integrate the Egyptian economy into the global economy. Moreover, a new round of trade liberalization under the current nominal exchange rate anchor could aggravate the trade deficit and thereby undermine the external balance.

It is in the context of the need to coordinate this broad set of macroeconomic stabilization and economic reform policies that the present study has included the design and estimation of a macroeconomic model to assess trade and exchange rate policy reforms. Table ES4 illustrates the effect of alternative tariff strategies on fiscal revenue and the GOE budget. The smaller expansion of imports under the alternative strategies than under complete free trade generates a lower trade deficit. Given the similarity in the average tariff rates among the various strategies, they produce little, if any, difference in their fiscal impact.

### ***Exchange Rate Adjustments during Trade Liberalization***

To counter the trade-balance effect of trade liberalization, the macroeconomic model was used to measure the effects of a devaluation on the Egyptian economy. The results support generalizations to the effect that the exchange rate significantly impacts on Egypt's balance of payments (Table ES5). For fiscal revenue the results show that the elimination of the overvaluation of the Egyptian pound expands the share of trade taxes following the initial contraction and, because of the positive tax revenue effect, the devaluation leads to a medium-term improvement in the fiscal balance. Moreover, the elimination of the overvalued currency substantially expands the real value of imports. As a result, there are positive medium-term effects on the fiscal balance from the larger domestically priced tax base and the larger tax revenue generated from increased investment and consumption by the private sector.

<b>Table ES4</b>		
<b>Impact of Alternative Tariff Structures on Key Macroeconomic Indicators</b>		
<b>(Annual percent change and average annual US dollars)</b>		
	<b>2000-2004</b>	<b>2005-2009</b>
<b>Trade Balance (average annual Mil. US dollars)</b>		
Current Tariff Structure	(10,742)	(14,570)
Free Trade	(11,596)	(16,396)
Concertina	(10,811)	(14,729)
Two-Tier	(10,829)	(14,796)
Uniform	(10,835)	(14,788)
Combination	(10,843)	(14,795)
<b>Import Duties / Total Tax Revenue (percent)</b>		
Current Tariff Structure	18.1%	16.4%
Free Trade	6.4%	0.0%
Concertina	15.1%	13.2%
Two-Tier	15.4%	12.4%
Uniform	15.4%	12.5%
Combination	15.4%	12.5%
<b>Trade tax collection rate (duties/imports)</b>		
Current Tariff Structure	17.9%	17.9%
Free Trade	7.2%	0.0%
Concertina	15.0%	13.1%
Two-Tier	16.9%	16.3%
Uniform	16.8%	16.1%
Combination	16.5%	16.1%
<b>Import Duties / GDP (percent)</b>		
Current Tariff Structure	3.1%	2.9%
Free Trade	1.1%	0.0%
Concertina	2.5%	2.2%
Two-Tier	2.5%	2.2%
Uniform	2.5%	2.1%
Combination	2.5%	2.1%
<b>Fiscal deficit / GDP (percent)</b>		
Current Tariff Structure	-1.5%	-2.4%
Free Trade	-2.9%	-3.9%
Concertina	-1.9%	-2.7%
Two-Tier	-1.9%	-2.8%
Uniform	-1.9%	-2.8%
Combination	-1.9%	-2.8%

**Table ES5: Effect of 10% Devaluation on Egypt's Economy  
(Percentages)**

	Unit of Account	Multiplier (%) Impact Total	
<b>Balance of Payments</b>			
Goods: Exports f.o.b.	Nominal US\$	6.7%	7.0%
Goods: Imports f.o.b.	Nominal US\$	-2.8%	4.1%
Services: Credit	Nominal US\$	1.2%	2.7%
Services: Debit	Nominal US\$	-2.5%	3.1%
Direct Investment in Egypt	Nominal US\$	-7.9%	-8.5%
<b>National Income Accounts</b>			
Exports of Goods and NFS	Constant LE	1.6%	3.6%
Imports of Goods and NFS	Constant LE	-2.7%	3.9%
Total Investment	Constant LE	-0.7%	2.8%
Total Consumption	Constant LE	1.9%	3.2%
Government Consumption	Constant LE	0.0%	2.9%
Private Consumption	Constant LE	2.2%	3.3%
Gross Domestic Product	Constant LE	1.7%	3.1%
<b>Government Revenue and Expenditures</b>			
Total Revenue	Constant LE	-0.5%	2.7%
Tax Revenue	Constant LE	-0.7%	3.4%
Tax on trade	Constant LE	-2.8%	4.1%
Others	Constant LE	-0.2%	3.2%
Total Expenditures	Constant LE	0.0%	2.1%
Current Expenditure	Constant LE	0.0%	2.9%
Wages	Constant LE	-0.2%	3.2%
Other expenditures	Constant LE	0.1%	2.7%
Source: Annex IV of present study.			

## Global Consequences

The rapid expansion of global production and markets in the last two decades has given rise to systemic changes in the world economy. For Egypt, however, these changes have not generated a proportional expansion of international transactions and capital flows, nor have they created the widespread diffusion of technologies that has been evident in other developing countries. Its exports in the last decade have contracted by a yearly average of 5.4 percent, compared with a 7 percent average annual growth of world trade. As a result, the country's market share in the global economy is now half of what it was at the beginning of the 1990s. In large part, this lackluster performance is the result of Egypt's trade policy. Out of the 26 countries examined, no country exhibited a higher number of NTBs than Egypt and, as mentioned earlier, Egypt has one of the highest average tariff rates in the world.

**Table ES6: Projected Changes in Egyptian Exports by Sector  
(Annual percent change from 1997-2005)**

	Baseline	Tariff and Tax Reform
Leather	21.6	42.8
Fabricated Metals	16.9	36.7
Other Machinery	15.7	32.3
Other Manufactures	15.5	30.0
Garments	4.6	15.1
Wood Products	6.9	14.1
Other Services	7.7	11.4
Electrical Machinery	5.3	10.5
Chemicals	2.6	5.1
Construction	2.7	4.6
Refining	3.7	4.3
Food	4.2	4.0
Other Utilities	3.0	2.8
Petroleum	1.9	2.0
Trans Comm	1.5	1.0
TFI	1.3	0.6
Paper Pub	0.0	-0.6
Crops	2.3	-0.7
Beverages and Tobacco	-0.4	-2.3
Livestock	0.1	-2.9
Textiles	-2.7	-3.7
Electrical Utilities	-3.0	-3.8
Minerals	-3.7	-5.4
Mining	-7.0	-7.2
Transport Equipment	-7.8	-8.8
Basic Metals	-9.3	-11.3

To evaluate the prospect of globalization on Egypt under its present trade regime and the possible effects of alternative liberalization strategies on its world market position, Annex V used a global general equilibrium model to compare the Egyptian economy in a projected 2005 baseline to an alternative projected 2005 scenario under the alternative liberalization strategy. The reform strategy examined with this model reflects a different version of those undertaken elsewhere in this study. It involves complete elimination of tariffs and the application of a single GST to domestic production and imports.

This alternative scenario involves a total indirect tax that leaves GOE revenue unchanged. The 25 percent GST that emerges from the results differs from that used elsewhere in this study for two reasons: the present analysis starts from a different base year, and it includes indirect tax interactions through input-output linkages and factor

market linkages between sectors. The results of this strategy are dramatic at the sector and industry levels (see Table ES6). Those exports most likely to benefit are leather, fabricated metals, garments, wood and electrical machinery, while large contractions are expected in exports of basic metals, transport equipment, mining, minerals and textiles.

### **Strategy Design and Implementation**

The analysis in this study of Egypt's present tariff regime and alternative reform strategies suggest an agenda for tariff reform in Egypt that would contain the following elements:

- Reduce the overall tariff level from the present 20 percent to a rate more competitive with other countries and make tariffs the only instrument of protection.
- Eliminate import surcharges and similar para-tariffs replacing them with consumption or excise taxes that do not discriminate between foreign and domestic goods.
- Eliminate nominal tariff dispersion by moving to fewer rates in stages that would lead to a uniform tariff.
- Eliminate nominal tariff escalation by not having different rates geared to the particular stage of processing.
- Make access to foreign inputs through the duty drawback and temporary admission system automatic and eliminate undue delays in receiving drawbacks and exemptions from duties and taxes paid on inputs.
- Make tariff changes more transparent and predictable and undertaken by an independent group that is not beholden to any particular group or activity.
- Make the exchange rate system more responsive to changes in domestic and international prices by moving toward a more flexible exchange rate regime.

To ensure a smooth transition to the liberalization of tariffs, the findings of present study lead to the following recommendations for the design and implementation of a specific program in Egypt. First, it is important to aim toward the objectives of the ideal regime. These are to reduce tariffs, their dispersion and their escalation, and to move toward a uniform rate.

Second, for strategic reasons and to avoid short-term spikes in import protection, a combination of strategies may be warranted during the transition period. The exact sequence should depend on the present tariff structure and the expected changes in imports, tax revenue and key macroeconomic and sector indicators resulting from the tariff reductions. The present study found that a two-tier tariff structure followed by a uniform tariff provided a useful way to sequence the reform process.

Third, there are many tariffs that are redundant in the sense that their reduction would have no impact on resource allocation. These could be reduced without a problem. So could the remaining administrative barriers to imports.

Fourth, the sequence followed must be clearly defined both in terms of the different tariff rates that would be targeted and the time period. Thus one could announce, for example, a plan to reduce tariffs by a two-tier method in the first two years followed by another well-defined stage for the next two years leading to a uniform tariff in the fifth year.

Finally, other policies need to complement import liberalization, especially as they relate to macroeconomic policies, exchange rate policies and the regulatory environment. Each of these policy areas plays a crucial role in tariff reduction. In the macroeconomic area, monetary and fiscal policies needed to achieve and maintain price stability are an essential ingredient of liberalization. The exchange rate regime needs to be consistent with import liberalization policies since an exchange rate that is out of equilibrium, such as an appreciated currency, distorts incentives toward producing for the domestic market and subsidizes imports when tariffs are reduced. Finally, without an efficient regulatory regime, the resource shift from import liberalization would be undermined by investment and labor market regulations.

### **Concluding Remarks**

Based on the guidelines for examining alternative tariff liberalization strategies, the study team concluded the following:

*Revenue neutrality* –The fiscal revenue impact of a trade reform program is unlikely to be severe if there are concurrent broad-based reforms. A program that reduces the average tariff rate, lowers tariff dispersions, limits exemptions, and moves towards a uniform rate could possibly lower tariff revenue in the short run, but it would also increase revenue in the medium term as trade liberalization spurs economic growth and generates a larger tax base in the economy. An accompanying currency devaluation would also expand imported values measured in domestic currency for purposes of valuation and help to increase tax revenue. Moreover, with lower rates and fewer tariff exemptions, collection rates would be likely to improve and lower the incidence of under invoicing and smuggling.

*Minimize employment disruptions* - Adjustments in factor markets, especially that of labor, are also likely to be small. Given the estimated annual labor turnover rates of 8.5 percent, labor displacement would probably be small even if the reform package were implemented over a relatively short period of time. For capital movements, adjustments in foreign investment will tend to follow the reduction in the number of protected sectors. Since there is strong evidence that trade reforms and macroeconomic stability have a much more positive impact on FDI inflows than protected industries, customs duty exemptions, and tax holidays for foreign investors, Egypt's favorable macroeconomic climate and proposed trade policy reforms should stimulate foreign investment inflows into the country's industries having true comparative advantages.

*Complementary policies* – The industry-level effect of any tariff reform package necessarily depends on the economic constraints to adjustments. For Egypt, tariff reform would be greatly constrained by the overvalued exchange rate and the regulatory environment, especially those that represent NTBs to trade. Without a significant liberalization of the exchange market, it would be difficult to reverse the current account imbalance and attract foreign investment that relied in any way on foreign inputs. The fact that Egypt already enjoys macroeconomic stability would greatly benefit the transition of important industries to a new tariff regime and help to ensure a predictable situation during the transition.

# 1.0 Introduction

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## 1.1 Background

This document is the final report of the Economic Analysis of Tariff Reform in Egypt study. As the main report it presents the summary and recommendations of a consulting team of the Development Economic Policy Reform Analysis (DEPRA) project on the technical viability and strategy to implement tariff liberalization measures in Egypt. It aims to bring together the main points and conclusions of the five Annexes in Volume II, containing the technical material for the major components of the study.

The study has been undertaken on behalf of the Ministry of Economy and Foreign Trade and the Ministry of Finance. The guidelines for examining alternative tariff liberalization strategies that were communicated to the study team have been that (a) tariff reforms should be as revenue-neutral as possible, (b) the reforms should cause as few disruptions to employment as possible, and (c) the reforms should have a minimal effect on Egypt's important industries.

The overall purpose of this study is to provide the Ministry of Economy and Foreign Trade and the Ministry of Finance with advice on how to proceed with tariff reform in a manner that is economically and technically viable, supportive of the Government's overall reform program and responsive to private sector needs. The study aims to develop an action plan for implementing a new round of tariff reform that addresses the fiscal revenue, industrial production and labor adjustment issues of the Egyptian economy. The emphasis is on a practical, action-oriented plan, rather than an academic study.

## 1.2 Study Coverage

The analytical portion of this study (Volume II) begins by examining the deficiencies in the present trade regime and the specific reform agenda that would address those deficiencies. It then proceeds to quantify the economic effects of the proposed areas of reform. Following a review of the current tariff structure, the empirical analysis describes the different effects of trade policy changes from both partial equilibrium and macroeconomic perspectives. As a first step in the estimation process, the partial equilibrium analysis focuses on the direct trade effects of tariff changes at a very low level of product detail. In the second step, the analysis is extended to a macroeconomic framework that allows us to estimate the transmission of those trade effects to the economy, and the feedback effects that occur in the external sector from income and price changes. Since both types of analyses focus on the demand-side of the economy, the results allow us to examine the difference between estimates of the direct effects of tariff reforms and those arising from both direct and indirect changes in the macroeconomy.

The results of the national-level detailed product analysis are used in the next part of the study to evaluate the impact of alternative reform strategies on industries. At the industry level there is significant heterogeneity across sectors in terms of tariff protection, industry characteristics, and possible impediments to structural adjustment. By focusing on a low level of industry detail, we can obtain useful measures of effective rates of protection (ERPs). The ERP measures of the extent of industry protection and the direction of the value-added price change for any given tariff reform are based on existing input/output (IO) data and a firm-level survey to parameterize the IO coefficients. The calculated output changes can then be related to required changes in labor and capital by using data on labor- and capital-output by industry in DEPRA's database.

As part of the industry-specific analysis for trade liberalization under various tariff reform scenarios, the study analyzes factor-specific adjustment magnitudes and adjustment experiences. The apparent heterogeneity of Egyptian industries suggests the outcome of significantly different adjustment experiences in response to tariff reform. The labor adjustment analysis identifies industry characteristics that are conducive to smooth adjustment and highlights potential impediments. Key features of industries relevant to the adjustment experience include labor and capital "turnover rates," which were obtained from an industry survey, and other economic characteristics associated with the degree of adjustment frictions.

The revenue implications of tariff reforms are considered in a macroeconomic model. Since exchange rate adjustments often accompany trade policy reforms, we also consider exchange rate adjustments that could be revenue-enhancing by removing or reducing currency over-valuation. If trade balances initially worsen with tariff reductions, a devaluation could forestall the need for offsetting adjustments to fiscal and monetary policy. In general, however, the effect of a fall in the value of the currency on trade tax revenue is ambiguous and therefore needs to be empirically tested.

Our results indicate that trade liberalization is indeed linked to higher rates of economic growth, since the reduction in protection leads both to greater investment and a higher rate of output growth in the long run. The enhanced growth, in turn, leads to an expansion of the tax base and a concomitant expansion of revenue potential. To the extent that trade-liberalizing growth is associated with an increased importance of trade, the ratio of trade taxes to GDP tends to increase for a given level of tariffs. The specific outcome of trade liberalization, however, depends on the precise components of the reform package, and the study examines five commonly adopted strategies. The findings also support the need for the adoption of a more comprehensive public finance perspective on policy reform covering tax and exchange rate reforms.

The study then invokes an economy-wide model to determine likely trade and real income shifts in Egypt's participation in the globalization process (as it refers to the intensification of international trade, cross-border production, and finance linkages). The results of this part of the study provide useful insights into the likely economy-wide

adjustment magnitudes and adjustment experience under various tariff-reform scenarios, and how Egypt would fare in the globalization process if it were to undertake the proposed reforms. By way of contrast, the model also estimates the costs associated with continuing under the GOE's present program.

Finally, the study lays out the main elements needed for the design and implementation of the proposed tariff reform package. Although the optimum path for liberalizing trade is one that maximizes net social benefits, consideration is also given to individual effects of the reform measures. Since alternative tariff reform strategies may require complementary reform measures to offset undesirable macroeconomic or sector-specific effects, we consider a compensating devaluation to ensure a neutral tax revenue effect and bolster Egypt's international competitiveness in the context of timing and sequencing issues of trade liberalization.

### **1.3 Report Structure**

The study was carried out during the period between January and September 2000 under the direction of Dr. James Walker, DEPRA Trade liberalization Advisor, Dr. John Suomela, DEPRA Senior Trade Policy Advisor and Dr. Hafiz Shaltout, USAID/COTR. The authors of the volumes that make up the present report are as follows:

- Volume 1 – Main Report: Dr. Montague Lord, team leader.
- Volume 2
  - Annex I – Design Options and Sequencing: Mr. Sarath Rajapatirana, international consultant.
  - Annex II – Direct and Macroeconomic Consequences: Ms. Greta Boye, international consultant.
  - Annex III – Industry-Level Analysis: Dr. James Cassing, international consultant, with the collaboration of Dr. Fatma El Hamidi, international consultant, and the following local consultants: Dr. Alia El Mahdi, Dr. Iman Mohamed Ahmed, Dr. Omar Salman and Ms. Nabila Al Iskandarani.
  - Annex IV – Fiscal Revenue Implications: Dr. Montague Lord, team leader.
  - Annex V – Global Consequences: Dr. Joseph Francois, international consultant.

All team members benefited greatly from extensive data and economic information provided by Dr. Suzanne Messiha and the Comp Team of DEPRA.

Following this background introductory chapter, the remainder of the Main Report is organized as follows:

- Chapter 2 – Examines Egypt’s tariff structure, the magnitude of existing protection, and possible liberalization strategies.
- Chapter 3 – Quantifies and compares differences between the direct trade and macroeconomic effects of tariff reforms and the likely adjustment magnitudes under various tariff reform strategies.
- Chapter 4 – Provides an industry-level analysis of the direction and magnitude of adjustment associated with tariff reforms, and identifies industry characteristics that are fairly amenable to adjustment.
- Chapter 5 – Examines the fiscal revenue implications of trade liberalization in the context of a macroeconomic model with complementary tax and exchange rate reforms.
- Chapter 6 – Reviews Egypt’s performance in the globalization process as it refers to the intensification of international trade, cross-border production, and finance linkages underpinned by economic liberalization and technological change.
- Chapter 7 – Lays out the strategy for designing and implementing tariff reforms in terms of the underlying principles for such a reform, the cost of non-adjustment, social net benefits versus private costs, the options for liberalizing trade, complementary measures, and the sequencing and timing of those reforms.

## 2.0 Tariff Levels and Reform Strategies

### 2.1 Existing Tariff Structure

Egypt has implemented six major reforms to its tariff structure since the introduction of the Economic Reform and Structural Adjustment Program (ERSAP) in 1991 (see Box 2.1). Tariff reductions have generally followed the so-called concertina method, whereby the highest rates are lowered to the next highest level. However, tariffs below 30 percent have not been adjusted downward since 1994 and the most recent set of reductions reflect an apparent shift away from a strategy of overall tariff reductions, which often accompanies the startup of economic reforms, towards one based on a targeted sector-based reduction system.

Despite its continued reliance on trade taxes for much of its tax revenue, the GOE has made a number of commitments to accelerate tariff reductions under the WTO and various regional trade agreements. Yet the tariff structure continues to largely reflect a protectionist strategy based on a high average tariff, the wide dispersion of tariffs across multiple bands, tariff escalation, tariff peaks, an anti-export bias, and a high proportion of tariff lines (over 12 percent) that are in sensitive sectors with rates exceeding WTO tariff bindings.

#### Box 2.1 Egypt's Tariff Reform History

Date	Action Taken
1991	Tariff range lowered from 0.7 to 120 percent to 5 to 100 percent.
1993	Tariff range lowered to between 5 and 80 percent.
1994	General maximum tariff rate lowered to 70 percent; tariffs between 30 and 70 percent reduced by 10 points; Harmonized System (HS) of classification adopted.
1996	Tariff rates lowered by 10 to 15 percentage points, and general maximum tariff rate lowered to 55 percent.
1997	Tariff rates above 30 percent lowered by 5 percentage points, and general maximum rate lowered to 50 percent.
1998	Most tariff rates lowered by 5 to 10 percentage points, and general maximum rate lowered to 40 percent.

**Table 2.1: Trade-Weighted Average Tariffs of Egypt, 1995/96-1998/99**

1995/96	18.8%
1996/97	18.3%
1997/98	17.9%
1998/99	20.2%

Source: Central Bank of Egypt (CBE), and International Monetary Fund (IMF), *International Financial Statistics*.

Overall, the trade-weighted average tariff is 20 percent (based on a calendar-year average of the CIF (cost, insurance and freight) value of imports reported in the International Monetary Fund's *International Financial Statistics* (IMF-IFS)).<sup>2 3</sup> That rate is higher than in any

<sup>2</sup> When the same calculation is made for the same time period using fiscal-year CIF import value data from the Central Bank of Egypt (CBE) and another IMF data source (IMF, 1998), the average tariff rate is somewhat higher at 24 percent. However, the latter calculations yield average tariff rates that vary considerably from year-to-year, particularly in the last year for which data are available, and that appear less in line with recent tariff reforms than those averages based on IMF-IFS import value data. The lack of consistent data sources explains the considerable disparity in the average tariff calculations reported in other studies. Havrylyshyn (1996), as reported in Handy (1998), reports an average tariff of 28 percent in

earlier year since the mid-1990s. By way of contrast, out of a sample of 26 countries, those having a higher tariff than that of Egypt are India, Tunisia, Zimbabwe, Sri Lanka and Brazil. Argentina has an average tariff of 14 percent, Bolivia 6 percent, Chile 11 percent, Malaysia 9 percent and Sri Lanka 13 percent. With the more recent and higher 1998/99 tariff rate, Egypt would rank fourth among the 26 countries.

A second feature of Egypt's tariff structure is the wide dispersion of tariffs, which vary from 0 to 3000 percent. The standard deviation of Egypt's tariff structure is 128 percentage points and the associated coefficient of variation is 4.5, indicating a wide dispersion. This range of tariffs is also much larger than that of many of the trade reforming countries of the 1990s, for instance, in Argentina, where the simple tariff range is 0-40; in Bolivia, where it is 0-10; in Chile, where it is 0 with a uniform tariff, and in Sri Lanka, where it is 0-50. At the same time, the number of tariff bands has also increased dramatically since 1994. Although there are currently 21 bands in the tariff schedule, only a few bands generate most of the revenue. Using data for 1998, we calculated that 90 percent of Egypt's revenue was generated from imports with five different applied tariff rates (5, 10, 20, 30 and 40 percent), while only 8 percent of revenue was generated from imports with three applied tariff rates (15, 54 and 45 percent), and 2 percent of revenue was generated from imports taxed at the remaining 13 rates.

A third feature of Egypt's tariff structure is the high escalation in its tariffs. Escalation occurs when the tariff rate increases with the stage of processing of a

**Table 2.2: Trade-Weighted Average Tariff, 1997/98**

	Average tariff
India	29.5
Tunisia	23.5
Zimbabwe	20.5
Sri Lanka	19.8
Brazil	18.3
<b>Egypt</b>	<b>17.9</b>
Indonesia	14.9
Poland	14.2
Argentina	14.1
Peru	12.5
Mexico	12.0
Chile	10.9
Venezuela	10.9
Uruguay	10.7
Colombia	10.5
Hungary	9.4
Malaysia	9.4
Philippines	9.1
Korea	7.8
Turkey	5.7
Australia	4.4
New Zealand	4.0
El Salvador	3.8
European Union	3.5
Sweden	3.5
Canada	3.2
United States	2.7
Norway	2.4
Japan	1.5

Source: Volume 6 of present study, based on World Bank, *World Development Indicators, 1999*; and Table 2.1 for Egypt's tariff.

1996, while our calculations using IMF-IFS data yield an average of 18.5 percent for that year. Kheir-El-Din (1998) reports an average of 16.7 percent in 1995, which is close to our calculated average of 18.8 percent for 1995/96 using IMF-IFS data. For a detailed comparison of tariff averages, see Volume 3 of this study.

<sup>3</sup> There is even greater disparity between our calculations of the ratio of tariff revenue to import value and our calculations of the statutory ad valorem tariff rates weighted by corresponding import values. For 1998 the average statutory (official) rate is only 13.3 percent, compared with the average collected rate of 17.9 in 1997/98 and 20.2 in 1998/99. These large differences between collected rates and official rates have been reported by Pritchett and Sethi (1994) for other developing countries, and are usually attributed to under-invoicing, valuation errors, and tariffs exemptions.

product. Raw materials carry no or low protection, while intermediate goods carry higher rates, and final goods carry the highest rates. In such cases the rate of protection is progressively raised and escalated. In Egypt, final goods are more than twice as protected as the raw materials, and tariff escalation is found to be most significant in textiles, leather, wood and wooden furniture.

A fourth feature of the Egypt's tariff structure is that there are many barriers that act as tariffs beyond the posted and applied tariff rates. These are NTBs that include cumbersome customs procedures that involve the clearing of goods and the administration of quality standards. One of the main problems with the latter is that no one agency is in charge and there are different standards relating to health, safety and

**Box 2.2: Egypt's Tariff Structure**

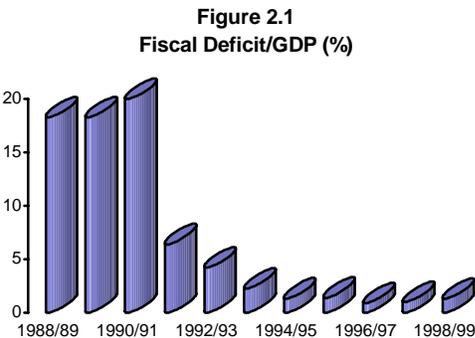
- Current version since November 1998
- Number of tariff lines: 6,062
- Number of tariff lines with imports: 5,382
- Number of official rates: 21
- Unweighted average: 22%
- Weighted average: 20.2%
- Maximum tariff: 3,000%
- Minimum tariff: 0%
- Standard deviation: 128

phyto-sanitary standards. There are conflicting standards and inevitable queuing problems at the entry points of imports. The cumulative effect of different standards is that of a non-tariff barrier that can be expressed as a tariff equivalent. The delays in clearance entail demurrage costs and finance charges for the importers. More recently new measures have been introduced that also increase the

protective effects of tariffs and tariff-like measures. The upshot of all these measures is to provide a measure of protection for Egyptian domestic industries that reduces competitiveness and creates inefficiencies. This is one reason Egypt has not been able to maintain its share in world trade despite the trade liberalization progressively undertaken since the early 1990s.

**2.2 Fiscal Revenue and Trade Taxes**

The efficiency gains from further trade liberalization have to be weighed against the Government's strategy for achieving internal balance, largely through fiscal austerity and the maintenance of fiscal revenues. The successful reduction in the fiscal deficit from 20 percent of gross domestic product (GDP) in 1990/91 to around 1 percent in 1998/99 reflected both revenue increases and expenditure cutbacks. With fiscal austerity, inflation decelerated from around 20 percent in the 1980s to 7 percent by 1996, eventually averaging 4 percent after 1997. The Government has also used the exchange rate as a nominal anchor and strict monetary and credit controls in its disinflation strategy. During this period of stabilization, the Egyptian pound has moved in a narrow range vis-à-vis the



dollar and any upward or downward pressure on the exchange rate has been absorbed through passive intervention.

While total tax revenue since the start of the reforms has remained fairly stable relative to GDP, non-tax revenue has contracted from 14 percent of GDP in 1990/91 to less than 9 percent in 1998/99. Total tax revenue, and that of trade taxes in particular, has therefore had to support an increasingly larger portion of fiscal expenditures. Between 1991/92 and 1998/99, the proportion of tax revenue from trade has risen from nearly 19 to over 21 percent, and trade tax revenue as a proportion of total tax and non-tax revenue has risen from 11 to 14 percent in the same period. The fiscal revenue implications of any tariff cuts are therefore especially important to the GOE.

The Government also relies on customs surcharges for additional revenue from traded products. A customs service fee of one percent is applied to the value of all imported goods in return for inspection, listing, classification and re-examination of shipments. Another surcharge of 2 percent is levied on commodities whose customs duties are between 5 and 29 percent, and a surcharge of 3 percent is levied on commodities subject to duties of 30 percent or higher. In addition to tariffs and surcharges, imported goods are subject to a general sales tax (GST) upon clearance from customs. That tax is added to the duty-inclusive customs value of imported items, which results in a further tax hike: by applying the GST and customs surcharges to the duty-inclusive import value, the Customs Authority adds on nearly 3 percentage points to the average tax that importers must pay over and above quoted duties applied to the shipment value of imports (exclusive of customs duties).

**Table 2.3: Contribution of Trade Taxes to Total Tax Revenue, 1991/92-1998/99**

	<b>Tax on Trade</b>	<b>Other Taxes</b>
1991/92	18.9%	81.1%
1992/93	18.3%	81.7%
1993/94	19.5%	80.5%
1994/95	20.5%	79.5%
1995/96	20.7%	79.3%
1996/97	20.1%	79.9%
1997/98	20.2%	79.8%
1998/99	21.4%	78.6%

### **2.3 Consequences of the Tariff Regime**

The relatively high level of protection, its large dispersion and high degree of escalation undermine the GOE's medium-term economic growth targets. With the present tariff structure and the trade regime, it would be difficult to raise economic growth to 8 percent per year, exports to 10 percent per year and to lower the unemployment rate to close to 4 percent. Continued application of the present tariff and trade regime would not permit Egypt to exploit its comparative advantage in the production of labor-intensive manufactures, since the present tariff regime draws resources away from such activities. Moreover, existing trade distortions lead to investment in non-competitive activities.

The large dispersion in tariffs interferes with the optimal allocation of resources since the relative returns to activities are not determined by comparative advantage, but rather by the differences in protection rates arising from the differential in tariffs. Generally, the activities that seek and receive protection are those industries that cannot compete well

with foreign imports or use their resources to compete in external markets. The activities that have received protection absorb resources inefficiently, thereby preventing them from being used for more competitive activities. The higher the dispersion of tariffs, the higher is the deviation of activities from their most efficient use. In this sense, high dispersion in tariffs is even more harmful than high protection in itself. If all industries are protected to the same extent, then resource flows will be neutral among sectors.

The presence of high tariff escalation tends to discourage the growth of input-producing industries. This may be counterproductive to the best use of resources. Egypt may have a comparative advantage in input-producing activities such as cotton for textiles and minerals for light industries. When these activities are discriminated against by low tariffs, entrepreneurs will receive greater profits from the latter parts of the production chain, which may not have a comparative advantage. Industrial development in general has followed a pattern of movement from raw material and intermediate good production to the production of final goods. Egypt's tariff escalation may encourage to this pattern and may in fact undermine efforts to industrialize.

### **2.3 Tariff Reform Strategies**

The need to address Egypt's tariff issues in terms of their high average, wide dispersion across multiple bands, high degree of escalation, and anti-export bias has become imperative. While Egypt has made considerable progress in reaching macroeconomic balance, undertaking reforms to privatize parts of the economy, and creating a more investment-friendly environment, it still lags behind in export performance compared with many other developing countries. Its output expansion has been mostly associated with the non-tradable sectors rather than the tradable sectors. In fact, Egypt is unique among countries in the middle-income category because its economic performance has not included increasing its market share in world exports. On the contrary, Egypt has lost its market share while the economy has performed well in terms of output, employment growth and in reaching macroeconomic balance.

To date, trade policy reform in Egypt has focused on replacing certain quantitative restrictions (QRs) with tariffs, removing export taxes, eliminating some non-tariff barriers (NTBs) to trade, and lowering certain tariffs. The Government has informally indicated its desire to consider further liberalize trade by restructuring and reducing tariffs, although it has not yet revealed a strategy preference. Formally, the GOE has signaled its commitment to further liberalization measures through its obligations to the WTO and other donor-sponsored programs. Against this background, the guiding objectives communicated to the study team in examining alternative tariff liberalization strategies have been that tariff reforms should have the following characteristics:

- *Tariff reforms should be as revenue-neutral as possible*
- *Tariff reforms should cause as few disruptions to employment as possible*
- *Tariff reforms should have a minimal effect on Egypt's important industries*

To provide the GOE with the broadest set of alternatives in this study, we have examined the consequences of restructuring Egypt's tariffs using the five most commonly applied reform strategies. Box 2.3 summarizes the major advantages and disadvantages of each of the five strategies, while the following paragraphs summarize each of the strategies:

*Free Trade.* Although not an often-adopted option, this is a theoretically-ideal strategy and it serves as a benchmark for comparing the consequences of other strategies.

*Concertina Method.* This strategy aims to gradually reduce individual tariffs from their highest level to their next lowest level. In many countries it is often used to move towards the implementation of a uniform tariff. In our analysis, the GOE would reduce existing tariffs above 30 percent to 30 percent, and raise the lowest rate to the next highest level not to exceed 10 percent, thereby compressing the tariff schedule while moving it towards a 10 percent rate.

*Two-Tier Method.* This strategy represents a simple form of tariff escalation, which from an importer's point of view promotes infant industries and those industries with export potential by allowing their inputs to be taxed at a lower rate than competing finished products. Our analysis has sought to achieve a revenue neutral effect from this new tariff structure.

*Uniform Tariff.* In the present study, we examine the effects of a single tariff that is revenue neutral. Revenue neutrality in this case is estimated from the direct (partial equilibrium) effects of the tariff. It is also possible to adopt a revenue neutral strategy at the macroeconomic level that would account for the feedback effects from tariff reforms. Direct effects, however, are more readily calculated than those obtained from the macroeconomic model developed for the present study, and they were therefore used for designing specific tariff strategies.

*Combination of Two-Tier and Uniform Tariff Strategies.* This combination affords domestic industries transitional protection while moving towards a uniform tariff. In years one through three, the two-tier approach would be applied, and in years four and five, a uniform tariff would be applied. Their final impact would be revenue neutral.

In the following chapter, we examine each of these strategies both from a microeconomic perspective using partial equilibrium analysis and from a macroeconomic perspective. Details of the methodology used to assess these strategies are laid out in Volume II, Annexes II and IV, of the study. Regardless of the particular strategy adopted by GOE, we have emphasized the need for a simplified tariff structure that would permit importers to take full advantage of the improved market access conditions, and reduce the administrative burden for both the customs authority and the private sector.

**Box 2.4: Alternative Strategies for Egypt's Tariff Reform**

Scenario	Description	Advantages	Disadvantages
<b>Concertina Method</b>	<ul style="list-style-type: none"> <li>Lower highest rates to next highest level with 30% being new maximum level, and raise lowest rate to next highest level not to exceed 10%</li> <li>Tariff steps incremented by 5 percentage points, resulting in 6 bands (starting with 5% tariff)</li> <li>Offers a 5-year transition period to full implementation</li> </ul>	<ul style="list-style-type: none"> <li>Would move the tariff structure towards a uniform tariff of 10% by compressing the tariff structure and restricting tariffs to a narrow band</li> <li>Would eliminate tariff peaks and multiple bands</li> <li>Would reduce dispersion</li> <li>Would help to minimize directly unproductive activities designed to obtain high tariffs</li> </ul>	<ul style="list-style-type: none"> <li>Most imports already enter Egypt at rates of 10% and 30%</li> </ul>
<b>Two-Tier Approach</b>	<ul style="list-style-type: none"> <li>Apply single tariff to inputs and another single tariff to final products</li> <li>Provides 5-percentage point spread between lower rate for inputs and higher rate for final products</li> <li>Offers a 5-year transition period to full implementation</li> <li>Combined tariffs produce a revenue neutral effect in year 5</li> </ul>	<ul style="list-style-type: none"> <li>Would simplify structure by reducing multiple tariff bands</li> <li>Would improve transparency</li> <li>Could lead to lower ERPs</li> <li>Could reduce tax evasion thereby raising revenues</li> <li>Could lower use of tariff exemptions</li> </ul>	<ul style="list-style-type: none"> <li>Possible difficulty in agreeing on products defined as inputs and final products</li> <li>Maintains tariff escalation, resulting in likely high ERPs, although possibly slightly lower, than under the current structure</li> </ul>
<b>Uniform Tariff</b>	<ul style="list-style-type: none"> <li>Apply single tariff to all imports</li> <li>Offers a 5-year transition period to full implementation</li> <li>Tariffs produce a revenue neutral effect in year 5</li> </ul>	<ul style="list-style-type: none"> <li>Would consolidate and simplify tariffs and eliminate dispersion</li> <li>Would introduce transparency into system and reduce administrative burdens, and could also promote FDI</li> <li>Could lead to lower tax evasion</li> <li>Could reduce rent-seeking and possibly raise revenues</li> <li>Would create a more balanced incentives environment</li> <li>Could reduce use of tariff exemptions</li> <li>Would enhance economic efficiency by equalizing protection across goods</li> </ul>	<ul style="list-style-type: none"> <li>Unless domestic taxes (e.g., general sales tax) are made uniform, marginal distortion costs of protection in production will not be equalized across industries</li> </ul>
<b>Sequential Reform using Two-Tier, and Uniform Tariff Structures</b>	<ul style="list-style-type: none"> <li>Adopt narrow-ranged concertina method, followed by two-tier approach, and finally adopt uniform tariff in year 5.</li> </ul>	<ul style="list-style-type: none"> <li>Provides gradual move to uniform tariff</li> <li>Offers clear foresight for adjustment by industries</li> </ul>	
<b>Indirect Tax Reforms</b>	<ul style="list-style-type: none"> <li>Eliminate import fees immediately</li> <li>Implement uniform general sales tax (GST) that is applied to border (cif) price</li> <li>GST applied uniformly to foreign and domestically produced goods</li> <li>Provides for 5-year transition period</li> <li>Uniform GST to be revenue neutral in year 5</li> </ul>	<ul style="list-style-type: none"> <li>Would reduce administrative burden and improve transparency</li> <li>Could be revenue-enhancing due to reduced scope for duty evasion and elimination of exemptions</li> <li>A uniform application on foreign and domestic goods is WTO-consistent</li> <li>Application to border price would remove effect of tax magnification</li> </ul>	

Notes: (a) In all cases the Government of Egypt should announce the strategy for tariff reform in advance and commit to that reform; (b) the scenario of free trade (zero tariffs), which in effect is another type of uniform tariff, is also being examined for illustrative

## 3.0 Direct and Macroeconomic Impact Effects

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### 3.1 Background

Two types of models are used in this study to examine alternative tariff strategies for Egypt. The first, based on partial equilibrium analysis, provides detailed product information on the direct impact of trade liberalization. The second, based on a macroeconomic framework, captures the dynamic feedback effects between import adjustments and the macro-economy. These two approaches complement one another insofar as the first allows us to compare the direct effects of alternative strategies on the structure of imports, while the second lets us assess the effects of those alternative strategies on the national income and financial accounts, as well as the government budget. Measurement of these effects at the macroeconomic level is particularly important since past cost-of-protection studies that have relied on comparative static analysis have found the size of the estimates to be small.<sup>4</sup>

The analysis begins within the partial-equilibrium framework to examine import demand adjustments at the detailed tariff-line level. Because of time-related adjustments and lagged responses, the analysis considers inter-temporal issues as they relate to the effects of alternate strategies on trade creation, trade diversion, balance of payments, government revenue and consumer welfare. The resulting import changes derived from the partial-equilibrium analysis serve as inputs to the macroeconomic model. While not offering the same level of detail, estimates of the effects of trade liberalization in a macroeconomic framework incorporate dynamics and allow calculations of feedback effects between import adjustments and the macro-economy.<sup>5</sup> As a consequence, the sizes of the estimates are likely to more accurately reflect adjustments to trade liberalization associated with broad-based reforms. From an analytical point of view, we use the Mundell-Fleming model of a small open economy to move from a partial equilibrium perspective to one that examines trade policy reforms in the context of Egypt's macroeconomic fundamentals. Since trade liberalization often aggravates current account imbalances of countries, we also include in the analysis complementary exchange rate

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<sup>4</sup> Past estimates of the impact of trade liberalization have generally found that trade liberalization increases the welfare of a country by only about one-half to one percent of GDP (see, for example, Harrison, Rutherford and Tarr (1993; 1997) and Morkre and Tarr (1995)).

<sup>5</sup> By dynamics, we do not refer to models based on endogenous growth theory (Romer (1990) and Grossman and Helpman (1991)), which are complex and necessarily focus on aggregate relationships (for a discussion of these models, see Tarr and Rutherford (1999)). In this study we instead rely on a tractable macroeconomic model for estimating the dynamic feedback effects between Egypt's internal and external balances in response to trade liberalization and other economic reform measures that support that liberalization.

adjustments that could help to produce a sustainable balance of payments and move the Egyptian economy closer to overall equilibrium.

### 3.2 Partial Equilibrium Impact Assessment

The partial equilibrium approach to trade liberalization has been widely used for cost-of-protection calculations of the direct effects on the value of imports of tariffs changes on individual product imports. For Egypt, the calculations are based on import demand relationships estimated for individual products at the detailed tariff line that build on the methodology used to estimate the foreign demand for selected products in Egypt from Nathan Associates (1999). Since observed import prices are based on the CIF value of imports and their corresponding volumes, tariff policy reforms for Egypt can easily be modeled by explicitly incorporating the tariff rate, and changes to that rate under different scenarios, into the price variable.<sup>6</sup>

Table 3.1 summarizes the results for the partial equilibrium analysis in terms of the direct effects (see Box 3.1 for a description of these effects). The effects for each of the five strategies are as follows:

*Free Trade.* Under this scenario the value of trade would expand by US\$976 million and US\$42 million of trade based on preferences would shift to the multilateral trading system. The model was solved in such a way that Government revenue from trade and indirect taxes would remain unchanged.

*Concertina Method.* In our simulation, the GOE would reduce existing tariffs above 30 percent to 30 percent, and raise the lowest rate to the next highest level not to exceed 10 percent, thereby compressing the tariff schedule while moving it towards a 10 percent rate. This approach would reduce the number of tariff bands from 21 to 6 and would also reduce the trade-weighted average for the products

#### Box 3.1: Direct Effects of Partial Equilibrium Analysis

Partial-equilibrium measures of trade liberalization estimate the production and consumption costs of tariff changes, as well as transfers that take place in the form of government revenue changes. The specific effects are as follows:

- *Trade creation effect* equals the change in the level of domestic demand for imported inputs and final goods from trading partners resulting from tariff-associated foreign price reductions relative to domestically produced goods.
- *Trade diversion effect* equals the substitution of imports between supplies originating from members of preferential trade arrangements and those originating from foreign suppliers subject to MFN rates.
- *Balance of payments effect* equals the combined effects of the trade creation and trade diversion effects.
- *Government revenue effect* equals the change in customs fees resulting from tariff cuts plus the change in indirect tax revenue resulting from the change in indirect taxes collected on imports, inclusive of customs duties.
- *Consumer welfare effect* equals the tariff reduction gains that consumers obtain from lower prices on imported goods.

<sup>6</sup> A spreadsheet-based model that accompanies the present study can be used to replicate the results of the study or develop other reform strategies.

**Table 3.1: Direct Effects of Tariff Reform at Year 5  
(US\$ millions and % change from base scenario)**

Strategy	Trade Creation		Trade Diversion		Balance of Payments	Total Revenue
	\$	%	\$	%	\$	\$
Free Trade	\$	976		-42	-934	0
	%	14.0		-0.6	-13.3	0
Concertina	\$	172		-10	-161	0
	%	4.5		-0.1	-2.3	0
Two-Tier	\$	145		-7	-137	0
	%	2.1		-0.1	-2.0	0
Uniform	\$	158		-8	-149	0
	%	2.3		-0.1	-2.1	0
Combination	\$	22		0.04	22	0
	%	0.3		0.0	-0.3	0

Source: Volume 3 of present report.

of preferential trade would shift to the multilateral trading system. Applying a 21.5 percent GST on imports would bring about the neutral government revenue effect.

*Two-Tier Method.* The model was solved for a tariff to be applied to inputs of 14 percent and a 19 percent tariff for final products that would have a revenue-neutral effect. The results of such a differential reduction would expand imports of the goods included in our sample by US\$145 million. The value of imports originating from non-preferential suppliers would also decline by US\$7 million, resulting in a negative effect on the balance of payments. A GST rate of 18.8 percent would result in a neutral government revenue effect.

*Uniform Tariff.* A 15.2 percent uniform tariff would generate a revenue-neutral effect. The application of that single tariff rate, which represents an average 15 percent tariff cut applied to all products included in our sample, would lead to a US\$158 million gain in the value of trade, and result in a contraction of imports from preferential suppliers of US\$8 million. The overall effect on the balance of payments would be negative. The government revenue effect would be neutral with a GST rate of 18.8 percent, which is the same as the GST rate for the two-tier method because of the similarity in their trade-weighted average tariff rates.

*Combination of Two-Tier and Uniform Tariff Strategies.* The results for the combination of a two-tier tariff structure in the first three years and a uniform tariff in the fourth and fifth years indicate that the total value of imports included in our sample would increase by US\$22 million, and that there would be a slight expansion of US\$0.04 million in imports from preferential suppliers. The overall balance of payments effect would be negative, and the government revenue effect would be neutral with the application of an 18.8 percent GST.

### 3.3 Macroeconomic Impact Assessment

The macroeconomic model for Egypt designed for this study is of an open economy that includes the determination of the trade and capital accounts of the balance of payments

selected for this analysis from 18 percent to 13 percent. For those products, the concertina strategy would result in a US\$172 million increase in imports at the end of the fifth year of implementation.

About \$10 million

(see Volume II, Annex IV, for a full description of the model). The modeling procedure has sought to account for the structure of the Egyptian economy, the availability of data, and the degree of stability of time-series estimates of parameters during the country's transition process. The resulting model allows for considerable flexibility in the selection of the policy mix and instruments for the targets of a program, and it offers a means of quantitatively evaluating the impact of trade liberalization and other economic policy reforms on the country, and assessing the feedback effects that changes in key macroeconomic variables produce in other sectors. The nature of the model therefore makes it tractable from an operational point of view.

To arrive at the overall and sector-specific levels of economic activity, the model derives solutions for four major blocks: the national income accounts block, the public sector block, the financial sector block, and the balance of payments block. The balance of payments block generates information about the major balance of payments components, and it yields a solution to the balance of goods and non-factor services, which is then used in the national income accounts block. The national income accounts block contains a considerable amount of interrelationships between the endogenous variables in the system in order to capture feedback effects in the economy, including those in the public sector block. The financial sector block helps to determine the real and nominal variables in the economy.

In general, the results for the five trade liberalization strategies are consistent with expectations about the effects of trade liberalization on the Egyptian economy (see Table 3.2). The magnitude of the influence of trade policy reform on fiscal revenue, real economic activity (GDP, consumption, investment, imports and exports) and price-related variables (interest rates and the prices) are calculated through multiplier analysis. The first-period effect is the impact multiplier; the interim multiplier measures the effect after 5 years, when full implementation of the new tariff structure takes place, and the cumulative multiplier is measured at year 20, a period of time that is sufficient for all dynamic adjustments to the new tariff structure to occur. In all cases, tariff cuts have an immediate impact on the overall import value, fiscal revenue and investment activity. The interim response after 5 years is about two-thirds that of the total long-run response, suggesting a fairly quick adjustment to the tariff changes.

All strategies generally impact the Egyptian economy in somewhat similar manners because the average tariffs are quite similar. A lower overall tariff rate stimulates gross capital formation through domestic investment, which in turn stimulates overall growth of the economy. The increased national income further stimulates private consumption, while current expenditures of the Government contract in response to the lower trade tax revenue. The GOE nevertheless receives some compensation for the reduced trade tax revenue from increased tax revenue from other sources as a result of the private sector's expanded economic activity.

<b>Table 3.2</b>				
<b>Multiplier Analysis of Alternative Tariff Structures on Key Macroeconomic Variables</b>				
<b>(Percent change and US dollars)</b>				
	Unit of Account	Multiplier (%)		
		Impact (1 year)	Interim (5 yrs)	Total (20 years)
<b>Imports of goods</b>				
Free Trade	Nominal US\$	1.6%	5.1%	6.6%
Concertina	Nominal US\$	0.2%	0.4%	0.6%
Two-Tier	Nominal US\$	0.2%	0.5%	0.9%
Uniform	Nominal US\$	0.2%	0.6%	0.6%
Combination	Nominal US\$	0.3%	0.6%	0.9%
<b>Imports of goods and nfs</b>				
Free Trade	Constant LE	1.1%	3.2%	4.2%
Concertina	Constant LE	0.2%	0.4%	0.5%
Two-Tier	Constant LE	0.2%	0.4%	0.7%
Uniform	Constant LE	0.2%	0.4%	0.7%
Combination	Constant LE	0.2%	0.5%	0.7%
<b>Trade tax revenue</b>				
Free Trade	Constant LE	-30.8%	-65.7%	-93.6%
Concertina	Constant LE	-16.0%	-19.2%	-21.4%
Two-Tier	Constant LE	-8.0%	-17.8%	-25.2%
Uniform	Constant LE	-8.0%	-17.8%	-25.2%
Combination	Constant LE	-7.9%	-17.7%	-25.2%
<b>Other tax revenue</b>				
Free Trade	Constant LE	0.1%	0.0%	-1.5%
Concertina	Constant LE	0.0%	0.2%	0.3%
Two-Tier	Constant LE	0.0%	0.1%	0.2%
Uniform	Constant LE	0.0%	0.1%	0.2%
Combination	Constant LE	0.0%	0.1%	0.2%
<b>Gross capital formation</b>				
Free Trade	Constant LE	1.7%	4.3%	6.8%
Concertina	Constant LE	0.7%	1.4%	1.8%
Two-Tier	Constant LE	0.4%	1.2%	2.0%
Uniform	Constant LE	0.4%	1.2%	2.0%
Combination	Constant LE	0.4%	1.1%	2.1%
<b>Real GDP</b>				
Free Trade	Constant LE	0.1%	-0.4%	-1.8%
Concertina	Constant LE	0.3%	0.4%	0.3%
Two-Tier	Constant LE	0.1%	0.3%	0.2%
Uniform	Constant LE	0.1%	0.2%	0.2%
Combination	Constant LE	0.1%	0.2%	0.2%

### **3.4 Partial Equilibrium and Macroeconomic Impact Comparison**

Partial equilibrium analysis provides greater product coverage detail and therefore greater reliability in identifying the direct effects of trade liberalization than does the macroeconomic analysis. The macroeconomic analysis, however, captures the interaction between changes in trade and real economic activity and its consumption, investment, imports and exports components, as well as price-related variables, and therefore offers a better perspective of the open economy adjustment process to trade liberalization. In general, the difference between the results of the two approaches arises from the transmission of trade adjustments to the open Egyptian economy and the feedback effects that these adjustments in the national income components have on trade.

## 4.0 Industry-Level Adjustments

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### 4.1 Background

Disaggregation at the industry level reveals significant heterogeneity across sectors in terms of tariff protection and industry characteristics that include potential impediments to structural adjustments. The potential magnitude and direction of adjustments across these sectors depend on the numerous channels through which relative price changes can impact Egypt's industries. Trade liberalization changes prices of traded goods relative to each other. It also changes the price of factors of production, and the relative prices of non-traded goods by changing prices of intermediate inputs. Liberalization also changes real output through increased opportunities for export earnings and price reductions. These price changes in turn influence the production, consumption, and investment decisions of individual firms in each industry in different ways, and these differences are likely to be especially great among large-scale enterprises, state-owned enterprises (SOEs) and small and medium size enterprises (SMEs).

These effects suggest the following analytical strategy for measuring Egypt's industry-level response to trade liberalization: identify the set of industries and their input and final product prices that most influences their output decisions, estimate the price and output effects of trade liberalization, and use these estimates to determine the adjustments induced by trade liberalization. The industry-level coverage of this study is based on industry size, trade exposure, and an attempt to cover a range of processing activities from basic manufacturing and agriculture to skilled and technology intensive activities that reflect the range of production activities in which Egypt has either a 'revealed' or potential comparative advantage. The analysis focused on 46 industries, about half of which are industrial manufacturing and the remaining half are agricultural based. The selection of these industries was naturally based on data availability and it excluded Egypt's minerals and petroleum based industries, since these are unlikely to be directly affected by any tariff reform.

In estimating the likely effect of tariff reforms on input and final product prices, we calculated more disaggregated estimates of ERPs than have been previously available.<sup>7</sup> The impact of the five alternative reform strategies discussed in Chapter 2 are then

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<sup>7</sup> The effective rate of protection (ERP) measures how tariffs on a product and its tradable inputs jointly affect the value-added of a particular activity. When only the nominal rate of protection (NRP) is calculated, the imposition of a tariff on an imported good suggests that domestic producers of that product will be encouraged to increase their output. However, whether they increase output depends not only on the tariff on the import, but on the tariffs applied to inputs used in their production processes. While domestic producers are given an implicit subsidy on their production when there are tariffs on competing imports, they also face a tax on their imported inputs, which can neutralize the effect of the implicit subsidy. The ERP therefore measures the net protection on the production processes, rather than simply the gross protection on an industry's output.

estimated by recalculating the ERPs under the variety of alternative tariff reforms. We then estimate supply elasticities for the industries and use the results to quantify the magnitude of the required tariff-induced output adjustment for each tariff scenario and for the benchmark of free trade. The adjustment related issues that are considered are those that are particularly important for Egypt, namely those related to labor and foreign direct investment (FDI).

## 4.2 Effective Rates of Protection

Overall, the mean average ERP for the 46 industries included in our sample is 65 percent, a rate that is substantially higher than the already high average NRP of 25 percent (see Table 4.1). Agriculture-related industries have the highest mean average ERP (93 percent) of the three sectors, compared with its average NRP of 25 percent. Public and private industrial activities have very similar average ERPs of just over 50 percent, compared with equally similar NRPs of around 25 percent. These results suggest that disaggregated estimates for individual industries and private versus public activities generally yield higher ERPs than those for more aggregated products groups (see, for example, Kheir-El-Din (1998) and Nathan Associates (1998)).

One of the reasons for the higher estimates from disaggregated industry measurements is the likelihood that the individual estimates take into account the otherwise offsetting levels of protection among industries. Our estimates show that there is considerably more dispersion among the ERPs of industries than among their NRPs, which suggests that some industries are more protected relative to others than is revealed by the level of protection on their output.

At the individual industry level, most of the ERPs exceed their corresponding NRPs, especially the industries producing soaps and cosmetics, motor vehicles, carpets and rugs, bakery products, meat preservation, certain fats, and macaroni and related products. Private and public sector ERPs mimic each other somewhat, although there are significant level differences and sometimes differences in ranking. For example, motor vehicles are much more protected in terms of ERP in the private than in the public sector.

These results generally suggest that the tariff schedule favors some industries to a much greater extent than suggested by the nominal tariff rates. To the extent that these industries are able to lucratively “pull” resources toward them and away from the less protected sectors, the existing tariff structure produces a misallocation of resources from investors expanding output in the protected sectors.

The level of effective protection in the sample industries has been calculated under each of the alternative reform strategies discussed in Chapter 2. The results were as follows:

*Free Trade:* In the absence of any protection, all tariffs would be zero and so the NRPs and the ERPs would also be zero. Firms in industries that are afforded high levels of effective protection relative to other sectors would expect to see profits

**Table 4.1: Industry-Level Effective Protection under Existing and Alternative Reforms (percent)**

	NRP	ERP	ERP under Alternative Reforms	
			<i>Two-Tier</i>	<i>Concertina</i>
<b>Sector Averages:</b>	24.6	64.7	34.3	46.1
Agriculture	25.3	93.0	40.8	62.8
Industrial Public Sector	23.9	51.5	32.7	40.0
Industrial Private Sector	24.6	51.2	30.9	37.9
<b>Sector Standard Deviations:</b>	13.9	75.4	16.4	52.8
Agriculture	19.0	110.9	21.7	75.6
Industrial Public Sector	10.9	39.0	10.2	35.9
Industrial Private Sector	10.4	37.5	9.3	25.6

Source: Volume 5 of present study.

greatly reduced by the removal of such protection, while those with low levels of protection would face a more level playing field in their input markets. Moreover, export-oriented firms would experience a movement from negative to neutral incentives and, on balance, these firms would expand output and employment.

*Uniform Tariffs:* If all tariffs were to be set at the revenue neutral rate of 16 percent, then the ERP for each industry would equal the corresponding 16 percent NRP. Those firms whose current ERPs are above 16 percent would confront a less favorable treatment, and those below the new uniform rate would see their relatively unfavorable treatment enhanced. The direction of the overall output effects would thus resemble free trade, a compelling argument for uniform tariffs, although the import-competing industries would still be favored over the exporting oriented industries.

*Two-Tier Tariffs:* Based on the discussion in Chapter 2, we adopted a tariff for outputs of 20 percent and a tariff for inputs of 15 percent for all industries. Generally, the overall ERP fall from 65 to 34 percent, with the greatest decline occurring in the agricultural industries (from 93 to 41 percent, with a decline in the standard deviation of the tariff schedule from 111 to 22 percent. For the more industrial sectors, both average ERPs of the public and private sectors fall from 51 to 31 percent, and the standard deviations fall from nearly 40 to around 10.

*Concertina Tariff:* In general, the concertina approach reduces the effective protection of the industries considerably less than any of the other reform strategies. In comparison to the 34 percent average rate under the two-tier tariff structure, the average tariff is 46 percent. This approach would cut most output tariffs as well as many input tariffs. While some tariffs are raised, none are raised by as much as with the two-tier experiment. Consequently, effective protection is not reduced by as much as the two-tier ERP. The increased standard deviation relative to the two-tier reform results from the existence of more tariff brackets.

### 4.3 Output Response to Reform

Using estimates of the supply relationships for each of the industries in our sample, we derived the impact of reforms on the output responses of those industries.<sup>8</sup> Output changes incorporate two types of adjustments. The first is the increase or decrease in output due to tariff-induced cost adjustments. The second is the movement along the supply curve brought about by the output price change from the tariff reform. Even if all tariffs were reduced, output could expand or contract. The net effect of any tariff reform on output and employment at the industry level is therefore an empirical issue, which are summarized for the alternative reform strategies as follows:

*Free Trade:* With tariff escalation, free trade would result in a contraction of most import-competing sectors, and export-oriented industries would benefit from the elimination of input tariffs. Despite the contraction for firms directing their output to the domestic market, the adverse impact of losing output protection is substantially mitigated by the cheaper tradable inputs. For example, despite the fall in price due to a loss of tariff protection of nearly 30 percent for carpets and rugs in the private sector, the output reduction is greatly reduced by a nearly 16 percent decrease in costs owing to a reduction in tradable input duties. This cost reduction effect is significant in other contracting industries as well.

*Uniform Tariff:* With a 16 percent revenue neutral uniform tariff, output for many industries in the more industrial sector falls by nearly as much as free trade. The decline, however, is caused by Egypt's escalation of its current tariff structure. While output tariffs are considerably reduced, tariffs on tradable inputs are generally higher after reform. The resulting cost increases therefore contributes to the output reduction.

*Concertina Tariff:* This type of tariff structure generally causes the least contraction in import-competing firms. For industry final goods, tariffs would be maintained at relatively high rates, and input tariffs would be lowered, thereby reducing costs and encouraging output expansion

*Two-Tier Tariff:* With tariffs of 15 percent for inputs and 20 percent for outputs, there is a more modest output effect than with the uniform tariff since there are relatively higher output tariffs and lower input tariffs than with the uniform tariff reform. Negative effects on import-competing firms are lower than with the uniform tariff because the two-tier output tariff is higher and the input tariff is lower than with the uniform rate of 16 percent.

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<sup>8</sup> Estimates of the industry supply relationship were based on a log-linear distributed lag model with price, and income or a time trend as the explanatory variables.

#### **4.4 Factor Market Adjustments**

Relative price changes caused by tariff reforms would be accompanied by output changes and associated changes in the demand for factors of production such as labor, land, and capital. Past experiences of other countries are not useful guidelines for the impact of trade liberalization on labor and other factor markets since many trade reform episodes have been concurrently undertaken with macroeconomic stabilization policies (Harrison and Revenga, 1998). Concerns by policy-makers embarking on tariff reform are grounded on fears that short-term adjustment costs might include rising poverty and unemployment, which could threaten the sustainability of reforms. In the capital markets, there is ambivalence over the impact of trade reform on foreign investment, and specifically whether liberalization will attract new investment or lead existing investment to leave the country.

Drawing on both the present industry-level analysis and several studies commissioned by the DEPR project, we examine available evidence on the linkage between trade reform, labor and other factor markets and FDI. The evidence suggests that employment and wage effects of trade reform are generally small. First, labor is fairly dynamic in the face of change and real wages are relatively flexible. Second, the informal sector operates outside of much of the regulatory environment, and the lack of compliance and enforcement of labor market regulations allows labor markets to adjust quickly to changing circumstances. Third, trade reforms are often implemented in conjunction with other reforms, including broad-based tax and exchange rate reforms that offset any short-term adjustment costs. Finally, there is clearer evidence that trade reforms attract rather than dampen foreign investment because of the positive attitude towards foreign investment directed at export-oriented industries that often accompanies trade reform.

##### ***Labor Markets***

Assuming fixed labor-output requirements in the short run, we calculated the employment changes associated with trade reforms using the output adjustment estimates described in the previous section. The results show that employment effects tend to mirror the output changes induced by adjustment to any new tariff structure: the free trade reform is associated with the largest declines in the demand for labor in the impacted industries and the concertina tariff reform with the smallest declines. There are, however, significant differences at the industry level. For example, in the public sector, iron and steel requires a smaller decline in employment with the two-tier reform than with the concertina reform, while the glass and glass products industry has exactly the opposite experience. Furthermore, the demand for labor of some industries increases even for the import-competing sectors under consideration. For example, in the public sector, drugs and medicine require more labor in every reform scenario except free trade. In the more agricultural products sector, the concertina reform in particular leads to employment expansion even for import-competing firms in several industries.

Several recent studies suggest that trade reform has had positive impacts on employment, even in the short-run, in a variety of countries. For example, a World Bank study (Papageorgiou, Choksi, and Michaely (1990)) concludes that trade liberalization did not result in decreased employment in the short run. A more recent study by Matusz and Tarr (1999) found that in virtually every case of trade reform, the degree of adjustment has been relatively small compared with the natural dynamics of the labor force. The flexibility and mobility of the labor force is clearly a critical factor in assessing the ability of the labor force to shift from declining to expanding sectors without creating much unemployment.

In Egypt labor adjustment need not be very disruptive if the reform package were implemented over a period of as short as two or three years given estimated labor turnover rates in the industries studied. Survey data indicate a “natural” turnover rate of 8.5 percent for Egyptian firms on average, which means that even a 17 percent required labor force reduction could be accomplished over this period through retirements and voluntary separations for the average firm.

### ***Foreign Direct Investment***

There is some evidence that much of the FDI is in fact “tariff jumping” by foreign investors hoping to prosper in the domestic Egyptian market with the benefit of protection from offshore competition. About 56 percent of foreign investment is currently targeted at the protected manufacturing sector. Most recently, chemical products and iron and steel have been particularly attractive sectors to FDI.

To the extent that the foreigners invest in Egypt to take advantage of protected markets, the investment drains foreign exchange reserves. The reason is that the foreign capital is paid its value marginal product at artificially high domestic prices, and when profits are repatriated the foreign capital receives a return over and above the value of what it produced measured at world prices (see, for example, Brecher and Diaz-Alejandro (1977)). With trade liberalization, foreign investors in Egypt would have a strong incentive to redirect its activities to less protected sectors.

Since there is strong evidence that trade reforms and macroeconomic stability have a much more positive impact on FDI inflows than protected industries, customs duty exemptions, and tax holidays for foreign investors, Egypt’s favorable macroeconomic climate and proposed trade policy reforms should stimulate foreign investment inflows into the country’s true comparative advantage industries.

## 5.0 Fiscal Revenue Implications

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### 5.1 Background

The GOE's macroeconomic stabilization policies have been aimed at creating the fundamental conditions needed for internal and external balance, anchoring the nominal exchange rate, and removing price distortions through economic reforms encompassing trade liberalization, fiscal reform, privatization and deregulation. Fiscal stabilization has been one of the key ingredients for the establishment of the fundamental conditions needed for macroeconomic stability, while the nominal exchange rate anchor has been used to facilitate disinflation. Since taxes on international trade represent one-fifth of the Government's total tax revenue, any discussion about trade liberalization must weigh the fiscal revenue implications against efforts to further integrate the Egyptian economy into the global economy. Moreover, a new round of trade liberalization under the current nominal exchange rate anchor could aggravate the trade deficit and thereby undermine the external balance.

It is in the context of the need to coordinate this broad set of macroeconomic stabilization and economic reform policies that the present study has included the design and estimation of a macroeconomic model to assess trade and exchange rate policy reforms (for a description, see Volume II, Annex IV, of this study). The model is designed to support the formulation and sequencing of a new round of trade policy reforms in a manner that is economically and technically viable, supporting the GOE's overall reform program, and responsive to private sector needs. By its very nature, however, it also provides a broad analytical framework for the GOE to examine the macroeconomic stabilization and economic reform policies needed to move the country into a higher growth trajectory.

#### *Macroeconomic Context of Trade Policy Reforms*

The GOE's strategy for stabilization has been rooted in policies aimed at (a) establishing the fundamental conditions needed for internal and external balance, (b) pegging the exchange rate, and (c) removing price distortions through economic reforms encompassing trade liberalization, fiscal reform, privatization and deregulation. Internal balance in output and inflation has been achieved through fiscal stabilization and monetary restraints. The successful reduction in the fiscal deficit from 20 percent of GDP in 1990/91 to around 1 percent in 1998/99 reflected both revenue increases and expenditure cutbacks. The earlier fiscal deficits and large liquidity expansion needed to finance those deficits had helped to maintain annual inflation rates of around 20 percent in the 1980s, but with fiscal austerity, inflation eventually decelerated to around 4 percent after 1997. The Government has opted to use the exchange rate as a nominal anchor, and that disinflation strategy has been supplemented by strict monetary and credit controls.

External balance was initially achieved through a series of nominal depreciations between 1989 and 1991 that helped to reverse the large current account deficits during the first part of the 1990s. Adjustments of the trade balance did not, however, contribute as much to the improvement as did those of the services balance. Merchandise exports contracted in the early part of the decade and remained sluggish until the middle of the decade. Although those exports grew by 11 percent annually in that period, they fell sharply in 1998 as a result of the Asian crisis-induced global trade recession. Under these conditions, the value of goods exported at the end of the 1990s only reached about two-thirds of its existing value at the beginning of the decade and, consequently, Egypt's share of world trade fell from 0.14 to 0.06 percent during the decade. In contrast, merchandise imports expanded by nearly 50 percent during the decade, notwithstanding sharp cutbacks in 1991-92. The effect of these developments on the economy have been large since the combined value of exports and imports of goods and non-factor services currently represents 40 percent of gross domestic product (GDP).

The resulting trade deficit has been only partly compensated by income from invisible transactions in the form of tourism receipts, Suez Canal dues and workers' remittances, and these revenue sources tend to be unstable. Capital inflows have increasingly been relied upon to finance the growing current account deficit, but these inflows have required aggressive sterilization on the part of the Central Bank of Egypt (CBE) to offset the increase in foreign capital. Initially, the initial impact of sterilization on lowering interest rates lent support to rising investor confidence in the pegged exchange rate system, but foreign direct investment (FDI) and other net capital inflows have fallen short of the current account deficit.

Notwithstanding these difficulties, there is no doubt that Egypt has prospered under its macroeconomic policies. The benefits of the Government's strategy have included low inflation, disciplined financial policy, and a stable external environment. Capital inflows have bolstered the country's long-term growth prospects by increasing investment and confidence. Trade conditions have also improved from a decade ago. The GOE has moved from import substitution policies to an export-led strategy based on a series of trade policy reforms instituted that have aimed at liberalizing trade through three types of measures. First, import tariffs have been reduced; second, quantitative import measures have been replaced with tariffs and non-tariff barriers (NTBs) to trade have been greatly reduced; and third, exports have been promoted through the easing of administrative procedures. While these measures have gradually opened trading activities to the private sector, the Government recognizes that high levels of import restrictions remain that, despite offering domestic industries substantial protection from foreign competition, give rise to inefficiencies in the economy and reduce the international competitiveness of firms.

### ***Fiscal Revenue Effects of Trade and Exchange Rate Reforms***

The efficiency gains from further trade liberalization need to be weighed against the Government's strategy for achieving internal balance, largely through fiscal austerity and the maintenance of fiscal revenues. While total tax revenue since the start of the reforms has remained fairly stable relative to GDP, non-tax revenue has contracted from 14 to less than 9 percent of GDP between the start and end of the last decade. Tax revenue has therefore had to support an increasingly larger portion of fiscal expenditures, and since taxes on international trade currently represent about one-fifth of the Government's total tax revenue, the fiscal revenue implications of such an initiative are especially important to the GOE.

Without exchange rate realignment, a new round of trade liberalization under the existing nominal exchange rate anchor could aggravate the trade deficit and further undermine the external imbalance. Although the pegged exchange rate system has been successfully used as part of the Government's disinflation strategy, it has also resulted in large and pervasive deterioration in Egypt's international competitiveness. In the last decade alone, Egypt's real effective exchange rate (REER) appreciated by 66 percent, partly as a result of the nominal exchange rate appreciation, but mainly as a consequence of substantial inflation differentials with partner countries. A reversal in that trend would ideally come about through an equilibrium exchange rate that not only yield a current account balance that was consistent with capital inflows, but one that also generate an internal balance in terms of output, inflation and employment.

## **5.2 The Macroeconomic Model**

The study extends an earlier elasticities-absorption approach to the balance of payments to the analysis of the consequences of tariff reforms on the Egyptian macro-economy, particularly as it relates to fiscal revenue implications.<sup>9</sup> Since capital movements and the extent of their mobility play a critical role in the analysis of economic policies, we also consider alternative assumptions about policies impacting on their mobility. While trade liberalization by itself is likely to improve the efficiency of the economy and therefore impact on output and employment, it may also aggravate the current account imbalance. We therefore include in the analysis complementary exchange rate adjustments that would help to produce a sustainable balance of payments and move the Egyptian economy closer to overall equilibrium.

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<sup>9</sup> The elasticities approach to the balance of payments is described in an earlier study by DEPRA (Lord, 1999). It examines the conditions needed to determine the fundamental equilibrium exchange rate (FEER) for Egypt's balance of payments.

### 5.3 Policy Impact Assessments

Three sets of simulations have been performed with the model. The first provides the benchmark against which policy impact assessments are measured. The second set assesses the impact of alternative trade liberalization policies that include free trade, concertina, two-tier, a uniform, and a combination of two-tier and uniform rate tariffs. The final set evaluates the impact of a real effective exchange rate devaluation to neutralize the initial effects of trade policy reforms on the balance of payments, the national income accounts on the expenditure-side, and the money supply, prices and real exchange rate. Such a realignment in the exchange rate often accompanies trade liberalization to bring the exchange rate more in line with a level that is consistent with a sustainable medium-term external position under a situation in which there are lower trade barriers.

The forecasts generated by the model are indicative of the direction of the economy and should be interpreted with caution since the model results depend on key assumptions and are demand-driven, insofar as they exclude details about the production-side of the economy. Nevertheless, the results provide a parsimonious representation of the Egyptian economy that yield an internally consistent set of estimates about the likely outcome of events over the next few years. For the baseline forecast, they therefore point to important issues about the near-term prospects of the economy.

<b>Table 5.1</b>		
<b>Impact of Alternative Tariff Structures on Key Macroeconomic Indicators</b>		
<b>(Annual percent change and average annual US dollars)</b>		
	<b>2000-2004</b>	<b>2005-2009</b>
<b>Trade Balance (average annual Mil. US dollars)</b>		
Current Tariff Structure	(10,742)	(14,570)
Free Trade	(11,596)	(16,396)
Concertina	(10,811)	(14,729)
Two-Tier	(10,829)	(14,796)
Uniform	(10,835)	(14,788)
Combination	(10,843)	(14,795)
<b>Import Duties / Total Tax Revenue (percent)</b>		
Current Tariff Structure	18.1%	16.4%
Free Trade	6.4%	0.0%
Concertina	15.1%	13.2%
Two-Tier	15.4%	12.4%
Uniform	15.4%	12.5%
Combination	15.4%	12.5%
<b>Trade tax collection rate (duties/imports)</b>		
Current Tariff Structure	17.9%	17.9%
Free Trade	7.2%	0.0%
Concertina	15.0%	13.1%
Two-Tier	16.9%	16.3%
Uniform	16.8%	16.1%
Combination	16.5%	16.1%
<b>Import Duties / GDP (percent)</b>		
Current Tariff Structure	3.1%	2.9%
Free Trade	1.1%	0.0%
Concertina	2.5%	2.2%
Two-Tier	2.5%	2.2%
Uniform	2.5%	2.1%
Combination	2.5%	2.1%
<b>Fiscal deficit / GDP (percent)</b>		
Current Tariff Structure	-1.5%	-2.4%
Free Trade	-2.9%	-3.9%
Concertina	-1.9%	-2.7%
Two-Tier	-1.9%	-2.8%
Uniform	-1.9%	-2.8%
Combination	-1.9%	-2.8%

### ***Fiscal Impact of Trade Liberalization***

Table 5.1 illustrates the effect of alternative tariff strategies on fiscal revenue and the GOE budget. In general, the results are consistent with expectations about the operation and effect on the Egyptian economy from trade liberalization. The results for trade and key macroeconomic variables were discussed in Chapter 3. The smaller expansion of imports under the alternative strategies than under complete free trade generates a lower trade deficit. Given the similarity in the average tariff rates among the various strategies, they produce little, if any, differences in their fiscal impact.

### ***Exchange Rate Adjustments during Trade Liberalization***

A devaluation is often needed to counter the trade balance effect of trade liberalization. In the present model, the overall results of the estimated import and export demand functions, as well as foreign direct investment, support generalizations to the effect that the exchange rate significantly impacts on Egypt's balance of payments. For the Government's fiscal position, the devaluation increases the domestic currency value of imports and the associated trade tax revenue. On the expenditure side, the fall in the relative price of tradables and rise in that of wages and non-tradables produces a less than proportional response of the exchange rate devaluation to that of trade liberalization because of the substitution in production or consumption of tradables and non-tradables. Trade liberalization will cause the private sector price of non-tradables to rise. Since the Government is either exempt from tariffs or pays the tariff to itself, the liberalization of trade does not impact on the public sector's cost of tradables. But in the case of a devaluation, the relative cost of tradables to the public sector rises, thereby worsening the fiscal deficit and requiring overall expenditure cutbacks. The experiences of other countries suggest that these fiscal deficit effects need to be corrected early in the trade and exchange rate reform processes.

The magnitude of the effects of exchange rate changes on Egypt's balance of payments and the economy in general can be readily calculated through multiplier analysis. The results indicate how exchange rate changes influence the current and capital accounts, the overall balance of payments, and the national income accounts. Table 5.2 illustrates the effect of a one-time 10-percent devaluation in Egypt's real effective exchange rate. The devaluation is based on an across-the-board devaluation of the Egyptian pound relative to each of the country's major trading partners. As such, it considers the effect of a real cross-rate devaluation of the Egyptian pound in each of its major export products and geographic markets. For imports and foreign direct investment, the devaluation is at the world market level, since a devaluation of the Egyptian pound would not influence the source of Egypt's imports.

The results show that a 10-percent real effective exchange rate devaluation would significantly impact on Egypt's economy. In the balance of payments, merchandise exports adjust almost entirely within the first period. A 10-percent devaluation leads to a 6.7 percent expansion in the US dollar value of exports in the year of the devaluation and

a 7 percent expansion in the medium term. Imports adjust more slowly, but their response to the feedback effect between the effect of the devaluation on the balance of payments and the national income account eventually leads them to expand by more than their level under a constant exchange rate. Initially, the value of imports would decline, but the expansion in real GDP associated with the improved balance of trade on goods and non-factor services eventually leads to an increase in imports, albeit by a substantially smaller growth rate than that of exports. A similar situation to that of merchandise trade occurs with trade in services. In the capital account, the devaluation leads to a substantial contraction in foreign direct investment. The reason is that the real effective exchange rate devaluation increases the cost of imported material inputs and thereby lowers the incentive to expand cross-border production facilities in Egypt. It is likely, however, that with lower costs of imported material inputs under reduced trade barriers and an unprotected market, foreign direct investment will shift from inward-oriented production to outward-oriented production. These structural shifts are not considered in the present model, but could be introduced were more details FDI information available for industries.

With the 10 percent devaluation, the fiscal situation improves in the medium run, notwithstanding an initial contraction in trade taxes of 2.8 percent below the equivalent revenue with a constant exchange rate. However, trade taxes expand by over 4 percent above the constant exchange rate solution in the medium term because of the economic growth induced expansion in imports. Real GDP grows by nearly 2 percent more than without a change in the real exchange rate, and it expands by over 3 percent in the medium term. In the short run, the expansion is driven by private consumption, and in the medium term it is private consumption, gross capital investment and exports that generate the economic expansion.

These results point to the effectiveness of exchange rate changes in Egypt as an equilibrating instrument for the current account and one that can be used to replace trade restrictions an instrument with which to achieve a sustainable medium-term external position. For fiscal revenue the results show that the elimination of the overvaluation of the Egyptian pound expands the share of trade taxes following the initial contraction and, because of the positive tax revenue effect, the devaluation leads to a medium-term improvement in the fiscal balance. Moreover, the elimination of the overvalued currency substantially expands the real value of imports measured in domestic prices. As a result, there are positive medium-term effects on the fiscal balance from the larger domestically priced tax base and the larger tax revenue generated from increased investment and consumption by the private sector.

**Table 5.2: Effect of 10% Devaluation on Egypt's Economy (Percentages)**

	Unit of Account	Multiplier (%) Impact	Total
<b>Balance of Payments</b>			
Goods: Exports f.o.b.	Nominal US\$	6.7%	7.0%
Goods: Imports f.o.b.	Nominal US\$	-2.8%	4.1%
Services: Credit	Nominal US\$	1.2%	2.7%
Services: Debit	Nominal US\$	-2.5%	3.1%
Direct Investment in Egypt	Nominal US\$	-7.9%	-8.5%
<b>National Income Accounts</b>			
Exports of Goods and NFS	Constant LE	1.6%	3.6%
Imports of Goods and NFS	Constant LE	-2.7%	3.9%
Total Investment	Constant LE	-0.7%	2.8%
Total Consumption	Constant LE	1.9%	3.2%
Government Consumption	Constant LE	0.0%	2.9%
Private Consumption	Constant LE	2.2%	3.3%
Gross Domestic Product	Constant LE	1.7%	3.1%
<b>Government Revenue and Expenditures</b>			
Total Revenue	Constant LE	-0.5%	2.7%
Tax Revenue	Constant LE	-0.7%	3.4%
Tax on trade	Constant LE	-2.8%	4.1%
Others	Constant LE	-0.2%	3.2%
Total Expenditures	Constant LE	0.0%	2.1%
Current Expenditure	Constant LE	0.0%	2.9%
Wages	Constant LE	-0.2%	3.2%
Other expenditures	Constant LE	0.1%	2.7%
Source: Volume II, Annex IV of present study.			

While issues of public finance are beyond the scope of the present analysis, it is clear from the present fiscal impact assessment of trade liberalization in Egypt that tax reform needs to be an integral part of tariff reforms. Tariff reform should be viewed as part of a broader program of tax reform that supports the transition from a large dependence on trade taxes for fiscal revenue to a broad tax revenue base that ensures revenue growth and stability and increases productivity at the firm level from the more efficient use of existing resources under freer trade.

## 6.0 Global Consequences

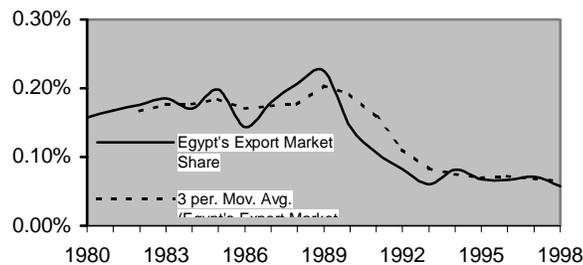
### 6.1 Background

The rapid expansion of global production and markets in the last two decades has given rise to systemic changes in the world economy. The introduction of new technologies through cross-border production networks and the dissemination of new skills in the workforce have now become as important to the specialization of production activities in countries as their capital, labor and natural resource endowments. For Egypt, however, these changes have not generated a proportional expansion of international transactions and capital flows, nor have they created the widespread diffusion of production, transportation, and communication technologies that has been evident in other developing countries. During the 1990s, for example, FDI inflows into Egypt increased by an average of less than 8 percent a year, nearly one-half the 15 percent annual growth in the rest of the world.

More strikingly for Egypt, the US dollar value of exports contracted by an average of 5.4 percent in the 1990's, compared with a 7 percent average annual growth of world trade. As a result, Egypt's market share in the global economy is now half of what it was at the beginning of the 1990s. In large part, this lackluster performance is the result of Egypt's trade policy. Out of the 26 countries examined, no country exhibited a higher number of import barriers than Egypt and, as mentioned in Chapter 2, Egypt has one of the highest average tariff rates in the world.

To evaluate the prospect of globalization on Egypt under its present trade regime and the possible effects of alternative liberalization strategies on its world market position, the present study used a global general equilibrium model to compare the Egyptian economy in a projected 2005 baseline to an alternative set of projected 2005 scenarios under the alternative liberalization strategies. Like other recent applications of CGE analysis to trade liberalization, the study relied on a modified version of the Global Trade Analysis Project (GTAP) database and its general-equilibrium framework (Hertel, 1997) for the analysis of tariff liberalization. The baseline scenario involves projection of the global economy using the scheduled Uruguay Round liberalizations and World Bank macroeconomic forecasts through the year 2005.

**Figure 6.1**  
Egypt's Global Export Market Share



## 6.2 Modeling Approach

The multi-region computable general equilibrium (CGE) model is characterized by an input-output structure based on regional and national input-output tables that explicitly links industries in a value added chain from primary goods, over continuously higher stages of intermediate processing, to the final assembling of goods and services for consumption. Inter-sectoral linkages are direct, like the input of steel in the production of transport equipment, and indirect, via intermediate use in other sectors. The model captures these linkages by modeling firms' use of factors and intermediate inputs. Within each region, firms produce output, employing land, labor, and capital, and combining these with intermediate inputs. Firm output is purchased by consumers, government, the investment sector, and by other firms. Firm output can also be sold for export. Land is only employed in the agricultural sectors, while capital and labor (both skilled and unskilled) are mobile between all production sectors. Capital is fully mobile within regions. However, capital movements between regions are not modelled, but rather are held fixed in all simulations. Labor mobility is discussed below. All demand sources combine imports with domestic goods to produce a composite good. These are called Armington composites.

The data were derived from a number of sources. Data on production and trade are based on national social accounting data linked through trade flows. With the exception of Egypt, these social accounting data are drawn directly from the GTAP database. Egyptian data are based on value added and input-output data from CAPMAS, along with more detailed Moroccan input-output coefficients, and along with trade data and macro data from the World Bank and the GTAP consortium. The resulting global dataset is benchmarked to 1997, and includes detailed national input-output, trade, and final demand structures. The basic social accounting and trade data are supplemented with trade policy data, including additional data on tariffs and non-tariff barriers.

## 6.3 Impact Assessment

### *Cost of Non-Adjustment*

One way to consider an import reform program is to examine the costs of not reforming and adjusting to global markets. In the case of tariff reductions, the costs of non-adjustment would include foregoing the benefits of reform. The benefits that are foregone are many. First, they include foregoing output growth insofar as countries that have undertaken reforms have grown faster than those that have not. Higher growth rates result from static gains, from an improved allocation of resources, and from dynamic gains, from gaining access to technology and know how that allow countries like Egypt to move closer to the world technological frontier. A second cost of non-adjustment would result from giving up a higher rate of employment creation, due to both a lower output growth rate and the reallocation of resources into more labor-intensive activities in which Egypt has a comparative advantage. Third, not undertaking reforms would mean foregoing the

reallocation of resources and a further loss in competitiveness as other countries reform their trade regimes and move forward. Egypt's place in world markets could fall further, which would also have implications for both growth and employment creation. Finally, there is the cost of reducing or halting the pace of reform, which would send a signal to market agents, including investors, that the country is not sustaining its reform efforts.

The baseline scenario for the global economy from 1997 through 2005 allows us to identify the cost of non-adjustment for the Egyptian economy associated with global economic developments. Changes in output can be expected in Egypt, not only from growth within the economy itself, but more importantly from growth in the economies of trading partners. In addition, the trade policy regime of Egypt's trading partners also changes as a result of Uruguay Round commitments. The net impact of these changes is a rather dramatic increase in both light and heavy manufactures. The model sectors involved include other machinery (annual growth of 15 percent), other manufactures (annual growth of 7 percent), fabricated metals (annual growth of 7 percent), and leather products (annual growth of 6 percent). It is important to underscore that these changes take place in the context of projected 4 percent annual growth in GDP between 1997 and 2005. A number of sectors such as minerals and the agriculture sector lag behind as the economy shifts towards manufacturing activities. Some manufacturing activities such as transportation equipment, however, are expected to contract (annual growth of -6.3 percent) in response to increased supplies from foreign markets.

### *Effects of Trade Liberalization*

The reform strategy examined with this model reflects a different version of those undertaken elsewhere in this study. It involves complete elimination of tariffs and the application of a single GST to domestic production and imports. This alternative scenario involves a total indirect tax that leaves GOE revenue unchanged. Because the model is inherently a medium to long-run model, we do not examine year-to-year changes in the implementation strategies, as is done elsewhere in the study. The 25 percent GST that emerges from the results differs from that used elsewhere in this study for two reasons: the present analysis starts from a different base year, and it treatment indirect tax interactions through input-output linkages and factor market linkages between sectors.

The results of this strategy are dramatic at the sector and industry levels (see Table 6.1). Those exports most likely to benefit are leather, fabricated metals, garments, wood and electrical machinery, while large contractions are expected in exports of basic metals, transport equipment, mining, minerals and textiles. The growth of clothing exports is impressive under the new tax structure (annual growth of 15 percent), since the current indirect tax structure discriminates against those types of exports. Instead, it favors agriculture and transport equipment, at the expense of light manufactures and the machinery sectors.

**Table 6.1: Projected Changes in Egyptian Exports, by Sector  
(Annual percent change from 1997-2005)**

	Baseline	Tariff and Tax Reform
Leather	21.6	42.8
Fabricated Metals	16.9	36.7
Other Machinery	15.7	32.3
Other Manufactures	15.5	30.0
Garments	4.6	15.1
Wood Products	6.9	14.1
Other Services	7.7	11.4
Electrical Machinery	5.3	10.5
Chemicals	2.6	5.1
Construction	2.7	4.6
Refining	3.7	4.3
Food	4.2	4.0
Other Utilities	3.0	2.8
Petroleum	1.9	2.0
Trans Comm	1.5	1.0
TFI	1.3	0.6
Paper Pub	0.0	-0.6
Crops	2.3	-0.7
Beverages and Tobacco	-0.4	-2.3
Livestock	0.1	-2.9
Textiles	-2.7	-3.7
Electrical Utilities	-3.0	-3.8
Minerals	-3.7	-5.4
Mining	-7.0	-7.2
Transport Equipment	-7.8	-8.8
Basic Metals	-9.3	-11.3

### *Implications of Globalization*

Ongoing growth in trade and incomes in the global economy will yield pressure for change in Egypt. On the positive side, this change will bring with it a further growth of the services and manufacturing sector, and further growth in national income. On the negative side, some sectors will be under pressure to contract. Textiles, for example, can be expected to lose market share as the Agreement on Textiles and Clothing is phased out by 2005. At the same time, there are opportunities for further gain if Egypt also undertakes domestic and trade tax reform. Such reform also can be expected to benefit some export sectors like garments in which Egypt has natural comparative advantages. Due to the well-established link between import restrictions and poor export

performance, we can expect an economy-wide improvement in Egypt's export performance with tariff liberalization.

## 7.0 Strategy Design and Implementation

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### 7.1 Underlying Principles

The GOE has signaled its commitment to further liberalization measures through its obligations to the WTO and other donor-sponsored programs. The Government has also informally indicated its willingness to further liberalize trade by restructuring and reducing tariffs, although it has not yet revealed a strategy preference. Against this background, the guiding objectives communicated to the study team in examining alternative tariff liberalization strategies have been that tariff reforms should have the following characteristics:

- *Tariff reforms should be as revenue-neutral as possible*
- *Tariff reforms should cause as few disruptions to employment as possible*
- *Tariff reforms should have a minimal effect on Egypt's important industries*

Tariff revenues losses are a particular concern to the GOE because a revenue decline could lead to a macroeconomic imbalance if there were no concurrent reduction in expenditures. The resulting budget deficit, if financed by borrowing from the banking system, could then fuel inflation, cause an appreciation of the exchange rate, and undermine the liberalization effort. Hence, considerable effort has been made in this study to examine the revenue implications of trade liberalization. If the experience of other countries serves as a guideline, there will be higher GDP growth associated with tariff reduction, which will help to increase imports and tariff revenues. These effects are quantified in Volume II, Annex IV, and the results summarized in Chapter 3 of this report.

To provide the GOE with the broadest set of alternatives in this study, we have examined the consequences of restructuring Egypt's tariffs using the most commonly applied reform strategies based on the concertina method, the two-tier method, a uniform tariff, and a combination that sequences the two-tier and uniform tariff methods. We have also examined the case of free trade to serve as a benchmark for the other strategies.

In assessing each strategy, we have considered four fundamental criteria based on Egypt's tariff regime and the experience of other developing countries. First, the tariff regime should strive for low protection. The extent of protection that the country is prepared to provide must be largely determined by how much competitiveness it wants to achieve. Egypt can ill afford to maintain its past level of protection while foreign competitors reform trade policies and increase their competitiveness.

Second, Egypt will need to achieve neutrality of incentives among activities so that no activity is favored compared to others. One of the best ways to achieve this is to make tariffs the only form of protection and have a uniform tariff. In such a case, the variance in nominal tariffs will have zero or close to zero.

Third, as the country strives for neutral incentives through a uniform tariff, it must also attempt not to discriminate against input producing industries with tariff escalation. Low tariffs on these industries would mean a high effective rate of protection that will affect the competitiveness of the country adversely. So a low uniform tariff is an ideal. This would lead to low effective rates of protection, which in turn would make the economy more competitive than at present.

Finally, the tariff structure must not only have a low uniform tariff as an ideal, it must also be predictable, transparent and administered in such a way that economic agents such as consumers, producers and investors can rely on the signals provided by prices that bear some established relationship to the tariff regime. Tariffs are the best-known transparent instrument of protection, and low uniform tariffs with low or no variance, administered in a predictable and transparent way, are best. This goal is achievable since some developing countries have either reached this ideal or are in the process of getting there quickly.

## **7.2 Elements of an Import Liberalization Program**

The analysis in this study of Egypt's present tariff regime and alternative reform strategies suggest an agenda for tariff reform in Egypt that would contain the following elements:

- Reduce the overall tariff level from the present 20 percent to a rate more competitive with other countries and make tariffs the only instrument of protection.
- Eliminate import surcharges and similar para-tariffs replacing them with consumption or excise taxes that do not discriminate between foreign and domestic goods.
- Eliminate nominal tariff dispersion by moving to fewer rates in stages that would lead to a uniform tariff.
- Eliminate nominal tariff escalation by not having different rates geared to the particular stage of processing.
- Make access to foreign inputs through the duty drawback and temporary admission system automatic and eliminate undue delays in receiving drawbacks and exemptions from duties and taxes paid on inputs.

- Make tariff changes more transparent and predictable and undertaken by an independent group that is not beholden to any particular group or activity.
- Make the exchange rate system more responsive to changes in domestic and international prices by moving toward a more flexible exchange rate regime.

To ensure a smooth transition to the liberalization of tariffs, the findings of present study lead to the following recommendations for the design and implementation of a specific program in Egypt. First, it is important to aim toward the objectives of the ideal regime. These are to reduce tariffs, their dispersion and their escalation, and to move toward a uniform rate. Second, of the strategies discussed in this study, it was found that the concertina method was the best followed by the proportional reduction in tariff and the reduction in tariffs by equal amounts in relation to foreign price of the import. For strategic reasons, and to avoid short-term spikes in import protection, a combination of the strategies may be warranted during the transition period. The exact sequence should depend on the present tariff structure and the expected changes in imports, tax revenue and key macroeconomic and sector indicators resulting from the tariff reductions.

Third, there are many tariffs that are redundant in the sense that their reduction would have no impact on resource allocation. These could be reduced without a problem. Similarly, there may be tariffs that do not reflect the political economy or the lobbying power of a particular activity in the sense that such tariffs are above those predicted by internal pressures for protection. In such cases a reduction of tariffs can also be made without much difficulty. For other tariffs, it is dangerous to fine-tune the tariff reduction dependent on the strength of the sector's lobbying power, in the same way that one cannot tailor-make tariffs to suite each sector. Thus it is best to clearly define two or three simple rules to implement the strategies for tariff reduction.

Finally, the sequence followed must be clearly defined both in terms of the different tariff rates that would be targeted and the time period. Thus one could announce, for example, a plan to reduce tariffs by a two-tier method in the first two years followed by another well-defined stage for the next two years leading to a uniform tariff in the fifth year.

### **7.3 Complementary Measures**

Policies needed to complement import liberalization fall broadly into the following three categories: macroeconomic policies, exchange rate policies and the regulatory environment for domestic and foreign investment and the labor market. Each of these policy areas plays a crucial role in tariff reduction. In the macroeconomic area, monetary and fiscal policies are needed to achieve and maintain price stability, which are an essential ingredient of liberalization and a fundamental goal of the GOE. Inflation and the resulting unstable price levels interfere with the information content of relative prices and distort saving, investment, production, and consumption decisions. This lost information causes resource shifts and reduces the beneficial effects that could be expected from import liberalization. Additionally, the fate of an import regime depends very much on

proper macroeconomic policies being in place. The experience in other countries is that more than three fourths of the trade liberalization programs that failed did so because of inappropriate macroeconomic policies rather than deficiencies in the import liberalization program itself.

Exchange rate policies determine the allocation of resources between tradable and non-tradable goods. The exchange rate is an important macroeconomic price that helps to restore equilibrium. Import liberalization policies have to be consistent with the exchange rate policies for import liberalization to be beneficial to the economy. An exchange rate that is out of equilibrium, such as an appreciated currency, distorts incentives toward producing for the domestic market and subsidizes imports when tariffs are reduced. More often than not, import liberalization is undertaken in the context of an overall macroeconomic stabilization program in which exchange rate adjustments or regime changes are included. The success of an import liberalization program depends crucially on the exchange rate regime in place.

Finally, the regulatory regime for investment and labor plays an important role in import liberalization. Otherwise resource shift that import liberalization attempts to achieve could be undermined by investment and labor market regulations. Countries, particularly the latecomers to industrialization, have to depend on foreign direct investment to secure market access in order to acquire technology and management skills at the earlier stages of import liberalization. Similarly, whether labor can move from one activity to another has a large effect on the costs of adjustment and the ability of the economy to smoothly shift resources.

#### **7.4 Sequencing and Timing of Reforms**

Most countries liberalized their trade regimes following an economic crisis, when the liberalizing forces could prevail over the protectionist forces. It does not, however, follow that Egypt should wait for a crisis to undertake import liberalization. It can be done from a more stable initial condition with the announcement of a credible path of import liberalization. In fact, the announcement itself could have a salutary effect on the domestic industries that the Government is ready to move to the next stage of trade reforms.

For sequencing of import liberalization, four areas are relevant for Egypt. First, there is the issue of the proper sequencing of current account and capital account liberalization. Liberalizing imports and other portions of the current account often precedes liberalizing the capital account, as has occurred in East Asia since the financial crisis. If the capital account is opened first, there is the possibility of capital inflows taking place that could lead to an appreciation of the exchange rate and discourage the growth of exports. Another related factor favoring this sequence is that the domestic capital market may not be ready for capital market liberalization. Portfolio capital could flow in, but also flow out just as quickly and create instability. Moreover, the domestic banking system may have poor portfolios and inadequate prudential regulations so that the changing asset

prices (due in part to import liberalization) could create problems for managing the macroeconomic situation.

Second, a proper sequence to follow in liberalizing imports is to make sure that the final goods and inputs are liberalized at the same time. A liberalization of inputs ahead of final goods leads to increases in effective protection, defeating the very aim of import liberalization. For this reason the strategy chosen for trade liberalization has to be designed to avoid such spikes in protection as the tariff reduction process goes forward.

Finally, the exchange rate regime must be supportive of the proper sequence of import liberalization. A reduction of import tariffs with a non-competitive exchange rate would amount to a subsidy for imports because domestic prices of exportables and non-tradables remain unaltered. Such a situation is neither credible nor sustainable. Many countries that have not moved on the exchange rate front had to abandon liberalization in mid-stream leading to disappointments for policy makers as well as the domestic producers who saw opportunities to become more competitive in both import substituting industries and exports.

## **7.5 Concluding Remarks**

Notwithstanding concerns by the GOE over the revenue impact and factor market effects of any tariff reform program, the results of this study point to a number of ameliorating factors influencing the outcome of liberalization. The fiscal revenue impact of a trade reform program is unlikely to be severe if there are concurrent broad-based tax reforms. Without these accompanying reforms, a program that reduces the average tariff rate, lowers tariff dispersions, limits exemptions, and moves towards a uniform rate could possibly lower tariff revenue in the short run, but it could also increase revenue in the medium term as trade liberalization spurs economic growth and generates a larger tax base in the economy. An accompanying currency devaluation would also expand imported values measured in domestic currency for purposes of valuation of valuation and help to increase tax revenue. Moreover, with lower rates and fewer tariff exemptions, collection rates would be likely to improve and lower the incidence of under invoicing and smuggling.

Disruptions in factor markets, especially that of labor, are also likely to be small. Given the estimated labor turnover rates at the industry level, labor adjustments would probably be small even the reform package were implemented over a relatively short period of time. Moreover, if past experience of other developing countries is a guide, then the degree of labor market adjustment has been relatively small compared with the natural dynamics of the labor force. For capital movements, adjustments in foreign investment will tend to follow the reduction in the number of protected sectors. Since there is strong evidence that trade reforms and macroeconomic stability have a much more positive impact on FDI inflows than protected industries, customs duty exemptions, and tax holidays for foreign investors, Egypt's favorable macroeconomic climate and proposed

trade policy reforms should stimulate foreign investment inflows into the country's true comparative advantage industries.

Finally, any tariff reform package will necessary depend on the economic constraints to adjustments. For Egypt, tariff reform would be greatly constrained by the overvalued exchange rate and the regulatory environment, especially those that represent NTBs to trade. Without a significant liberalization of the exchange market, it would be difficult to move to reverse the current account imbalance and attract foreign investment that relied in any way on foreign inputs. Without improvements in the regulatory environment both importers and exporters will be subject to cumbersome procedures for the clearing of goods and the administration of quality standards. The fact that Egypt already enjoys macroeconomic stability would greatly benefit the transition to a new tariff regime and help to ensure a predicable situation during the transition to the new regime.

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## References

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- American Textile Manufacturing Institute (2000). *Promises Unkept: A Report on Market Access for United States Products Five Years into the WTO*. Washington, DC: American Textile Manufacturing Institute.
- Brecher, R., and C. Diaz Alejandro (1977), "Tariffs, Foreign Capital and Immiserizing Growth", *Journal of International Economics* 7(4): 317-22.
- Grossman, G. and E. Helpman (1991), *Innovation and Growth in the Global Economy*. Cambridge, MA: MIT Press.
- Handy, H. (1998), 'Egypt: Beyond Stabilization, Toward a Dynamic Market Economy'. IMF Occasional paper No. 163, May.
- Harrison, A., and A. Revenga (1998), "Labor Markets, Foreign Investment and Trade Policy Reform". In J. Nash and W. Takacs (eds), *Trade Policy Reform: Lessons and Implications*. Washington, DC: The World Bank.
- Harrison, G. W., T. F. Rutherford, and D. G. Tarr (1993), "Trade Reform in the Partially Liberalized Economy of Turkey". *The World Bank Economic Review* 7 (2): 191-217.
- Harrison, G. W., T. F. Rutherford, and D. G. Tarr (1997), "Quantifying the Uruguay Round", *Economic Journal* 107: 1405-1430.
- Havrylyshyn, O. (1997), *A Global Integration Strategy for Mediterranean Countries: Open Trade and Market Reforms*, (Washington: International Monetary Fund).
- Hertel, T.W., ed. (1997), *Global Trade Analysis: Modeling and Applications*. Cambridge, UK: Cambridge University Press.
- International Monetary Fund (IMF, 1998), 'Arab Republic of Egypt: Statistical Appendix', December 18, 1998.
- Kheir-El-Din, H. (1998), "Effective Protection in Egypt Due to the Tariff Structures in 1996 and 1997 Compared to 1994". Paper prepared for USAID/DEPRA. Cairo: USAID.
- Matusz, S.J., and D. Tarr (1999), "Adjusting to Trade Policy Reform". Policy Research Working Paper 2142. Washington D.C.: The World Bank.

- Morkre, M. and D. G. Tarr (1995), "Reforming Hungarian Agricultural Trade Policy: A Quantitative Evaluation", *Weltwirtschaftliches Archiv*, pp. 106-131.
- Nathan Associates (1998a), "Enhancing Egypt's Exports". Final report prepared for the Government of Egypt and presented to the US Agency for International Development. Cairo: USAID.
- Nathan Associates (1999), "The Elasticities Approach to Egypt's Balance of Payments and Equilibrium Exchange Rate". Final report prepared for the Government of Egypt and presented to the US Agency for International Development. Cairo: USAID.
- Papageorgiou, D., A.M. Choksi, and M. Michaely (1990), *Liberalizing Foreign Trade in Developing Countries: The Lessons of Experience*. Washington D.C.: The World Bank.
- Pritchett, L. and G. Sethi (1994), 'Tariff Rates, Tariff Revenue, and Tariff Reform: Some New Facts', in *The World Bank Economic Review*, Vol. 8, No. 1: 1-16.
- Romer, P. M. (1990), "Endogenous Technological Change", *Journal of Political Economy* 98 (5), pp. 71-102.
- Tarr, D., and T.F. Rutherford (1999), "Blueprints, Spillovers and the Dynamic Gains from Trade Liberalization in a Small Open Economy". In R. Baldwin (ed.), *Dynamic Issues in Applied Commercial Policy Analysis*. Cambridge University Press.