Alternative Paths to Prosperity: Economic Integration Among Arab Countries

Denise Eby Konan

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Denise Eby Konan is a professor of Economics at the University of Hawaii, Honolulu. This paper was presented at the conference entitled "Arab Economic Integration Between Hope and Reality" organized by the Egyptian Center for Economic Studies in Cairo on October 21, 2001. The author would like to thank Bernard Hoekman, Jamel Zarrouk, Keith Maskus and Joe Francois for their valuable input. Helpful comments were provided by Hanaa Kheir El Din, Ali Soliman, and other conference participants. The research assistance of Tu Ha is also gratefully acknowledged, as is financial support from the Council on Foreign Relations.

Abstract

This paper assesses alternative strategies for achieving economic prosperity in Arab countries. The analysis considers not only shallow integration scenarios but also the scope for deeper integration through the coordination of regulatory procedures and the liberalization of barriers to trade in services.

Using computable general equilibrium (CGE) models of Tunisia and Egypt to determine potential costs and benefits from economic integration, the results suggest that Tunisia would benefit most from an extensive reform in which goods tariffs and non-tariff barriers are eliminated and foreign trade and investment in services sectors are liberalized. For reform to have a major impact on Egypt's economy, a reduction of structural impediments to trade is required. The reform of the service sectors, particularly domestically and through foreign investment, appears to offer the most significant prospects for gains in Egypt.

ملخص

تتناول هذه الورقة بالدراسة والتحليل الإستراتيجيات البديلة لتحقيق النمو الاقتصادي في الدول العربية. ولا يقف التحليل عند دراسة سيناريوهات الاندماج السطحي بين الدول العربية، بل يمتد ليشمل إمكانية تطبيق الاندماج العميق من خلال التنسيق بين الإجراءات التنظيمية وتحرير تجارة الخدمات.

وقد اعتمدت الدراسة لتحديد التكاليف والمكاسب المحتملة من الاندماج الاقتصادي في كل من تونس ومصر على استخدام نموذج للتوازن العام. وقد انتهت الدراسة إلى أن تعظيم الفوائد المتحققة من الاندماج العربي بالنسبة لتونس يستلزم إلغاء الرسوم الجمركية وإزالة الحواجز غير الجمركية المفروضة على السلع فضلا عن تحرير التجارة والاستثمار في قطاع الخدمات. كما خلصت إلى إن تحقيق أكبر قدر من المكاسب لمصر يتطلب القضاء على القيود الهيكلية التي تعوق التجارة، وإصلاح القطاع الخدمي، من خلال إزالة المعوقات الداخلية وتشجيع الاستثمارات الأجنبية.

I. Introduction

Recent events have thrust Middle Eastern political relations into the world spotlight once again. Clearly, economic prosperity and the accompanying alleviation of poverty and unemployment would go far to ease regional political unrest; therefore, negotiations on enhanced Arab economic cooperation have been accelerated. The social and political transformations that are well underway in key Middle East and North Africa (MENA) countries are enhancing prospects for economic transformation. For instance, the recent transfer of leadership in Algeria, Jordan, Morocco, Bahrain, Syria, and Iran suggests the potential for greater openness to trade, while policy reforms in the region also reflect a willingness to engage in the world economy.

Regional peace has remained illusive and economic prosperity has failed to live up to the levels promised as a result of the significant macroeconomic policy reforms undertaken by several countries in the region. Beginning in the mid-1980s, Jordan, Algeria, Morocco, Tunisia and Egypt implemented extensive, largely unilateral, economic policy reforms.[1] Trade reform measures generally began by streamlining the tariff system and lowering the effective rate of protection. While the economic reform packages were somewhat successful in stimulating economies, GDP growth in the region has only roughly kept pace with population growth. Inadequate growth rates are particularly problematic when combined with a young workforce and an employment rate that is high in comparison with world averages. The social fabric would benefit greatly from meaningful employment opportunities for new workers.

Enhancement of Arab economic prosperity is a regional issue, rather than a country-specific one for several reasons. First, as recognized by Robert Z. Lawrence (1996), multilateral reform efforts such as those embodied in the World Trade Organization (WTO) tend to most readily achieve liberalization of the transparent border barriers – "shallow integration." Globalization, however, increasingly places pressures on countries to harmonize regulatory and administrative barriers – "deep integration." Lawrence observes that deep integration is more likely to be achieved when negotiated

[1] See Nabli and De Kleine (2000) for further discussion.

on a bilateral or regional basis than in multilateral fora such as the WTO.

Second, labor markets within Arab countries are marked by rather significant regional links. As Galal (2000) points out, there is a substantial intra-regional flow of workers' remittances to Yemen, Jordan, Egypt, and the Palestinian Authority, primarily from oil-exporting economies and Israel. Given demographic patterns and a young workforce, unemployment becomes a regional issue rather than a purely national one. Finally, the geographic landscape of the Middle East and North Africa generally requires that nations cooperate on economic issues in order to trade with the rest of the world. Cooperation in building regional synergies in infrastructure, allocation of natural resources, and labor mobility, as well as policy harmonization provides the opportunity to unify what are now small and fragmented economies.

This paper attempts to assess alternative strategies for achieving economic prosperity in representative Arab countries. Due to data availability and the existence of well-established models, the focus of the study is on the economies of Egypt and Tunisia. Potential costs and benefits from economic integration were calculated by using computable general equilibrium models of the two economies. The analysis considers not only shallow integration scenarios but also the scope for deeper integration through coordination of regulatory procedures and the liberalization of barriers to trade in services.

Trade liberalization has been a prominent component of government reform in Egypt and Tunisia, and both countries have been reducing tariffs significantly since the 1980s. Both are signatories to the WTO, and both have also entered into separate bilateral agreements with the European Union.[2] In each country, there have been interesting preliminary discussions about possible trade agreements with the United States, although no formal agreements have been reached.[3] A wide literature has emerged on each of these initiatives.

In this context, it is perhaps surprising that integration efforts within the region have been lackluster and the economic implications of greater Arab cooperation less

[2] Galal and Hoekman (1997) carefully explore the possible implications of the Euro-Mediterranean agreements, with an emphasis on Egypt.

explored. In the case of Egypt, there has been some preliminary exploration of effects. Hoekman and Konan (2000, 2001) consider trade opportunities for Egypt in the context of an EU agreement, Arab agreement, and unilateral most-favored-nation liberalization. As demonstrated in this paper, a shallow integration agreement with either the EU or Arab countries generates little welfare gain reflecting the fact that Egypt already has duty-free access to much of the EU and that an agreement would lead to trade diversion.[4] Substantial welfare gains are dependent on the elimination of regulatory, administrative, and other non-tariff barriers (NTBs). The actual impact relies heavily on several factors. The first is the degree to which barriers would be liberalized on a nondiscriminatory basis. That is, deeper integration with the EU may assist Egypt in developing more streamlined regulatory measures that are in line with international standards and therefore may ease trade restrictions with countries outside of the EU. Another important issue is whether barriers generate rents or are largely frictional; the latter of which generates the greatest potential gains from liberalization.

An alternative to focusing on regional goods trade would be for Arab countries to integrate services markets with the global economy, an option that is especially attractive as the benefits are likely to be substantial. Services have become an increasingly important component of economic activity, and yet they have remained highly regulated and protected from international competition in both Egypt and Tunisia. More recently, services have also become the subject of intensive multilateral negotiation in the context of the General Agreement on Trade in Services (GATS) of the WTO. Unlike trade in goods, services trade involves modes of delivery beyond cross-border exchange, such as the movement of personnel and consumers and the presence of foreign subsidiaries.

In a computable general equilibrium (CGE) model of Tunisia, Konan and Maskus (2002a) consider both goods and services liberalization, finding that gains from services liberalization, including cross-border as well as foreign investment, significantly

[3] See Galal and Lawrence (1998) and Hoekman, Konan, and Maskus (1998) for further discussion.
[4] See Konan and Maskus (2002b) for a discussion of bilateral trade patterns and the Egypt-EU Agreement. As Egypt's trade is not heavily concentrated with the EU, a shallow agreement may lead to significant trade diversion.

outweigh those available from goods liberalization. The lion's share of the gains comes from the reduction of barriers to foreign direct investment in the service sector. As is expected, goods trade liberalization tends to reorient production and the workforce toward manufacturing and raises wages relative to returns to capital. In contrast, services liberalization results in more balanced growth with far less movement of factors across sectors and more even distribution of increases in returns to factors. This paper builds on that methodology and extends the analysis to Egypt.

To summarize, MENA countries may elect to integrate more fully with the global economy through several channels. Regional negotiations may lower tariff barriers as well as important regulatory and other non-tariff barriers to trade in goods. Alternatively, efforts to liberalize service sector trade could be pursued. The resulting impacts on economic activity will significantly depend on which path is chosen. Those impacts differ between Egypt and Tunisia, owing to important structural differences in underlying economic activities. This paper explores those impacts.

II. Benchmark and Barriers: The Scope for Regional Integration

Table 1 provides an overview of MENA integration in the world economy relative to other regions. Jordon, Kuwait, Oman, Saudi Arabia, Tunisia, and the United Arab Emirates are open, with merchandise trade as a share of real gross domestic product exceeding 30 percent and as much as 135 percent in oil-rich UAE. In contrast, goods markets in Egypt, Iran, and Morocco appear to be relatively closed with merchandise trade shares from 10 to 15 percent of real GDP. As a group, MENA countries have lagged behind other regions in the rate and depth of global integration. Note that the ratio of merchandise trade to GDP actually fell for MENA between 1986 and 1996, as did the ratio of gross private capital flows to GDP.

Table 1: Integration of MENA* in the Global Economy

	Merchandise trade, % of GDP PPP		Gross private capital flow % GDP PPP		Gross FDI % of GDP PPP	
	1986	1996	1986	1996	1986	1996
MENA						
Algeria	17.3	15.0	0.8	--	0.0	--
Egypt	13.6	14.8	4.6	2.5	1.5	0.4
Iran	9.7	9.6	2.0	1.5	0.0	0.0
Jordan	36.8	36.6	3.3	4.7	0.4	0.4
Kuwait	54.3	45.8	41.1	16.8	1.0	1.7
Libya	--	--	--	--	--	--
Morocco	12.6	14.0	2.8	1.7	0.0	0.4
Oman	52.9	45.4	10.2	2.5	1.4	0.2
Saudi Arabia	36.2	41.2	14.2	5.5	0.9	1.0
Syria	20.0	19.6	6.1	5.0	0.0	0.2
Tunisia	20.6	30.2	3.8	5.8	0.3	0.6
UAE	83.6	135.7	--	--	--	--
By income group						
Low	7.1	7.9	2.0	2.1	0.2	1.0
Middle	12.5	21.8	4.0	5.8	0.3	0.9
High	26.5	38.9	11.4	19.3	1.6	2.7
Low and middle-income group by region						
East Asia and Pacific	9.1	13.0	1.7	1.9	0.2	1.0
Europe and Central Asia	--	25.5	--	9.2	--	0.8
Latin America and Caribbean	7.9	17.3	4.6	6.6	0.3	1.1
MENA	19.4	18.9	5.0	3.2	0.4	0.4
South Asia	4.9	5.8	1.2	0.9	0.0	0.2
Sub-Saharan Africa	15.8	18.9	4.8	5.7	0.3	0.4

Note: * Non-Arab countries may be included for research purposes; -- Not available.
Source: Nabli and De Kleine (2000) and World Bank, *World Development Indicators, 1998.*

Tariff Barriers and Shallow Integration

Many MENA countries maintain average tariff barriers above those found in most of the rest of the world. The unweighted average tariff in the region is around 19 percent and the trade-weighted applied tariff rate is somewhat lower at 15 percent (Table 2). Although tariffs in the region are trending downward, they are doing so at a much slower rate than in East Asia and Latin America. There are clear differences in tariff structures across countries. Tariffs tend to be quite high in Egypt, Tunisia, and Morocco, with rates exceeding those of most of Latin America. Tariffs in Turkey and most of the oil-exporting countries (with the exception of Saudi Arabia) are relatively low, reflecting a strong tradition of trade. Another important feature of trade policies is tariff escalation Zarrouk (2000c). As shown in Table 3, tariffs on raw materials are considerably lower than those on semi-processed and final goods and certain protected agricultural and

processed food sectors. Note that para-tariffs are quite substantial in many MENA countries (Zarrouk, 2000b).

Table 2: Simple Average Tariff Rates by Region

Region	1978-80	1981-85	1986-90	1991-95	1996-99
Africa	38.2	29.3	26.9	22.3	17.8
East Asia	23.5	26.9	20.7	14.6	10.4
Latin America	28.1	26.4	24.1	13.9	11.1
MENA (excl. OPEC)	29.6	24.6	24.1	22.9	19.3
South Asia	NA	71.9	69.8	38.9	30.7
Europe/Central Asia	12.0	21.6	14.9	8.1	10.1
Industrial Economies	11.9	8.9	8.2	6.8	6.1

Source: World Bank.

TABLE 3: MENA Trade Tariffs and Non-Tariff Barriers

	Primary Products					Manufactured and Other Goods					
	Food (SITC 0)	Beverages & Tobacco (SITC 1)	Crude Materials (SITC 2)	Mineral Fuels (SITC 3)	Fats & Oils (SITC 4)	Chemicals (SITC 5)	Material Manufactured (SITC 6)	Machinery & Equipment (SITC 7)	Miscellaneous Manufactured (SITC 8)	Commodities & Transactions Not Classified (SITC 9)	Ref. Year
*Tariffs & Para-Tariffs (%)**											
Algeria	30.5	81.9	12.5	4.0	18.7	15.1	31.0	18.8	43.3	25.5	1993
Egypt	35.6	46.1	14.0	13.3	18.0	16.4	36.8	20.9	45.7	17.4	1995
Morocco	86.7	73.2	31.0	29.6	47.5	50.0	70.5	55.3	85.3	17.1	1993
Oman	7.1	69.3	5.5	3.9	1.9	5.1	5.3	5.0	5.0	4.2	1992
Saudi Arabia	10.2	12.6	11.8	12.0	12.0	11.9	12.3	12.0	12.7	11.0	1994
Tunisia	38.3	42.7	21.1	11.8	30.3	21.2	32.2	26.4	34.9	36.3	1995
Turkey	24.1	61.9	16.3	21.0	22.0	22.6	20.1	16.6	28.8	1.2	1993
Other MENA Countries**	22.6	34.3	12.8	10.1	18.6	15.1	20.5	16.3	24.2	13.4	…
Frequency of NTBs (%)											
Algeria	96.6	66.7	0.0	0.0	61.2	1.0	2.0	0.0	0.0	0.0	1993
Tunisia	10.1	0.0	0.5	0.0	0.0	0.0	20.1	0.3	25.9	0.0	1992
S. Arabia	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1995
Oman	0.0	48.1	3.9	0.0	0.0	3.1	0.3	2.5	5.0	0.0	1992

Notes: * Para-tariffs are customs surcharges, internal taxes on imports, decreed customs values, and other charges levied on imports that increase the cost of imports in a manner similar to ordinary import tariff measures. ** Based on values for other less developed countries.

Source: UNCTAD, *Trade Analysis and Information System, Version 3.0,* Fall 1995 (CDROM), Geneva.

Deep Integration: Regulatory Reform and Services Liberalization

A key to deep integration is the identification and removal of non-tariff barriers (NTBs). NTBs include import quotas, licensing and certification requirements, product standards, antidumping measures, customs procedures, and other regulatory and administrative barriers. As discussed in Galal (2000) and Hoekman and Konan (2000, 2001), NTBs act to segment markets, reduce competition, impose frictional costs that use real resources, and prohibit entry by foreign investors.

Typically, NTBs are very difficult to document. The survey work of Zarrouk (2000a, 2000b, 2001) provides extremely valuable documentation of MENA country NTBs and their effects. Respondents reported that NTBs average 10 percent of the value of goods shipped and ranked customs clearance procedures, public sector corruption, and inspection/certification as imposing the highest trading costs.[5] In Egypt, for example, Kheir-El-Din (2000) reports that multiple centers of authority have lead to a system where delays and duplication of testing are common and the inspection process overly labor intensive. According to the Zarrouk survey (forthcoming), improvements in trading services appear to be slow with 36 percent of respondents indicating that difficulties had not changed and 15 percent claiming that they had risen. Although tariff rates have been declining in many MENA countries, businesses still perceive trade and domestic barriers as being relatively high and a significant cost of trade (Zarrouk, forthcoming).

Liberalization of the service sector has become an area of intense regional and multilateral negotiation, the most prominent example being the ongoing discussions of GATS. Yet, due to data limitations and gaps in methodology, few empirical studies exist examining the role that such liberalization might play within developing countries. An important difference between goods and services trade is that, by definition, goods are physical and tangible while services are often intangible. Therefore, goods may be shipped across borders and, due to their visibility, easily regulated through tax regulations and customs procedures. In contrast, many service transactions involve personal contact between

[5] See Zarrouk (forthcoming).

the provider and the client. While some services, such as computer software, may flow across borders, other international transactions require the movement of either the persons involved or the ownership of the firm in which the transaction is conducted. Thus, GATS distinguishes between four "modes of supply": cross border trade (mode 1); movement of consumers (mode 2); foreign investment (mode 3); and movement of personnel (mode 4).

III. The Models and Benchmark Data

This section presents the theoretical structure of the Egypt and Tunisia CGE models and describes the benchmark datasets. Detailed descriptions of the base model and data sources are also available and equations are given in a technical appendix. In the case of Egypt, the base model is described in detail in Maskus and Konan (1997) and Konan and Maskus (1997). The Tunisia model is presented in full detail in Konan and Maskus (2002a).

Each model stands alone in the sense that Egypt and Tunisia are both assumed to be price takers on world markets. Production is characterized by constant returns to scale and perfect competition implying that prices equal marginal costs of output. The nesting structure is given in Figure 1.[6] In all sectors, production functions are approximated with Leontief technologies using intermediate inputs and real value added. Value added comprises labor and capital inputs, which are distinguished in production by a constant elasticity of substitution (CES) production function. In the case of Egypt, labor is further disaggregated into production and non-production labor.

Products are differentiated by country of origin according to the Armington assumption, so that export and import prices differ across regions.[7] In each sector, demand for domestically produced and imported goods is represented by a CES function, and intermediate imports are also differentiated by region of supply in a CES structure. Similarly, domestic industries supply regionally differentiated goods to both domestic

[6] Labor-capital substitution varies across sectors, ranging from 0.43 to 1.99 as taken from Harrison, Jones, Kimbell, and Wigel (1993) and reported in Maskus and Konan (1997) and Konan and Maskus (2002a). In the case of Egypt, the elasticity of substitution between production and non-production labor is assumed to be 0.5.

[7] De Melo and Robinson (1989) show that models that allow product differentiation are well behaved under a small open economy assumption; in effect the economy is a price taker at the level of aggregate trade flows and each region's aggregation is sufficiently distinctive to support the Armington assumption.

and foreign markets (exports). Production follows a nested two-stage constant elasticity of transformation (CET) function. Total output is first calculated as the sum of domestic supply and total exports, with the latter then being allocated across regions (EU, MENA, and ROW) according to a sub-CET function. Capital is assumed to move freely across sectors, as is labor.[8]

A representative consumer maximizes a nested CES utility function with a corresponding multi-staged budget constraint, shown in Figure 1. In the first stage, the consumer decides how much to spend on goods from each sector, given the budget constraint. That is, the elasticity of substitution across sectors is unity, as given by a Cobb-Douglas (CD) utility nest. Given the sector-level expenditure decision, the consumer decides in stage two the domestic and aggregate imports in each sector according to a CES function. Then, given a budget for imports, the consumer selects purchases of imports from each region. The preferences of the government and investment agents are represented likewise.

The representative consumer receives income from primary factors (labor and capital), net transfers from the government, and the current-account deficit. In addition, two standard closure rules are imposed: the savings-investment balance (equation 11) and a fixed current account balance (equation 13). The savings-investment balance is based on the assumption that the capital stock is exogenously fixed at the benchmark level. This stock is financed through forced consumer saving that acts as a direct (lump-sum) tax. The interest rate (an index price of the composite capital stock) is endogenous and determined by factor demand conditions.

The current-account is defined as the sum of the merchandise trade balance, the services balance, net foreign worker remittances, and (negative) net payments on foreign capital.[9] Foreign reserves are held constant so that the current account will be just offset

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[8] Benchmark trade elasticities are drawn from Rutherford, Rutstrom and Tarr (1995). The various trade elasticities are 2.0 for substitution between domestic and imported goods, 5.0 for substitution among regional imports and for transformation between domestic output and exports, and 8.0 for transformation among regional export destinations.

[9] In the 1995 benchmark year, foreign remittances were approximately 650 million Dinars while net capital income totaled negative 680 million Dinars according to the IMF Balance of Payments Statistical Yearbook.

by (negative of) the capital account, and this balance is held constant throughout the simulations. Income from foreign remittances less foreign capital payments enters as an exogenous addition to the representative agent's income (equation 11). To hold the current account balance fixed while international prices are constant requires a balancing item in equation 13. This is accomplished by means of a change in the home "real exchange rate," which refers implicitly to a change in the home price index (generated by changes in price of home-produced goods) sufficient to sustain a balance of equation 13 as import and export volumes change.

International transactions are also assumed to encounter both tariffs and non-tariff barriers. Tariff rates for Tunisia and Egypt are discussed below; the various sources and the role of NTBs are discussed in detail in Hoekman and Konan (2000, 2001). For the purposes of this analysis, NTBs are assumed to impose frictional costs on international transactions in both goods and services. That is, frictional NTBs employ resources in a wasteful manner and thus impose a cost on society. NTBs are directly unproductive and arise from excessive or redundant administrative procedures and regulations. It is recognized that costly administrative procedures are imposed both by the domestic country (Tunisia and Egypt) and by their trading partners within MENA. Deep integration would thus involve a reducing the NTBs in partner countries and lowering the cost involved in exporting to the region.

No definitive measurements exist of the price-equivalent impact of NTBs, a problem that is not specific to MENA countries. The best information available comes from the survey work of Zarrouk (2001), from which the benchmark NTBs for Egypt and Tunisia are taken. It is assumed that frictional NTBs in agriculture and manufacturing impose an added cost of 15 percent on imports from MENA countries and 5 percent on imports from other trading partners. It is assumed that the Euro-Mediterranean agreement improves the price of exports to the EU by 5 percent in the apparel industry, 2 percent in agriculture, and 1 percent in remaining industries. Again, based on the Zarrouk survey, a Greater Arab Free Trade Agreement is viewed as enhancing export prices of goods by 3 percent as regional tariff rates fall upon shallow integration, and 15 percent due to the reduction of frictional barriers following deep integration.

In addition, barriers to foreign investment in services sectors are treated as driving a frictional wedge between the prices that would prevail in a liberalized environment and those in a distorted one. This follows the approach taken in Konan and Maskus (2002a) in their modeling of service liberalization in Tunisia. This analysis adopts the Konan and Maskus technique of distinguishing between cross-border liberalization (mode 1) and liberalization of investment barriers (mode 3). Service border barriers tend to be administrative and regulatory in nature and raise the real cost of engaging in the transaction. Restrictions on foreign investment in the service sector (mode 3 barriers), in contrast, generally impede technology transfer, thus raising the domestic cost of service provision above the cost that would prevail if world-class best practices were followed.

The government budget deficit is a deduction in available income for the representative agent, constituting a transfer to government consumption. The real expenditures of the government are held fixed during these simulations. Thus, if a policy reform causes prices to fall, thereby reducing the tax revenues required to finance government expenditures, the tax saving is transferred to the representative agent. At the same time, if trade liberalization results in lost tariff revenues, the revenues are recouped by allowing the primary tax instrument to vary proportionately. In the case of Tunisia, the endogenous tax instrument is the value-added tax. Egypt's revenue balance is achieved by allowing the goods and services tax rates to adjust. Tax instruments and their benchmark rates are discussed in the description of the data that follows. As shown in Konan and Maskus (2000), the choice of replacement tax instrument interacts with trade policy liberalization in fundamental ways.

The Tunisia Model and Benchmark Data

The data for the Tunisia model consist of a Social Accounting Matrix (SAM) and other parameters, such as elasticities of substitution and transformation, import and export trade flows by region, and tax and tariff rates.[10] These data are assembled into a consistent set of relationships between intermediate demand, final demand, and value-added transactions using the 1995 input-output table for Tunisia provided by the Institut

[10] See Konan and Maskus (2002a) for a detailed discussion of the Tunisia data and model.

National De La Statistique (INS).[11] Production is disaggregated into 36 sectors as shown in Table 4.

Tunisian production tends to be concentrated in agriculture and fishing, processed foods (olive oil and dates), the apparel industry, and construction. Nearly 12 percent of output is in public services. Intra-industry trade in clothing and textiles is significantly high; at 21.5 percent of imports and 31.6 percent of exports, clothing and textile trade shares exceed that of all other sectors. Distortions in this sector are significant, with foreign investors producing largely for the export market and prohibited from supplying the domestic market. Other important import sectors include machinery and chemicals, while exports are concentrated in apparel, tourism, and chemicals.

The main source of tax revenue in Tunisia is the value-added tax, which is applied on goods and services and on imports at rates up to 29 percent. The standard tax rate was 17 percent for the 1995 benchmark and is currently 18 percent in response to tariff revenue losses anticipated with the EU agreement (see Table 5 for benchmark rates). Trade and tariff data (Table 10) are aggregated to the input-output sectoral basis using import weights using a concordance developed by the author. Tariff rates were determined by collections data for 1995 and vary across regions due to duty-drawback provisions as well as preferential treatment of the EU and the Arab League. There are no data on tariff collections on services, and their rates are assumed to be zero.

Table 6 provides the author's best estimate of price wedges resulting from service barriers. Mode 1 barriers on cross-border trade are treated as ad valorem tariff-equivelant NTBs. In regard to mode 3, it would be ideal to estimate the impact that services barriers have on both price markups and costs themselves in order to distinguish between the competitive effect and the cost reduction effect. Warren and Findlay (2000) suggest computing the pro-competitive effect using price-cost margins (net interest margins). It would be ideal to capture the cost reduction effect by comparing actual costs to a constructed estimate of costs if services were provided according to a world-class best-practices cost function. Unfortunately, none of these measurements are attainable for MENA (nor for most countries).

[11] The technique of data collection is described in Institut National De La Statistique (1998).

The services barriers in Table 6 are based on industry studies as well as on the survey work of Zarrouk (2000a, forthcoming).[12] The estimates of financial service barriers are taken from the observation that the level of monetary intermediation in the banking system is about 30 percent lower than in comparable countries and on Goaied's (1999) estimation of the cost inefficiencies in the financial sector. This is in line with the estimates of Kalirajan et. al. (2000) for the banking sectors in Chile, Singapore, South Korea, and Thailand. The price wedges in insurance, communications, and transportation reflect the high level of benchmark regulation in those sectors and comparisons with markets in similar countries (Vittas 1995, World Bank 2000). The distribution and retail sectors are very fragmented and show large inefficiencies, making the 5 percent inefficiency measure quite conservative. Since many professional services are subject to a nationality requirement and thus restrict foreign participation, it is possible that estimated price wedge is low. While construction, engineering, and hotel service sectors are viewed as being largely liberalized, foreign participation is subject to investment codes.

[12] Further discussion is provided in Konan and Maskus (2002a).

TABLE 4: TUNISIA SECTORAL OUTPUT AND FACTOR SHARES (%)

	Production	Imports	Household Consumption	Intermediate Consumption	Exports
AGRICULTURE					
Agriculture	7.66	7.12	10.83	11.77	1.57
MANUFACTURING					
Processed Food	9.64	4.98	20.20	8.32	5.27
Ceramics and Glass	3.16	1.25	0.51	6.34	1.53
Non Ferreous Metal	1.11	4.59	0.00	4.13	1.05
Metalwork	1.31	2.16	0.53	2.96	1.54
Machinery	0.35	10.39	0.5	1.85	0.82
Automobiles	0.88	6.49	3.71	1.51	.92
Automobile Parts	0.06	1.08	0.02	0.06	0.09
Electrical Parts	1.05	3.78	0.56	2.31	4.04
Electronics	0.63	3.63	1.06	1.08	0.94
Appliances	0.28	0.39	0.87	0.21	0.15
Chemicals	5.41	10.47	4.56	10.54	8.69
Clothing	9.90	21.52	8.43	11.85	31.59
Leather	1.47	1.73	2.24	1.14	3.17
Wood	1.57	1.49	2.28	2.28	0.18
Paper	1.19	2.44	0.85	3.10	0.63
Plastics	0.58	1.46	1.16	1.23	0.32
Other	0.48	1.89	1.18	0.65	1.35
MINING					
Mining	0.49	0.27	0.03	1.02	0.83
Petroleum	3.67	6.54	2.14	7.77	6.19
UTILITIES					
Electricity	1.71	0.02	1.14	1.86	---*
Water	0.43	---*	0.54	0.26	---*
SERVICE SECTORS					
Construction	7.19	---*	0.32	0.43	---*
Distribution	6.21	---*	0.00	0.00	---*
Transportation	5.15	3.24	5.44	4.35	8.98
Communication	0.98	0.11	0.28	1.69	0.37
Hotel	2.44	---*	3.73	0.10	---*
Restaurant	2.98	---*	10.41	0.03	---*
Finance	2.36	0.22	4.49	4.76	0.27
Insurance	0.33	0.25	0.27	0.58	0.02
Business	0.90	2.48	0.10	2.46	2.59
Real Estate	0.33	0.01	4.77	1.35	0.01
Repair	0.95	---*	1.01	1.76	---*
Health	1.64	---*	4.72	0.22	---*
Public	11.71	---*	1.14	0.00	---*
Tourism	3.81	---*	--	--	16.87

Note: * Not traded.
Source: Institute National de la Statistique (1998), *Les Comptes de la Nation Base 1983, agregats et tableaux d'ensemble 1993-1997*.

Table 5: Benchmark Trade Shares -- TUNISIA

SECTORS	MENA Trade Share (%)		EU Trade Share (%)	
	Imports	Exports	Imports	Exports
AGRICULTURE				
Agriculture and Fishing (AGR)	6.8	22.4	38.7	68.7
MANUFACTURING				
Processed Food (FOO)	4.0	12.5	55.3	71.9
Ceramics and Glass (CEM)	4.3	44.7	48.8	24.0
Non Ferreous Metal (MET)	36.4	25.7	57.7	70.4
Metalwork (MTW)	4.3	28.9	67.8	58.8
Machinery (MAC)	0.3	9.5	77.0	86.0
Automobiles and Trucks (TRA)	1.2	55.3	87.6	40.8
Automobile Parts (AUR)	0.0	28.8	57.1	71.0
Electrical Parts (EL1)	0.0	10.7	66.4	50.4
Electronics (EL2)	0.0	10.7	66.4	50.4
Household Appliances (APP)	0.0	10.7	66.4	50.4
Chemicals (CHM)	3.1	18.3	75.7	39.2
Clothing and Textile (CLO)	0.8	0.9	92.3	94.8
Leather (LEA)	0.6	0.8	93.3	96.6
Wood (WOO)	18.6	14.3	41.1	66.7
Paper (PAP)	2.7	64.3	74.4	20.6
Plastics (PLA)	13.8	57.9	72.9	28.0
Other Manufacturing (OTH)	0.1	9.5	72.9	76.2
PETROLEUM AND MINING				
Mining (MIN)	33.5	2.1	30.6	86.0
Petroleum and Gas (PET)	0.3	59.1	63.3	38.7
SERVICES	5.0	9.0	70.0	76.0

Source: Ministry of International Trade and Foreign Investment, Tunisia.

Table 6: Tunisia Benchmark Policy Parameters (ad valorem)

SECTORS	Trade Weighted Tariffs	Services Barriers		Weighted VAT
		Cross Border	Investment	
AGRICULTURE				
Agriculture	13.0			6.0
MANUFACTURING				
Processed Food	18.5			21.4
Ceramics and Glass	23.6			17.0
Non Ferreous Metal	21.2			17.0
Metalwork	17.5			17.0
Machinery	8.5			17.0
Automobiles	10.8			14.6
Automobile Parts	1.7			17.5
Electrical Parts	7.8			16.8
Electronics	7.8			16.8
Appliances	7.8			16.8
Chemicals	10.3			15.0
Clothing	21.6			22.3
Leather	28.3			17.0
Wood	16.6			17.0
Paper	5.3			17.0
Plastics	18.7			17.0
Other	15.8			15.1
MINING				
Mining	2.5			17.0
Petroleum	20.2			6.0
UTILITIES				
Electricity				6.0
Water				17.0
SERVICES				
Construction		*nt*	3	17.0
Distribution		*nt*	5	0.0
Transportation		50	3	6.3
Communication		200	30	0
Hotel		*nt*	5	6.0
Restaurant		*nt*	5	6.0
Finance		30	30	6.0
Insurance		50	50	6.0
Business		10	10	6.0
Real Estate		10	10	6.0
Repairs		*nt*	3	6.0
Health		*nt*	*3*	6.0
Public		*nt*	*3*	6.0

Note: *nt* = non-traded modes of supply.
Source: Data provided by the Ministere des Finances.

The Egypt Model and Benchmark Data

The model is developed from a social accounting matrix for the Egyptian economy for 1994. The model is initially benchmarked to the 1990 input-output table for Egypt and updated to 1994 using proprietary trade and tariff data, a process described by Maskus and Konan (1997). Production is disaggregated into 38 sectors, including agriculture, mining, manufacturing, and services, as shown in Table 7. Note in column 1 that the largest output shares are in vegetable food products, animal products, food processing, trade, transport, social services, construction, and cotton textiles. Despite their relatively large presence in production, vegetable foodstuffs and food processing are major import goods, as are machinery and chemicals, as indicated in column 2. Egypt's export flows are dominated by transport services (due to the Suez Canal), oil, and textiles.

The policy framework facing Egypt is presented in Table 9 and discussed at greater length in Maskus and Konan (1997). In 1990 Egypt levied indirect taxes and subsidies on production but modified this tax structure considerably by 1993, phasing in a new goods and services tax (GST) and phasing out indirect production taxes and subsidies. The GST, which is applied on sales of goods and services at various rates, has a complicated structure. The rates, listed in column 1, vary from zero in food products, paper, petroleum refining, and insurance to 25 percent on many luxury and investment goods, such as machinery and transport equipment. The standard tax rate is 10 percent. Effective corporate tax rates on capital use are listed in column 2. There is no tax on agriculture, a 23 percent effective tax on services, and an 18 percent tax on manufactures.

Table 9 reports 1994 tariff rates aggregated to the input-output basis. Egypt does not realize the full revenue from its legislated tariffs because of various exemptions for duty-drawback provisions, investment incentives, and performance requirements. The weighted legal tariff rates are scaled down approximately 20 percent in order to be consistent with total import duty collections in 1994. As discussed above, the services estimates are those of the author and are based in part on the Zarrouk surveys (forthcoming) as well as on industry reviews.

TABLE 7: SECTORAL OUTPUT AND TRADE (%) -- EGYPT

SECTORS	Production*	Imports**	Exports**
AGRICULTURE			
Vegetable, food	12.4	13.3	2.6
Vegetable, non-food	1.7	0.0#	0.1
Animal	8.0	0.8	0.3
MINING			
Petroleum	2.7	1.2	18.5
Mining	.09	2.0	0.2
MANUFACTURING			
Food processing	7.7	15.1	1.3
Beverages	0.6	0.0#	0.0#
Tobacco	1.9	1.0	0.0#
Cotton ginning	1.2	0.5	4.2
Cotton spinning	5.2	2.4	10.3
Clothing	1.4	0.0#	1.2
Leather	0.2	0.0#	0.1
Shoes	0.4	0.0#	0.0#
Wood	1.1	5.0	0.1
Furniture	1.4	0.0	0.5
Paper	1.5	3.3	0.9
Chemicals	3.1	10.8	1.8
Petroleum refining	2.7	1.2	3.3
Rubber, plastics	0.8	2.3	0.3
Porcelain	0.3	0.4	0.1
Glass	0.3	0.5	0.1
Mineral, n.e.i.	1.7	0.4	0.0#
Base metals	2.8	2.6	0.8
Machinery	3.5	23.1	4.6
Transportation equip	1.0	5.9	0.4
Other	0.1	0.5	0.1
SERVICES			
Utilities	1.7	0.2	0.7
Construction	5.5	0.2	0.8
Trade	7.1	0.3	5.6
Restaurants, hotels	2.3	0.0	5.0
Transportation	6.0	1.3	31.9
Communications	0.8	0.1	0.4
Finance	1.5	1.1	---*
Insurance	0.3	---*	0.5
Real estate	2.8	3.9	---*
Social	6.0	0.1	0.2
Recreational	0.5	0.2	3.2
Personal	0.9	---*	---*

Notes: * Not traded; ** Traded, but with share less than 0.005 percent.
Source: Maskus and Konan (1997).

TABLE 8: BENCHMARK TRADE SHARES -- EGYPT

	US Trade Share Imports	Exports	MENA Imports	Trade Share Exports	EU* Imports	Trade Share Exports
AGRICULTURE						
Vegetable, food	47.9	1.5	2.2	63.5	11.7	27.0
Vegetable, non-food	16.5	13.4	1.2	14.1	36.9	49.3
Animal	0.0	2.3	9.6	53.0	82.7	35.2
MINING						
Petroleum	7.0	4.6	24.4	1.0	52.0	30.6
Mining	14.8	9.2	3.5	21.4	17.7	56.8
MANUFACTURING						
Food processing	10.6	4.5	2.3	49.3	40.3	20.1
Beverages	16.3	0.0	28.5	87.6	41.7	1.2
Tobacco	27.4	0.7	2.5	45.3	27.0	0.4
Cotton ginning	0.3	0.2	0.9	1.4	36.9	33.7
Cotton spinning	7.1	10.9	3.7	6.1	33.4	72.4
Clothing	0.9	49.1	19.1	8.6	12.4	34.7
Leather	0.9	1.5	13.8	30.9	25.7	48.8
Shoes	2.9	1.9	12.0	60.5	16.0	20.5
Wood	1.4	0.1	0.4	86.1	39.8	1.5
Furniture	34.7	10.6	1.4	58.5	57.0	14.9
Paper	17.1	0.8	2.9	91.7	46.8	1.6
Chemicals	12.2	3.5	7.9	39.4	62.6	31.3
Petroleum refining	6.2	0.6	28.9	7.2	48.4	58.5
Rubber, plastics	20.4	0.7	9.8	45.3	42.8	41.3
Porcelain	7.8	1.5	11.5	32.4	47.4	42.2
Glass	5.3	5.5	3.6	62.1	63.3	9.3
Mineral n.e.i.	3.8	2.0	2.2	80.9	61.6	4.8
Base metals	11.8	1.9	9.0	24.3	35.5	68.3
Machinery	17.4	3.9	2.4	58.0	59.4	9.5
Transportation	12.1	0.3	0.7	89.8	33.8	3.6
Other	11.2	3.2	3.5	62.5	47.6	25.4
SERVICES						
Utilities	16.8	7.0	4.3	40.0	44.6	25.0
Construction	16.8	7.0	4.3	40.0	44.6	25.0
Trade	16.8	7.0	4.3	40.0	44.6	25.0
Restaurants, hotels	16.8	7.0	4.3	40.0	44.6	25.0
Transport	16.8	6.7	4.3	20.2	44.6	44.7
Communications	16.8	7.0	4.3	40.0	44.6	25.0
Finance	16.8	7.0	4.3	40.0	44.6	25.0
Insurance	16.8	7.0	4.3	40.0	44.6	25.0
Real estate	16.8	7.0	4.3	40.0	44.6	25.0
Social	16.8	7.0	4.3	40.0	44.6	25.0
Recreational	16.8	7.0	43.	40.0	44.6	25.0
Personal	16.8	7.0	4.3	40.0	44.6	25.0

Note: * Including Turkey.
Source: Maskus and Konan (1997).

TABLE 9: Egypt Policy Parameters (ad valorem rates)

SECTOR	Goods & Services Tax 1994*	Capital Tax 1994	Egypt Tariff 1994	MENA Tariff 1994	Services Barriers	
					Border	Investment
AGRICULTURE						
Vegetable, food	0.0	0.0	2.5	6.3		
Vegetable, non-food	10.0	0.0	6.7	28.9		
Animal	0.0	0.0	4.4	6.7		
MINING						
Petroleum	0.0	18.0	8.2	2.9		
Mining	10.0	18.0	7.0	15.6		
MANUFACTURING						
Food processing	0.0	18.0	6.8	18.3		
Beverages	10.0	18.0	953.2	14.8		
Tobacco	10.0	18.0	65.5	83.1		
Cotton ginning	10.0	18.0	17.3	24.9		
Cotton spinning	10.0	18.0	23.3	17.4		
Clothing	10.0	18.0	53.7	32.5		
Leather	10.0	18.0	34.8	44.6		
Shoes	10.0	18.0	51.8	36.9		
Wood	5.0	18.0	8.1	28.1		
Furniture	10.0	18.0	46.9	34.9		
Paper	0.0	18.0	13.3	18.6		
Chemical	5.0	18.0	8.9	17.6		
Petroleum refining	0.0	18.0	7.1	20.0		
Rubber, plastics	10.0	18.0	15.6	24.7		
Porcelain	10.0	18.0	43.5	21.3		
Glass	10.0	18.0	29.6	17.2		
Mineral, n.e.i.	5.0	18.0	18.1	12.7		
Base metals	10.0	18.0	17.2	32.6		
Machinery	25.0	18.0	17.9	19.9		
Transportation	25.0	18.0	41.2	56.6		
Other	10.0	18.0	19.3	24.9		
SERVICES						
Utility	2.5	23.0			*nt*	*nt*
Construction	10.0	23.0			3	3
Trade	8.0	23.0			6	5
Restaurants, hotels	8.0	23.0			3	5
Transportation	0.0	23.0			50	3
Communications	5.0	23.0			150	15
Finance	8.0	23.0			3	30
Insurance	0.0	23.0			*nt*	30
Real estate	8.0	23.0			10	10
Social	10.0	23.0			3	15
Recreational	8.0	23.0			3	3
Personal	10.0	23.0			*nt*	10

Note: *nt* = non-traded modes of supply.
Source: Maskus and Konan (1997).

IV. Alternative Paths to Prosperity

This section presents an array of scenarios illustrating various types of goods and services trade liberalization. Preferential liberalization, either through the Euro-Med initiative or a Greater Arab Free Trade Agreement (GAFTA), and multilateral liberalization are considered. Levels of goods liberalization range from shallow integration involving only tariffs on goods, to deep integration, in which NTBs on goods are eliminated. Finally, the role of services liberalization is considered, including the reduction of barriers on cross-border trade as well as barriers to foreign direct investment in the service sector.

Shallow Integration Implies Small Returns

Several interesting observations follow from a trade liberalization exercise that involves only an elimination of tariff rates, either on a preferential or multilateral basis; the results are shown in Table 10. It should be noted that welfare is measured in equivalent variation terms and thus provides a real utility-based measure of the gains for households.

One of the most surprising results is that, with one exception, the gain from liberalization for Tunisia is significantly greater in percentage terms than that for Egypt. Trade liberalization involving the EU would raise Tunisian welfare, measured in terms of equivalent variation (EV) in household income, from 2.12 to 3.03 percent. GDP would increase from 4.23 to 5 percent, depending on the nature of the agreement. Due to deleterious trade diversion, a pure Greater Arab Free Trade Agreement would actually lower Tunisian welfare. In contrast, static gains from shallow trade liberalization in Egypt are estimated at less than 1 percent. A shallow Egypt-EU trade agreement would have a negligible impact on the economy.

Counterfactual experiments (not shown) verified the following. First, the weighted average tariff rates in the benchmark are surprisingly similar for Egypt and Tunisia and do not explain the differences. Second, the dispersion of tariff rates across sectors is likewise not an explanation as remarkably similar results would emerge if benchmark tariff rates were uniform in each country and across all sectors. Third, Egypt's domestic tax structure, with more domestic tax instruments and less uniformity of rates within instruments, is far more complicated than that of Tunisia. Yet the difference continues to hold even if all domestic tax instruments are replaced with a lump-sum tax.

The explanation appears to be differences in openness between Tunisia and Egypt that are not attributable to tariff or tax policy. Tunisia's economy relies much more on trade than Egypt's does. In 1996, merchandise trade as a percentage of GDP on a purchasing power parity basis was 15 percent in Egypt and 30 percent in Tunisia (Table 1). In terms of openness, Tunisia is similar to Saudi Arabia, Oman, Kuwait, and Jordan. With the exception of services, imported products are important in most sectors while exports are concentrated in a few key sectors (Table 8). Egypt's somewhat closed trade environment is comparable to that of Algeria, Iran, Morocco, and Syria. As shown in Table 11, the relative volume of imports to Egypt are trivial in several key manufacturing sectors. What the data do not clearly show is why Egyptian markets are less reliant on international trade than those of Tunisia. There are several theoretical explanations. The Egyptian economy may be naturally somewhat self-sufficient (as is the United States whose openness index is even lower). Egyptian trade transactions costs may be high in ways that are not as readily measurable. The infrastructure supporting trade – in communications, banking, or transportation, for example – might be inadequate. Egyptian consumers might have a greater preference for domestically produced goods than do Tunisian consumers. The regulatory and administrative transactions costs may be substantially higher in Egypt. Regardless of the cause, it is apparent that it will be much more difficult for Egypt than for Tunisia to gain from integration of any sort. Tariff barriers are far easier to change than the systemic elements that might be suppressing Egypt's volume of trade.

A second surprising result is the ranking of gains for Tunisia. Tunisia's welfare is actually lower if tariffs are lowered on a multilateral basis, even if the concessions in terms of access to European and MENA markets are preserved (Table 10, column SHM). The explanation for this counterintuitive result relies on the interaction between domestic taxes and trade taxes, an issue that is discussed at length in Konan and Maskus (2000). Throughout these scenarios, changes in tariffs and other policies are assumed to be revenue neutral, with domestic tax instruments changing to compensate for any rise or fall in tariff revenues. In the case of Tunisia, the instrument is a value-added tax (VAT) and the tax rate differs across sectors (see Table 6). Eliminating tariffs on a most-favored-nation (MFN) basis creates greater stress on government revenues and requires a slightly higher percentage increase in the VAT. Counterfactual experiments (not shown) verify that if a less

distortionary tax instrument were available to Tunisia, gains from shallow integration would be uniformly higher. With an endogenous lump-sum tax, welfare from the shallow Euro-Med initiative would increase by 4.3 percent (GDP by more than 7 percent) and from MFN liberalization by over 5 percent (GDP by 9 percent). In the case of Tunisia, relying on the primary domestic tax instrument significantly mitigates the gains from trade liberalization.

A third observation is that trade shares matter when considering regional integration. In the case of Tunisia, most of the gains from trade can be achieved through the simple Euro-Med initiative because Tunisia's trade is concentrated bilaterally with Europe. Indeed, given the loss of tax revenues and the lack of non-distortionary alternative instruments, a MFN initiative might yield lower welfare levels than a preferential agreement. Given the rather small volume of benchmark trade with MENA countries, Tunisia would actually lose from a purely Arab-focused trade agreement due to trade diversion. In contrast, trading patterns in Egypt are diverse, and they include a substantial volume of trade with the US and with MENA, in addition to Europe. The role of Egypt's bilateral trading patterns are examined in detail in Konan and Maskus (2002b) and Hoekman, Konan and Maskus (1998). Regional agreements that lead to preferential, rather than MFN, reduction of barriers have a tendency to inefficiently reduce the volume of trade with non-member countries, thus dampening the benefits of liberalization.

A final, less surprising result of shallow integration is that free trade tends to favor labor in Tunisia and non-production labor in Egypt. While the model is one of full employment, this enhanced demand for labor might likely be reflected in higher employment levels rather than merely higher wages. Finally, the labor and other value-added adjustment terms reflect the percentage of the respective factor that would change sector of employment in response to the new policy environment. In Tunisia, about 5.6 percent of the factors would change occupations under a purely preferential agreement and about half that amount would move under an MFN agreement. Note that if a lump-sum tax replacement were used in Tunisia, approximately 7 to 8 percent of factors would be mobile in a shallow integration framework. Factor adjustment costs are much lower in Egypt, with less than 2 percent mobility.

To briefly summarize the lessons learned from this first set of experiments, the liberalization issues confronting Egypt and Tunisia are different in important ways. For Tunisia, a liberalization effort that focuses on trade with Europe will move the economy in a direction very close to that of free trade. The benefit of reducing tariffs is rather substantial. What is dampening Tunisia's ability to benefit from a liberalized trade environment is the distortionary nature of its value-added tax. In absence of tariff revenues, the VAT becomes a more important tax instrument. Efforts to enhance uniformity of the VAT would complement trade liberalization efforts.

In the case of Egypt, the relatively low volume of trade and openness appears to be due to factors besides simple tariffs. While reforms might be easier to facilitate in the context of a Egypt-EU agreement or a Greater Arab initiative, given Egypt's diverse pattern of trade, liberalization that proceeds on a bilateral basis will not be as constructive as multilateral efforts. This implies that the path to liberalization is likely to be more complicated for Egypt than for Tunisia, since it would involve structural barriers beyond those of tax rate changes and more complex patterns of regional trade.

TABLE 10: IMPACT OF SHALLOW REFORM SCENARIOS (Tariffs only)

	Euro-Med Agreement	GAFTA	GAFTA plus Euro-Med	MFN	Euro-Med GAFTA plus MFN
Panel A: TUNISIA	**SEU**	**SME**	**SEM**	**SHA**	**SHM**
Macroeconomic Variables (% change)					
Welfare (EV)	3.03	-0.07	3.02	2.12	2.20
GDP	5.00	-0.02	5.01	4.23	4.31
Consumer Price Index	-2.94	0.07	-2.93	-2.08	-2.15
Wage	7.02	-0.17	6.98	3.20	3.41
Price of Other Value Added	-0.52	0.01	-0.52	0.67	0.64
Value-Added Tax	0.19	0.01	0.20	0.29	0.29
Labor Adjustment	5.49	0.15	5.46	1.62	1.77
Other VA adjustment	5.64	0.14	5.62	2.37	2.45
Production (share of GDP)					
Agriculture (benchmark=19.5 percent)	15.92	19.47	15.89	19.16	18.40
Manufacturing (33 percent)	42.63	32.69	42.63	33.68	36.53
Mining and Utilities (7 percent)	5.76	7.23	5.91	6.53	6.11
Services excl Tourism (41 percent)	35.69	40.61	35.57	40.62	38.95
Panel B: EGYPT	**SEU**	**SME**	**SEM**	**SHA**	**SHM**
Macroeconomic Variables (% change)					
Welfare (EV)	0.01	0.18	0.03	0.56	0.57
GDP	0.90	2.05	0.85	0.45	0.45
Consumer Price Index	-3.59	-3.75	-3.61	-4.11	-4.12
Wage Production Labor	1.67	2.22	1.71	1.81	1.82
Wage Non-Production Labor	2.38	2.17	2.44	3.18	3.21
Price of Other Value Added	1.80	1.87	1.82	2.21	2.21
Goods and Services Tax	-8.49	-43.95	-6.61	15.51	15.52
Production Labor Adjustment	1.09	0.45	1.16	1.95	1.97
Non-Production Labor Adjustment	0.88	0.26	0.93	1.55	1.57
Other VA Adjustment	1.09	0.53	1.13	1.90	1.91
Production (share of GDP)					
Agriculture (benchmark= 22.6 percent)	21.12	21.17	21.02	21.03	21.07
Manufacturing (39.8 percent)	40.96	41.73	40.85	40.24	40.02
Mining and Utilities (3.7 percent)	3.81	3.56	3.77	3.88	3.82
Services excl Tourism (33.4 percent)	34.11	33.54	34.36	34.84	35.09

Source: Author's computation.

Deepening Integration Among Arab Countries

Table 11 considers the possibility of a reduction in tariff and non-tariff barriers to goods trade. As discussed above, non-tariff barriers are assumed to arise due to excessive regulatory restrictions, the liberalization of which would lower trade costs with all trading partners. In addition to the removal of NTBs on a non-discriminatory basis, three tariff liberalization scenarios are considered. In the first column, tariffs on imports from MENA countries and the EU are eliminated (and reciprocal export market access to those regions improved). Next, tariffs are eliminated with all trading partners. Finally, the benefits of the GAFTA and EU-Mediterranean initiative are combined with unilateral tariff reduction in column DAL.

Three clear messages arise out of a liberalization scenario involving elimination of tariffs and non-tariff barriers to goods trade (Table 11). One is that the rewards of deep integration are significantly higher than those of traditional shallow integration, especially for Egypt. In the case of Tunisia, the percentage welfare gains are more than twice as high, with an almost 8 percent improvement in welfare (EV) and more than 8 percent expansion in GDP in all cases. Egyptian welfare gains associated with MFN tariff reduction in the context of the Euro-Med initiative and enhanced market access in MENA through the GAFTA increase from 0.6 percent when reforms are limited to tariffs, to 3.3 percent with deep integration. As discussed above, it may be that Egypt's regulatory and administrative barriers impose higher costs on trade than do those of Tunisia. In a counterfactual scenario in which Egyptian NTBs were assumed to be twice as high as those of Tunisia, deep integration provided an equivalent variation welfare gain ranging from 5 to 6 percent and an increase in GDP of about 3 percent.

Second, the gains of deep integration are rather similar regardless of whether barriers are reduced through unilateral reform or through a regional agreement. This second finding relies on the modeling assumption that administrative barriers are applied on a non-discriminatory basis. An alternative possibility is that regulatory and administrative barriers can be reduced on a preferential basis. In the case of Egypt, such scenarios for deep integration are considered in Hoekman and Konan (2000, 2001).

Third, the adjustment costs of deep integration, in terms of movement of factors, appears to be roughly similar to that of shallow integration, as are the required changes in the endogenous domestic tax instrument. Thus, deep integration goes no further than shallow integration in changing employment and production patterns and is thus no more costly in terms of restructuring the economy.

TABLE 11: IMPACT OF DEEP REFORM SCENARIOS (Tariffs plus goods NTBs)

Tariffs plus goods NTBs	GAFTA plus Euro-Med	Unilateral MFN	Euro-Med GAFTA plus MFN
Panel A: TUNISIA	**DEM**	**DAL**	**DAM**
Macroeconomic Variables (% change)			
Welfare (EV)	7.71	7.87	7.96
GDP	8.26	8.82	8.85
Consumer Price Index	-7.16	-7.29	-7.37
Wage	10.44	10.48	10.07
Price of Other Value Added	2.21	2.43	2.76
Value-Added Tax	0.17	0.23	0.24
Labor Adjustment	5.51	5.13	4.57
Other VA Adjustment	5.66	5.12	4.71
Production (share of GDP)			
Agriculture (benchmark= 19.5 percent)	15.62	16.30	16.05
Manufacturing (33 percent)	43.00	41.85	41.82
Mining and Utilities (7 percent)	6.34	5.44	6.43
Services excl Tourism (41 percent)	35.04	36.40	35.70
Panel B: EGYPT	**DEM**	**DAL**	**DAM**
Macroeconomic Variables (% change)			
Welfare (EV)	2.74	2.93	3.31
GDP	1.87	1.33	1.49
Consumer Price Index	-6.15	-6.33	-6.67
Wage Production Labor	3.88	3.42	4.06
Wage Non-Production Labor	4.80	4.99	5.64
Price of Other Value Added	3.56	3.75	3.98
Goods and Services Tax	-7.47	14.86	15.21
Production Labor Adjustment	1.88	2.36	2.67
Non-Production Labor Adjustment	1.44	1.82	2.05
Other VA Adjustment	1.65	2.28	2.37
Production (share of GDP)			
Agriculture (benchmark= 22.6 percent)	20.45	20.96	20.32
Manufacturing (39.8 percent)	40.25	39.93	39.52
Mining and Utilities (3.7 percent)	3.47	3.88	3.52
Services excl Tourism (33.4 percent)	35.84	35.23	36.63

Source: Author's computation.

Service Sector Liberalization Yields Large Payoffs

Key findings from the Konan and Maskus study of the impact of service liberalization on the Tunisian economy are presented in Table 12 and compared with results obtained in the case of Egypt.[13] An initial observation is that while the benefits of service liberalization are quite significant, what is required is a reform package that facilitates foreign direct investment. The scope for gains from liberalizing cross-border barriers is limited due to the low volume of services that are traded across borders. As discussed previously, many services require personal interactions between producer and client, impeding the movement of services across borders.

If barriers to foreign investment were lowered, the estimated gains would be substantial, with an equivalent variation gain in welfare of 7 percent for Egypt and 8 percent for Tunisia. For Tunisia, these gains are comparable to those estimated to be achievable through deep liberalization of goods trade (Table 11). The Egyptian economy would apparently more readily benefit from liberalization that focuses on services than on a reform package concerned only with barriers to goods trade.

In the case of Tunisia, while the gains from liberalizing services investment are similar to those attainable under deep integration of goods markets (Table 11), the impacts on the economy are markedly different. Deep integration of goods involves restructuring the economy toward manufacturing and away from other sectors, most notably agriculture and services.[14] In contrast, services liberalization appears to involve rather minimal adjustments in the movement of factors across sectors and in the overall structure of the economy. Services liberalization in Tunisia benefits non-labor sources of value added disproportionately whereas goods liberalization favors workers. Surprisingly, services liberalization in Egypt appears to benefit production labor and other sources of value added, with non-production labor (concentrated in the provision of services) apparently benefiting little.

[13] Konan and Maskus (2002a).
[14] Egypt's economy appears to be less responsive to deep integration and gains achievable are less pronounced.

TABLE 12: IMPACT OF SERVICES LIBERALIZATION SCENARIOS

	Services Border Liberalization	Services Investment Liberalization	Full Services Liberalization
Panel A: TUNISIA	**S1**	**SR3**	**SAL**
Macroeconomic Variables (% change)			
Welfare (EV)	0.95	7.90	9.11
GDP	0.74	7.79	8.78
Consumer Price Index	-0.94	-7.32	-8.35
Wage	0.37	3.50	4.38
Price of Other Value Added	1.15	8.12	9.28
Labor Adjustment	0.81	3.32	3.67
Other VA Adjustment	1.02	4.68	5.19
Production (share of GDP)			
Agriculture (benchmark= 19.5 percent)	19.95	21.08	21.28
Manufacturing (33 percent)	31.61	29.41	28.83
Mining and Utilities (7 percent)	7.09	6.61	6.62
Services excl Tourism (41 percent)	41.36	42.90	43.28
Panel B: EGYPT	**S1**	**SR3**	**SAL**
Macroeconomic Variables (% change)			
Welfare (EV)	0.79	6.77	7.31
GDP	2.49	8.39	8.71
Consumer Price Index	-4.33	-9.69	-10.15
Wage Production Labor	2.71	8.65	9.08
Wage Non-Production Labor	2.25	0.37	0.50
Price of Other Value Added	2.43	7.87	8.40
Production Labor Adjustment	0.78	2.49	2.47
Non-Production Labor Adjustment	0.55	4.52	4.52
Other VA Adjustment	0.89	1.19	1.25
Production (share of GDP)			
Agriculture (benchmark= 22.6 percent)	21.26	21.03	21.02
Manufacturing (39.8 percent)	41.88	41.77	41.77
Mining and Utilities (3.7 percent)	3.96	3.74	4.11
Services excl Tourism (33.4 percent)	32.89	33.47	33.10

Source: Author's computation.

TABLE 13: IMPACT OF ALTERNATIVE GAFTA REFORM SCENARIOS

	GAFTA (tariffs only)	GAFTA, Euro-Med, MFN (tariffs only)	GAFTA plus Euro-Med (tariffs plus goods NTBs)	GAFTA, Euro-Med, MFN (tariffs plus goods NTBs)	Services Liberalization (no change in goods barriers)	GAFTA plus Shallow Goods and Services Liberalization	GAFTA plus Deep Goods and Services Liberalization
Panel A: TUNISIA	**SME**	**SHM**	**DEM**	**DAM**	**SAL**	**SGSM**	**DGSM**
Macroeconomic Variables (% change)							
Welfare (EV)	-0.07	2.20	7.71	7.96	9.11	2.99	15.97
GDP	-0.02	4.31	8.26	8.85	8.78	4.85	16.49
Consumer Price Index	0.07	-2.15	-7.16	-7.37	-8.35	-2.90	-13.77
Wage	-0.17	3.41	10.44	10.07	4.38	3.29	10.49
Price of Other Value Added	0.01	0.64	2.21	2.76	9.28	1.89	13.18
Value-Added Tax	0.01	0.29	0.17	0.24	-0.06	0.30	0.21
Labor Adjustment	0.15	1.77	5.51	4.57	3.67	1.22	3.31
Other VA Adjustment	0.14	2.45	5.66	4.71	5.19	2.38	5.81
Production (share of GDP)							
Agriculture (benchmark= 19.5 percent)	19.5	18.4	15.6	16.1	21.3	19.1	20.1
Manufacturing (33 percent)	32.7	36.5	43.0	41.8	28.8	34.5	32.0
Mining and Utilities (7 percent)	7.2	6.1	6.3	6.4	6.6	6.4	6.4
Services excl Tourism (41 percent)	40.6	39.0	35.0	35.7	43.3	39.9	41.5

Source: Author's computation.

TABLE 13: IMPACT OF ALTERNATIVE GAFTA REFORM SCENARIOS (Continued)

	GAFTA (tariffs only)	GAFTA, Euro-Med, MFN (tariffs only)	GAFTA plus Euro-Med (tariffs plus goods NTBs)	GAFTA, Euro-Med, MFN (tariffs plus goods NTBs)	Services Liberalization (no change in goods barriers)	GAFTA plus Shallow Goods and Services Liberalization	GAFTA plus Deep Goods and Services Liberalization
Panel B: EGYPT	**SME**	**SHM**	**DEM**	**DAM**	**SAL**	**SGSM**	**DGSM**
Macroeconomic Variables (% change)							
Welfare (EV)	0.18	0.57	2.74	3.31	7.31	1.14	10.64
GDP	2.05	0.45	1.87	1.49	8.71	0.81	8.20
Consumer Price Index	-3.75	-4.12	-6.15	-6.67	-10.15	-4.67	-12.85
Wage Production Labor	2.22	1.82	3.88	4.06	9.08	2.26	11.38
Wage Non-Production Labor	2.17	3.21	4.80	5.64	0.50	3.34	4.41
Price of Other Value Added	1.87	2.21	3.56	3.98	8.40	2.78	10.61
Goods and Services Tax	-43.95	15.52	-7.47	15.21	-76.50	14.79	-16.80
Production Labor Adjustment	0.45	1.97	1.88	2.67	2.47	1.84	4.89
Non-Production Labor Adjustment	0.26	1.57	1.44	2.05	4.52	1.49	5.70
Other VA Adjustment	0.53	1.91	1.65	2.37	1.25	1.99	3.25
Production (share of GDP)							
Agriculture (benchmark= 22.6 percent)	21.2	21.1	20.5	20.3	21.0	20.9	20.2
Manufacturing (39.8 percent)	41.7	40.0	40.3	39.5	41.8	40.2	39.6
Mining and Utilities (3.7 percent)	3.6	3.8	3.5	3.5	4.1	4.3	4.0
Services excl Tourism (33.4 percent)	33.5	35.1	35.8	36.6	33.1	34.6	36.2

Source: Author's computation.

V. Concluding Remarks

This section summarizes key insights for Tunisia and Egypt. Selected alternative integration scenarios, most of which have already been discussed, are given in Table 13.

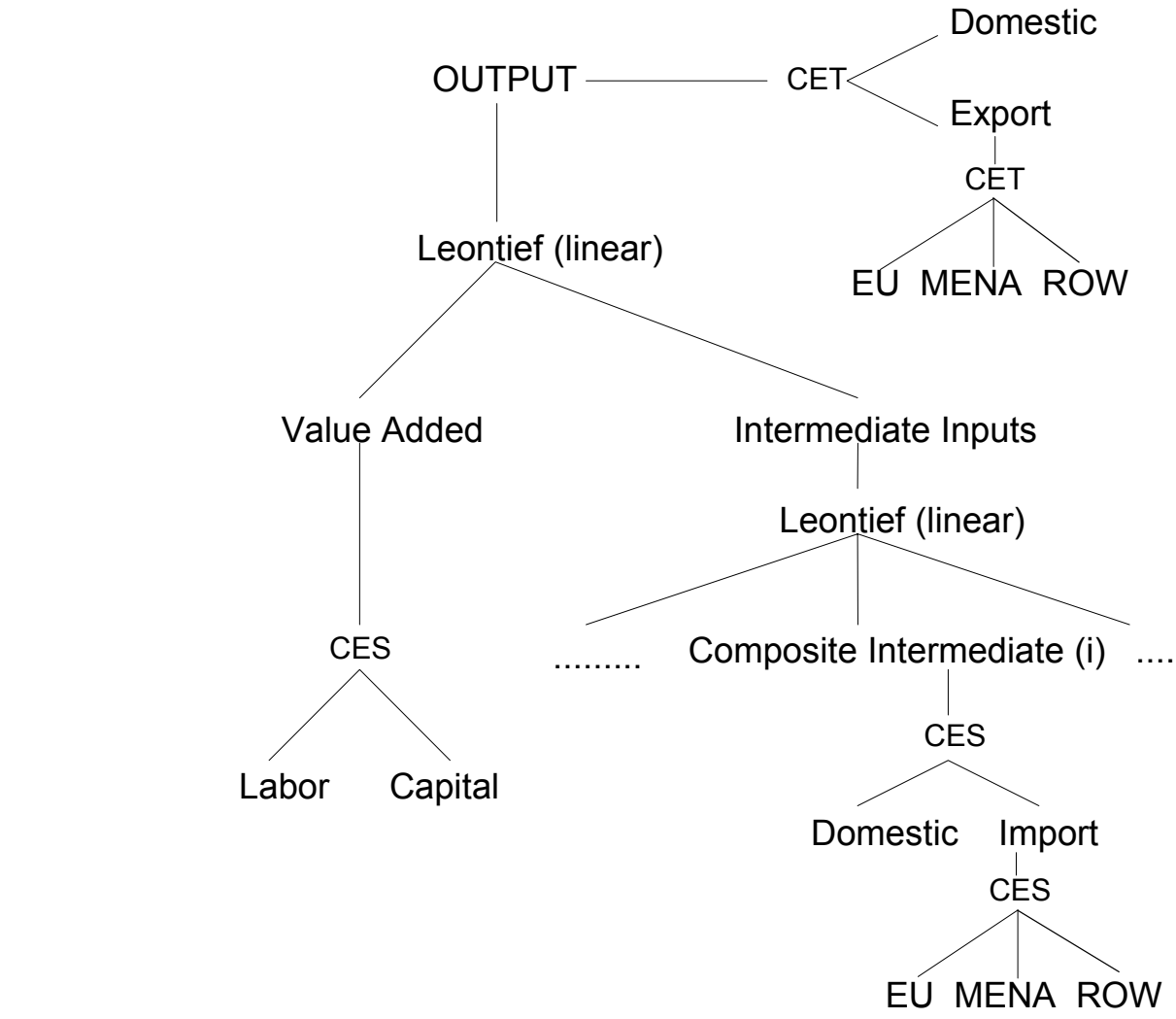
Overall Implications for Tunisia

In the case of Tunisia, the benefits of liberalizing services barriers are somewhat higher than those achievable through eliminating goods barriers (both tariffs and NTBs, column DAM) and significantly higher than the benefits of traditional shallow integration (column SHM). If the category of shallow integration is expanded to include a reduction of barriers on services trade (column SGSM), welfare increases modestly. Column DGSM shows the result of an extensive reform in which goods tariffs and NTBs are eliminated and foreign trade and investment in the service sector are liberalized. The potential gains are remarkable – roughly 16 percent in both equivalent variation (welfare) and in output. These gains are just less than additive of the gains attributed to goods liberalization (DAM) and to services liberalization (SAL) in isolation, implying that the reforms impact the economy with modest interaction. As mentioned earlier, the distortionary nature of Tunisia's value-added tax offsets some of the gains to be had from most liberalization scenarios. Due to a low volume of bilateral trade, a simple MENA arrangement (in absence of the Euro-Mediterranean initiative) would tend to be trade diversionary and lower welfare and output. The decision of Tunisian policymakers to conduct reform efforts in the context of Tunisia's relationship with Europe appears to be rational.

Overall Implications for Egypt

As shown on Table 10, Egypt would gain only modestly from traditional trade agreements that focus only on tariff barriers (column SHM). The relatively low volume of Egyptian trade appears to be attributable to factors not captured by tariff rates, as previously discussed. For reform to have a major impact on Egypt's economy, structural impediments to trade need to be reduced. Two such extensive reforms are considered. In the first, it is assumed that NTBs on goods are reduced in conjunction with the elimination of tariffs and with regional agreements through which barriers fall within trading partners (DEM and DAM). The estimates of deep integration that follow are comparable to those achievable in

Tunisia under simple shallow liberalization scenarios. As it is highly likely that the NTBs reported for Egypt in this paper underestimate the true extent of barriers, additional counterfactual experiments were performed in which goods NTBs were doubled. In that event, deep integration would increase welfare by 5 to 6 percent, a significant improvement. It is thus important to gather more evidence on the true impact of Egyptian NTBs. Reform of the service sector, particularly domestically and through foreign investment, appears to offer the most significant prospects for gains.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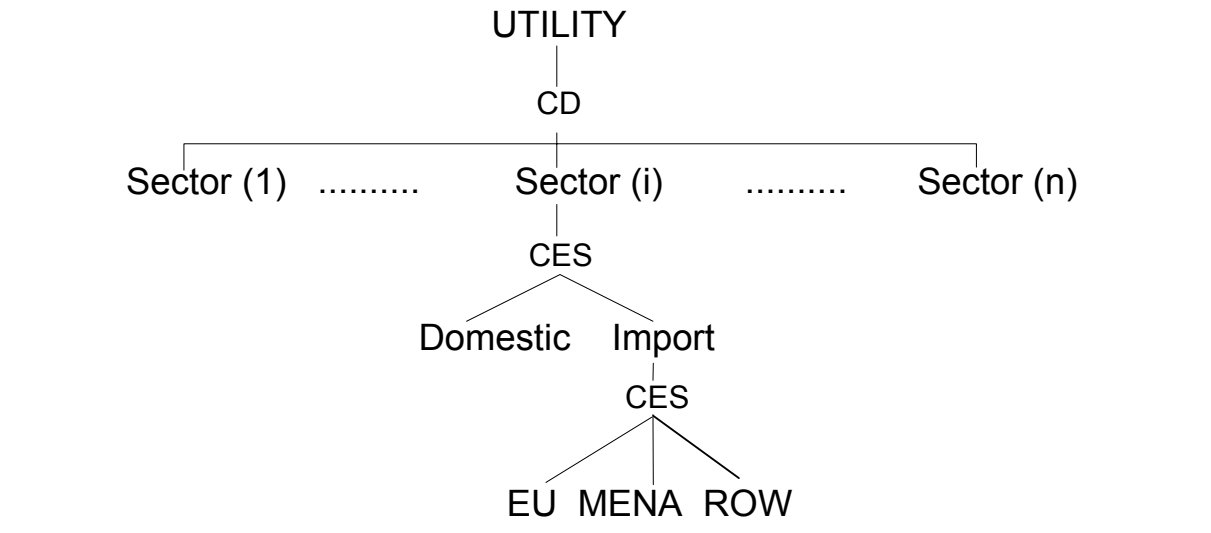
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MODEL EQUATIONS AND NOTATION

A. Production

1. Value Added Function $V_i = [a_{Li}L_i^{(\sigma i-1)/\sigma i} + a_{Ki}K_i^{(\sigma i-1)/\sigma i}]^{\sigma i/(\sigma i-1)}$

2. Imported Intermediates $M_{iN} = [\Sigma_r \delta_{ri} m_{riN}^{(\eta i-1)/\eta i}]^{\eta i/(\eta i-1)}$

3. Composite Intermediate $z_{ji} = [\gamma_{di} d_{ji}^{(\eta j-1)/\eta j} + \gamma_{mi} m_{ji}^{(\eta j-1)/\eta j}]^{\eta j/(\eta j-1)}$

4. Final Goods Technology $Y_i = \min[z_{1i}/a_{1i},..,z_{ni}/a_{ni},V_i/a_{VA}]$

5. Domestic & Foreign Sales $Y_i = [\alpha_{Di} D_i^{(\varepsilon i-1)/\varepsilon i} + \alpha_{Xi} X_i^{(\varepsilon i-1)/\varepsilon i}]^{\varepsilon i/(\varepsilon i-1)}$

6. Export Allocation $X_i = [\Sigma_r \beta_{ri} X_{ri}^{(ei-1)/ei}]^{ei/(ei-1)}$

7. Marginal Cost Condition $(1+\lambda_i)c_i Y_i = \Sigma_j(1+v_j)p_j d_{ji} + \Sigma_j\Sigma_r(1+u_j+t_{rj})p_{rj}^m m_{rji} + (1+\tau_{Vi})(w_K K_i + w_L L_{1i})$

B. Utility

8. Utility Function $U = \Pi_i C_i^{bi}$; $\Sigma_i b_i = 1$

9. Domestic & Import Consumption (applies also to G_i and I_i^F) $C_i = [\phi_{Di} D_{iC}^{(\psi i-1)/\psi i} + \phi_{MiC} M_{iC}^{(\psi i-1)/\psi i}]^{\psi i/\psi i-i}$

10. Import Allocation (applies also to M_{iG} and M_{iI}^F) $M_{iC} = [\Sigma_r \delta_{ri} M_{ric}^{(\eta i-1)/\eta i}]^{\eta i/\eta i-1}$

C. Constraints and Balancing Items

11. Agent's Budget Constraint $\Sigma_i \tilde{p}_i^C C_i = w_K \bar{E}_K + w_L \Sigma_i L_i + - \Sigma_i \tilde{p}_i^{IF} I_i^F - \Sigma_i p_i I_i^I - r^F K^F - D + \Sigma_i v_i Y_i$

12. Government Budget Constraint $\Sigma_i \tilde{p}_i^G G_i = D + \Sigma_i \tau_{Vi} \tilde{p}_i^C V_i + \Sigma_i\Sigma_r(\tau_{Vi} + t_{ri})p_{ri}^m(M_{riC}+M_{riI}^F)$

13. Current Account Balance $0 = \Sigma_r\Sigma_i(1/e)(p_{ri}^m M_{ri} - p_{ri}^x X_{ri} - w_L^F L^F + r^F K^F)$

14. Product Market Clearance $S_i = \Sigma_j a_{ij} Y_j + G_i + I_i^F + I_i^I + C_i$

15. Factor Market Clearance $\Sigma_i K_i = \bar{E}_K$; $\Sigma_i L_i = \bar{E}_{1L}$

16. Zero Profits $p_i D_i + \Sigma_r p_{ri}^x X_{ri} = c_i Y_i$

17. Supply Value Balance $\tilde{p}_i S_i = \tilde{p}_i^Z \Sigma_j a_{ij}(1+v_i)Y_j + \tilde{p}_i^C D_{iC} + \tilde{p}_i^{IF} D_{iI}^F + \tilde{p}_i^G D_{iG} + \tilde{p}_i^{IF} I_i^I + \Sigma_r(1+\tau_{Vi}+u_i+t_{ri})p_{ri}^m(M_{riC} + M_{riG} + M_{riI}^F)$

D. Price Relationships and Identities

18. Components of Domestic Sales $D_i = D_{iC} + D_{iI}^F + I_i^I + D_{iG}$

19. Components of Import Sales $M_i = M_{iN} + M_{iC} + M_{iI}^F + M_{iG}$

20. Domestic Price of Intermediate Imports (holds also for imports for G) $p_{ri}^N = (1 + \tau_{Vi} + u_i + t_{ri})p_{ri}^m$

21. Domestic Price of Imports for C $p_{ri}^C = (1 + \tau_{Vi} + u_i + t_{ri})p_{ri}^m$

(holds also for imports for I^F)

22. Consumer Price of Domestic Goods (holds also for purchases for I^F) $p_i^C = (1 + v_i)p_i$

23. Capital-Market Equilibrium $\tau_{K1} + w_{K1} = ... = \tau_{Kn} + w_{Kn}$

LIST OF VARIABLES

L_i	Domestic labor inputs, sector i (i=1,..,34)
K_i	Capital (other value added) inputs, both mobile and immobile
V_i	Value added
M_i	Total imports
M_{ri}	Imports from region r (r = EU, MENA, ROW)
M_{iN}	Imports of commodity i for intermediate use
m_{riN}	Imports for intermediate use from region r (r = EU, MENA, ROW)
z_{ji}	Composite intermediate input of j into i (j=1,...,34)
d_{ji}, m_{ji}	Intermediate usages of domestic and imported goods
Y_i	Output of good i
D_i, X_i	Output for domestic sales and exports
D_{iC}, D_{iG}, D_{iI}^F	Domestic sales: private and public consumption, capital formation
X_{ri}	Exports of good i to region r
c_i	Index of marginal cost of production
p_i	Domestic producer price index
$\tilde{p}_i^Z$, $\tilde{p}_i^C$, $\tilde{p}_i^{IF}$, $\tilde{p}_i^G$	Domestic price indexes (home and imported prices)
w_K, w_L	Factor price indexes
U	Utility
$\tilde{p}_i$	Composite price index for total domestic supply
C_i, G_i	Private and public consumption
I_i^F, I_i^I	Fixed capital formation and inventory investment
M_{iC}, M_{iG}	Imports for private and public consumption
M_{iI}^F	Imports for fixed capital formation
M_{riC}, M_{riG}	Imports for private and public consumption from region r
M_{riI}^F	Imports for fixed capital formation from region r
K^F	Net payments on foreign capital holdings
e	Real exchange rate (price index for foreign exchange)
B	Current-account balance

D	Government budget deficit (held fixed)
S_i	Supply on domestic market ($D_i + M_i$)
p_{ri}^N	Domestic price index for intermediate imports
p_{ri}^C, p_{ri}^G	Domestic price indexes for imports of private and public consumption
p_{riI}^F	Domestic price index for imports for gross capital formation
p_i^C, p_{iI}^F	Price index for private consumption/fixed capital of domestic goods
p_{ri}	Producer price index for goods exported to region r
τ_{Vi}	Endogenous tax rate on value added

LIST OF PARAMETERS

σ_i	Substitution elasticity between capital and labor
η_a	Substitution elasticity between intermediates and value added
η_i	Armington elasticity on imports between regions
η_j	Substitution elasticity between domestic and imported intermediates
ε_i	Transformation elasticity between domestic and exported output
e_i	Transformation elasticity on exports between regions
ψ_i	Substitution elasticity between domestic and imported consumption
t_{ri}	Tariff rate on imports from region r (t_{ri}= 0 for service sectors)
u_i	Resource-using services border barriers (u_i=0 for non-service sectors)
v_i	Service rents on output (v_i=0 for non-service sectors)
λ_i	Service resource-using barriers on output (λ_i=0 for non-service sectors)
$\overline{E}_K$, $\overline{E}_{1L}$	Endowment of capital and labor
p_{ri}^m	Price of imports from region r
p_{ri}^x	Price of exports in region r
r^F	Price of foreign capital payments

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