

# Joint trade liberalization and tax reform in a small open economy: the case of Egypt

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## Abstract

We develop a CGE model of the Egyptian economy to analyze the impact of various trade liberalization scenarios, allowing distortionary domestic taxes to vary endogenously in order to satisfy a fixed real government revenue target. We decompose computed welfare gains into effects from tax reform, trade reform, and their interaction. Scenarios include removal or unification of the consumption tax, capital tax, or both, and tariff unification, a free-trade agreement with the European Union, and unilateral tariff elimination. Welfare effects depend critically on the type of revenue replacement tax. While both are important, neither trade-policy reform nor tax reform dominates. © 2000 Elsevier Science B.V. All rights reserved.

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## 1. Introduction

An important issue in assessing the welfare impacts of trade liberalization programs is that tariff cuts interact with domestic taxes in two ways. First, both tariffs and taxes may be distortionary, implying that in a second-best world,

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reductions in trade barriers could raise or lower the marginal excess burden of the existing tax structure. Second, as governments lose revenues from liberalized trade taxes they may be forced to raise domestic tax rates in compensation. The latter possibility is significant in developing economies, which tend to rely heavily on tariff revenues to finance central-government programs. If the tax structure distorts consumption and production decisions, this endogenous response in taxes could blunt or even overturn the welfare gains from trade reform.

Our purpose in this paper is to investigate the importance of these interactive effects with a computable general equilibrium (CGE) model of trade liberalization developed for Egypt (Maskus and Konan, 1997). In the CGE model, we simulate a number of different potential trade reform measures in Egypt, including tariff unification, a free trade agreement with the European Union (EU), and unilateral free trade on a global basis. We perform these simulations against an idealized backdrop of lump-sum taxation as well as two types of intersectorally distortionary taxes, one on capital use and one on consumption of commodities. Next, these taxes are subject to reform (unification) in all simulations, allowing a comparison of welfare impacts. The approach allows tax instruments to vary endogenously within the model to replace lost government revenues when trade is liberalized or taxes are reformed. Using this technique, we can decompose total welfare changes from policy reform into a pure trade-reform effect, a tax-reform effect, and an interaction term representing the joint inefficiencies of the two regimes.

Egypt relied on import duties for roughly seventeen percent of its central government tax revenues in 1994, the year of our benchmark data set (International Monetary Fund, 1997). A paramount concern of policymakers is the impact of trade liberalization on the fiscal integrity of Egypt's overall tax regime. Our simulations demonstrate a significant and occasionally surprising interaction between trade and domestic taxes. As would be anticipated, full liberalization of trade barriers results in lost tariff revenues and requires an increase in domestic taxes to maintain government revenue neutrality. However, less radical reforms such as unification of tariff rates or preferential elimination of tariffs against European imports actually generate higher government revenues as production and consumption activities flow into sectors of the economy that are heavily taxed at the domestic level. Thus, certain forms of trade liberalization may be accompanied by a lowering of domestic taxes while preserving an equal-yield tax system.

In Section 2, we review prior literature that informs the current study. In Section 3, we present a two-sector, two-factor general-equilibrium model of trade liberalization in the presence of distortionary taxes in order to illustrate the principles involved. In Section 4, we discuss the Egyptian model in terms of assumptions, data, dimensions, and parameters. In Section 5, we perform the simulations of trade policy and the associated decompositions. In general, we find that welfare gains from pure trade liberalization are comparable in magnitude to gains available from tax reform, while endogenous responses in tax rates can increase or decrease welfare. We provide concluding comments in Section 6.

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