

Fiscal Impact of Trade Liberalization: The Case of Syria¹

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March 2001

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Abstract:

Scenarios of trade liberalization are studied in simulations of a static computable general equilibrium model of the Syrian economy. The standard model is modified to allow for government monopolies in selected sectors of the economy and for peculiarities of the Syrian multiple exchange rate system. Structural features of the tariff system suggest low elasticities of substitution for industrial demands, so that the production side of the domestic economy receives little stimulus from reduced tariff rates. As a result, lost tariff revenue basically benefits private consumption. The government budget deficit increases sizably under radical liberalization scenario. However, revenue losses are still manageable and compensating measures, i. e. the introduction of a general sales or value added tax, are suggestive.

Keywords: Computable General Equilibrium Model, Trade Liberalization, Barcelona Process, Syria

JEL: O53

¹ This work has benefited from a financial grant from the Commission of the European Communities within the context of the FEMISE program. The views expressed are those of the beneficiary and therefore in no way reflect the official opinion of the Commission. The paper is an abbreviated version of the full report for this project to be submitted to the Institut de la Méditerranée and was prepared for the second FEMISE conference in marseille, March 29 – March 30, 2001.

I. Introduction

Association Agreements under the European Union's Mediterranean Initiative aim at establishing a free trade area for most products in a 12 year transition period, cf. Nsouli et al., 1996. Removal of barriers to trade, both tariff and non-tariff, is hence a core issue in the negotiations. But many Mediterranean countries (henceforth MED) have underdeveloped tax systems both for value added and income taxes so that government revenue may rely heavily on taxing foreign trade.

Syria has been particularly reluctant to embrace the EU-Mediterranean initiative. The precise reasons for this are unclear, since the budgetary dependence on import taxes (tariff revenues account for 5.6 percent of total government expenditure in 1999) is much smaller than in many other MED countries, cf. Lebanon (28 percent), Algeria (19 percent), and Tunisia (16 percent), see e. g. Abed, 1998. Moreover, despite a tradition of anti-western political and economic orientation, Syria has made efforts of market oriented economic reforms in recent years and is trying to end its long-term political isolation. Thus the EU initiative might be seen as a welcome chance to promote both developments.

The Commission of the European Union (EU) has sponsored research on the fiscal effects (in particular the effect on the budget deficit) of reduced Syrian import tariffs. This paper is an abbreviated version of the final report on the said research project. Due to page limitations, only selected aspects of structural features, methodology and simulation results are presented here. A detailed presentation can be found in the final report (Lucke, 2001).

Special attention will be devoted to scenarios of trade liberalization which could be the outcome of an association agreement between the EU and Syria under the Mediterranean Initiative. The sequel of the paper is organized as follows: Section II summarizes some essential structural features of the Syrian economy. The theoretical framework and related questions are reviewed in Section III. Section IV describes the Computable General Equilibrium (CGE) model used in the quantitative analysis, and Section V discusses issues related to calibration. Selected results are presented in section VI. Section VII concludes.

II. Structural features of the Syrian economy

Syria is a developing state with a population of currently approximately 16.3 million people², growing at the rapid pace of about 2.7 percent p. a. Its GDP per head (converted to US-dollar at the Beirut free market exchange rate) was 988 \$ in 1999, significantly below comparable values of 1,565 \$ for Jordan, 4,042 \$ for Lebanon and 16,570 \$ for Israel. This is so despite relatively rich natural resources (cultivable lands, oil, and gas, cf. U.S. Energy Information Administration, 2000) and an infrastructure the quality of which meets the standards of other Arab countries.

Since the early 1990's, Syria has taken gradual steps to transform the country's then dominant economic system of central planning to a more market oriented economy. Strong fiscal incentives to private investors, both foreign and domestic, were provided by Investment Law No. 10 of 1991, basically exempting investment projects from all relevant taxes and customs duties for five to seven years. In later years, the system of multiple exchange rates was simplified and official rates were moved closer to black market rates. Simultaneously, some

² Excluding Palestinian refugees.

of the tight import controls relevant for the private sector were relaxed. In response to these measures, the private sector expanded significantly and real GDP growth averaged 8 percent from 1991 to 1995 and 5.9 percent from 1991 to 1999. According to estimates by the International Monetary Fund (IMF), „the private sector accounted for 51 percent of GDP, 72 percent of total employment, 57 percent of gross capital formation, 69 percent of non-oil exports, and 58 percent of imports“ over 1992-1997, cf. International Monetary Fund, 1999a, Box 1.

However, the state's production activities remain substantial: Oil and natural gas activities, including refining, are predominantly government-owned, with minority shares of foreign companies only. Utilities (electricity and water plants) are almost exclusively operated by the government, and the same is true for the air transport industry and all financial institutions. The telecommunications industry is also dominated by the state, but apparently opening up with recent contracts by the Syrian Telecommunications Establishment (STE) awarded to selected foreign firms. „Strategic industries“ in manufacturing are dominated or monopolized by the state. Roughly 50 percent of the construction sector and much of trade and marketing activities is also in state hands. There has been no significant privatization of public enterprises so far.

Investment expenditures (both public and private) benefit from extremely low import tariffs on capital goods. Similarly, raw materials for industrial use can be imported virtually at world market prices. On the other hand, consumer goods often have rather high tariff rates in accord with traditional import substitution policies. For details of the foreign trade and multiple exchange rate system, see Lucke, 2001.

Government absorption of goods and services (excluding the Price Stabilization Fund (PSF)) accounts for about 28 percent of GDP, where 11 percent is classified as government consumption and 17 percent as „development expenditure“, i. e. government investment. The latter includes investment by state-owned companies. The largest part of government consumption are wages and salaries (of which 57 percent is spent for military and security). Nevertheless, wages in the public sector are at a demotivatingly low level, giving rise to widespread corruption. The low public sector wages also depress wages in the private sector (US Department of State, 2000). National Accounts Data do not contain information on the distribution of income, but unofficial estimates suggest that the capital share in national income is up to three times as high as the labor share, cf. Augier and Gasiorek (2000).

The basic sources of government revenues are oil-related proceeds, non-oil taxes and duties, and non-oil public enterprise surpluses. Oil-related revenues constitute a share of about 38 percent of total revenues (depending on world market prices), while the share of non-oil taxes including duties is around 48 percent. Non-oil public enterprises contribute approximately 12 percent to total revenues, which is only slightly larger than the surplus of the Syrian Petroleum Company (SPC) and associated firms. The state budget deficit (excluding PSF deficit, but including reduced reserves) amounts to 32 percent of total expenditures for the 1999 budget or 9.9 percent of GDP.

The Price Stabilization Fund is not consolidated in the government budget. Under the PSF system, a general wheat subsidy is enforced, which makes bread cheaply available. In addition, each Syrian citizen is entitled to purchase a limited amount of basic foodstuffs like sugar and rice at less than the market price, cf. International Monetary Fund, 1999b. Despite own revenues from price surcharges and budgetary transfers, PSF operations cause a large deficit which increases the consolidated government sector deficit to 12.2 percent of GDP.

A particularity of the Syrian economy is the multiple exchange rate system (MERS). A full account of this system would be beyond the scope of this paper, but for the purpose of quantifying the fiscal effects of trade liberalization, it suffices to note those regulations that relate to private exports and imports.

Permitted imports must be distinguished by the applicable method of financing. For goods on the „unrestricted payments list“, foreign traders can, in principle, use any privately owned foreign exchange resources, but must obtain appropriate registration, certification and licenses from various authorities. For goods on the „export proceeds payment list“ the importer has to prove that the required foreign exchange originates from export proceeds. Since these are short in supply, private exporters (who have to surrender parts of their export proceeds to the government at the overvalued rate of 46.45 Syrian Pounds (LS) per US dollar) are able to sell the retained part of their export proceeds to importers at a private market rate of currently about 56 LS/\$³⁴.

It is important to note that these regulations of the multiple exchange rate system (MERS) have economic effects equivalent to a combination of import taxes and export subsidies. To begin with, private exporters of non-agricultural products have to surrender 25 percent of their export proceeds to the Commercial Bank of Syria (CoBS) at the rate of 46.45 LS/\$. Since the Beirut free market rate is approximately 51 LS/\$ and since the CoBS is owned by the government, this surrender requirement has equivalent effects to a tax on exports. Nevertheless, exporters benefit on average from the MERS, since they are allowed to sell the retained part of their export proceeds to importers of goods on the export proceeds list. Since the exchange rate on this „exports proceeds market“ is around 56 LS/\$, the economic effects of the MERS on exporters of non-agricultural goods are approximately equal to a 10 percent tax on 25 percent of the export value in US dollars plus a 10 percent subsidy on 75 percent of the export value in US dollars. The net effect is hence a five percent export subsidy⁵.

For importers of goods on the export proceeds list, the MERS is equivalent to an approximately ten percent ad valorem customs duty. This „customs duty equivalent“, however, does not show up in the government budget plan - rather, it immediately benefits the exporters, whose subsidy equivalent is also invisible in the government budget. Note that the MERS duty equivalent not only drives a wedge between private imports from the exports proceeds list and imports from the unrestricted payments list, it also drives a wedge between the former and public sector importers of similar goods. Since almost all public sector transactions take place at the rate of 46.5 LS/\$, public sector importers of goods that compete with goods on the export proceeds list have a 20 percent price advantage from the MERS – a major impediment to private sector economic activity⁶.

³ The exchange proceeds market operates freely for a given export proceeds payments list. Note, however, that it is probably inappropriate to model this as a „free“ market for foreign exchange in Syria, since the government indirectly controls this exchange rate by adding or deleting goods from the export proceeds payment list. Such changes, in fact, occur frequently and their systematic background is not easily understood.

⁴ Imports of a rather small third group of commodities must be financed through worker's remittances.

⁵ For exporters of agricultural products, who are exempted from the surrender requirement, the subsidy equivalent of the MERS is approximately 10 percent of the true \$-value.

⁶ The share of imports from the export proceeds list is modest, but not insignificant: Estimates range around 20 percent of total import value.

III. Theoretical framework and questions

The workhorse of the analysis below is a neoclassical computable general equilibrium (CGE) model, (see, e. g. Ginsburgh und Keyzer, 1997), with some adjustments necessary to capture essential features of the Syrian economy. The model distinguishes eleven activities (specified below), which produce real value added from the primary factors land, labor, and capital.

In line with neoclassical assumptions we assume that the real wage per quality adjusted labor unit is equal across activities. However, we allow for heterogeneous rates of return to capital across sectors – which seems appropriate given the observed heterogeneity of gross rates of return (estimates range between 2 percent for construction to 166 percent for mining, especially oil). The existence of such large differences is, of course, due to tight government control and associated monopolistic structures in some sectors of the Syrian economy. Hence it seems reasonable to deviate from the assumption of free access and freely moving capital for the sake of a reasonably realistic model of the Syrian economy.

We define nine commodity categories associated with the product groups of the one-digit SITC classification, with construction, and services. Each activity produces one or several commodities. For each product category, a composite commodity, the so-called Armington good, is produced from domestic supply and imports, assuming that these inputs are heterogeneous. Minimizing costs in the production of Armington goods implies that demand for imports depends negatively on the relative price of imports. Other things being equal, lower import tariffs will hence imply a trade creating effect. Quantifying this effect in a general equilibrium framework is one of the objectives of this study.

Disaggregating trading partners into eight trading blocks (specified below), the composition of imports between trading partners depends on the relative customs tariff load per product category. Initiating preferential trade agreements (PTA) changes the relative price of imports from different sources and therefore induces trade diversion. In order to assess the total effect of trade liberalization under the Mediterranean Initiative, this study aims at calculating the net effect of reduced Syrian import tariffs on each trading partner under various liberalization scenarios.

Cheaper imports stimulate domestic consumption, investment, and production, inducing higher tax revenues for the government, which partially offset reduced customs revenue. It is therefore of prime interest to calculate the net effect of trade liberalization on the government budget deficit. In the case of Syria, this exercise is not trivial, due to two particularities of the economy:

First, the „consolidated“ government budget does *not* consolidate expenditures and revenues of the Price Stabilization Fund. The PSF has indirect tax revenues of its own, which, however, are by far insufficient to cover subsidy expenses. Hence, a true measure of the government budget deficit must include the PSF deficit. The PSF budget is not disclosed by the Syrian authorities, but, fortunately, we were able to obtain unpublished data which were used to consolidate the PSF deficit.

Second, as already pointed out, the multiple exchange rate system (MERS) implemented by the Syrian government has distributive consequences similar to a system of taxes, customs duties, and subsidies invisible in the government budget. We therefore model the MERS as an institution with indirect tax and subsidy equivalent instruments. We assume that the government is interested in keeping these instruments at approximately their present level,

i. e. at fixing the export proceeds market exchange rate at a level of 56 LS/\$. This requires that the value of export-proceeds-market-imports adjusts endogenously. Two interpretations of this endogenous adjustment are possible: Either the government redefines the export proceeds payment list, or importers substitute between imports on the export proceeds list and other importable goods⁷. Since the MERS is certainly a barrier to trade, the extensive report (Lucke, 2001) also present simulations which quantify the effects of traditional trade liberalization along with abolition of the MERS. For reasons of space, these are suppressed in this paper.

The existence of the MERS makes the interpretability of Syrian statistics generally difficult, since figures for foreign transactions are often not compatible due to the usage of different exchange rates⁸. To derive a consistent data base for the quantitative analysis below, all foreign transactions have been converted at the Beirut free market rate of 51 LS/\$. This is the rate most likely to give an approximately accurate picture of the value of imports and exports, but it is also the only important exchange rate disregarded by government statisticians, cf. Central Bureau of Statistics, 1999, 2000. Thus, some of the data used are not identical to those given in national statistics. Since the Beirut market exchange rate is not endogenized its role in the model below is limited to the description of tax equivalent effects of the MERS.

IV. Methodological Approach

The following model is used in the simulations: The Syrian economy is decomposed into eleven activities: Agriculture, mining, public manufacturing, private manufacturing, utilities, construction, wholesale and retail trade, transport and communication, finance and insurance, social and personal services⁹, government services. Real net value added at factor cost Q_i , $i=1,...,11$, is produced under constant elasticity of substitution (CES) productions functions, where agriculture uses three inputs (land \bar{B}_1 , labor L_i , capital \bar{K}_1), while all other activities use only labor L_i and capital K_i , $\beta_i=0$ for $i=2,...,11$. (Note that, unless otherwise specified, variables are in capital letters, with bars denoting exogenous variables. Parameters are denoted in lowercase letters).

$$Q_i = a_i \left[\alpha_i \bar{K}_i^{-\rho_i} + \beta_i \bar{B}_i^{-\rho_i} + (1 - \alpha_i - \beta_i) L_i^{-\rho_i} \right]^{-\frac{1}{\rho_i}} \quad (1)$$

Assuming competitive factor markets, profit maximization implies the equality between nominal factor prices and marginal products. Hence factor demands are implicitly given by

$$r_1^B \bar{P}_1^B = P_1^Q a_1 \left[\alpha_1 \bar{K}_1^{-\rho_1} + \beta_1 \bar{B}_1^{-\rho_1} + (1 - \alpha_1 - \beta_1) L_1^{-\rho_1} \right]^{-\frac{1}{\rho_1}-1} \beta_1 \bar{B}_1^{-\rho_1-1} \quad (2)$$

⁷ We also experimented with the alternative modeling strategy of having the share of export-proceeds-imports fixed and letting the export proceeds market exchange rate adjust endogenously. However, by virtue of the MERS equilibrium condition (45) below, this would imply that the trade balance is essentially fixed across a wide variety of liberalization scenarios. As this is not economically plausible, we have not pursued this approach any further. Endogenizing the export proceeds market exchange rate would require a model which distinguishes between imports from the export proceeds payment list and other imports. The database for such a model is, however, not available.

⁸ The main exchange rates relevant for Syrian statistics are 11.2 LS/\$, 23 LS/\$ and 46.5 LS/\$.

⁹ Including private non-profit services.

$$w = P_i^Q a_i \left[\alpha_i \bar{K}_i^{-\rho_i} + \beta_i \bar{B}_i^{-\rho_i} + (1 - \alpha_i - \beta_i) L_i^{-\rho_i} \right]^{\frac{1}{\rho_i} - 1} (1 - \alpha_i - \beta_i) L_i^{-\rho_i - 1} \quad (3)$$

$$r_i \bar{P}_i^K = P_i^Q a_i \left[\alpha_i \bar{K}_i^{-\rho_i} + \beta_i \bar{B}_i^{-\rho_i} + (1 - \alpha_i - \beta_i) L_i^{-\rho_i} \right]^{\frac{1}{\rho_i} - 1} \alpha_i \bar{K}_i^{-\rho_i - 1}, \quad (4)$$

where r_i , r_1^B , and w denote the gross rates of return to capital, the rate of return to land and the nominal wage, respectively. In general, prices are denoted P with super- and subscripts indicating the goods to which they refer. Note that this specification allows for heterogeneous rates of return to capital across sectors – which seems appropriate given the observed heterogeneity of gross rates of return, see above.

From (3) to (6), the nominal incomes of the production factors are given by $Y^B = r_1^B \bar{P}_1^B \bar{B}_1$, $Y^L = \sum w L_i$, and $Y^K = \sum r_i \bar{P}_i^K \bar{K}_i$. The resource constraint for the production factor labor is simply $\sum L_i = \bar{L}$, where \bar{L} is the total supply of labor.

I distinguish $j=1\dots,9$ commodity categories associated with the one-digit SITC classification, with construction, and services. Due to limitations in the structure of the input-output matrix it was not possible to treat SITC 0 (food and live animals) and SITC 4 (animal and vegetable fats, oils and waxes) as different goods, so that $j=1$ is the aggregate of SITC 0 and SITC 4. Hence $j=2\dots,8$ are SITC 1 (beverages and tobacco), SITC 2 (raw materials), SITC 3 (mineral fuels), SITC 5 (chemicals), SITC 6 (manufactures classified chiefly by material), SITC 7 (machines and transport equipment), and SITC 8 (miscellaneous manufactures), respectively. Finally, $j=9$ collects SITC 9 (commodities not elsewhere specified), construction, and services (trade, transport, finance, social and personal services, and government services).

For each product category, the Armington good X_j , $j=1\dots,9$, is produced using the inputs domestic supply D_j and imports M_j under a CES-production technology:

$$X_j = a_j^M \left[\alpha_j^M D_j^{-\rho_j^M} + (1 - \alpha_j^M) M_j^{-\rho_j^M} \right]^{\frac{1}{\rho_j^M}} \quad (5)$$

The cost minimizing input relation is given by

$$\frac{M_j}{D_j} = \left(\frac{P_j^D (1 - \alpha_j^M)}{P_j^M \alpha_j^M} \right)^{\frac{1}{1 + \rho_j^M}}, \quad (6)$$

and the zero profit condition is $P_j^X X_j = P_j^D D_j + P_j^M M_j$.

Equation (13) describes trade creation as a function of the relative price between domestic and imported goods. To model trade diversion, assume that for a given import volume M_j Syria minimizes the costs of imports over trading partners $k=1\dots,8$, under a CES technology

$$M_j = a_j^m \left[\sum_{k=1}^8 \alpha_{jk}^m M_{jk}^{-\rho_j^m} \right]^{\frac{1}{\rho_j^m}}, \quad (7)$$

where trading partners $k=1,...,8$ are given by the following countries or trading blocks:

Arabic states (Arab)

(Algeria, Bahrein, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Mouritania, Saudi Arabia, Somalia, Sudan, Tunisia, United Arab Emirates, Yemen),

European Union (EU 15)

(Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain, Sweden, United Kingdom),

Formerly socialist countries (Ex-Soc.)

(Bulgaria, Byelorussia, China, Cuba, Czech Republic, Hungary, Poland, Rumania, Russia, Serbia, Ukraine),

United States of America (USA) ,

Argentina, Brasil, Chile (ABC),

Turkey,

Japan,

and the rest of the world (ROW). Minimization requires

$$\frac{M_{jk}}{M_{j1}} = \left(\frac{\alpha_{jk}^m P_{j1}^m}{\alpha_{j1}^m P_{jk}^m} \right)^{\frac{1}{1+\rho_j^m}} \quad (8)$$

and total costs of imports are given by

$$P_j^M M_j = \sum_{k=1}^8 P_{jk}^M M_{jk} \quad (9)$$

Having defined the supply side of the domestic commodity market by Armington aggregates, intermediate demand for commodity j of sector i is assumed to depend linearly on gross output G_i of sector i : $V_{ji} = a_{ji} G_i$. Total (nominal) intermediate demand of sector i is therefore

$$P_i^V V_i = \sum_{j=1}^9 P_j^X V_{ji} \quad (10)$$

Depreciation per sector depends linearly on the capital stock, $O_i = \delta_i \bar{K}_i$. Hence gross output at factor costs is given by

$$P_i^G G_i = P_i^O Q_i + P_i^V V_i + \bar{P}_i^K O_i, \quad (11)$$

Equation (21) describes the value of the total supply of activity i at producers cost. To specify the demand side, let us start with exports, whose treatment is completely analogous to imports. Assume that for a given level of real gross output G_i producers maximize its value

$$P_i^G G_i = P_i^D D_i + P_i^E E_i \quad (12)$$

subject to a constant elasticity of transformation (CET) choice between sales on the domestic market and exports:

$$G_i = a_i^E \left[\alpha_i^E D_i^{\rho_i^E} + (1 - \alpha_i^E) E_i^{\rho_i^E} \right]^{\frac{1}{\rho_i^E}} \quad (13)$$

It is then necessary to have

$$\frac{E_i}{D_i} = \left(\frac{P_i^E}{P_i^D} \frac{\alpha_i^E}{(1 - \alpha_i^E)} \right)^{\frac{1}{\rho_i^E - 1}} \quad (14)$$

Further, for a given aggregate export volume E_i and equal world market prices for all countries export revenue

$$P_i^E E_i = \sum_{k=1}^8 P_i^E E_{ik} \quad (15)$$

is maximized over sales to trading partners $k=1...8$, under a CET-transformation function

$$E_i = a_i^e \left[\sum_{k=1}^8 \alpha_{ik}^e E_{ik}^{\rho_i^e} \right]^{\frac{1}{\rho_i^e}} \quad (16)$$

It is then necessary to have

$$\frac{E_{ik}}{E_{i1}} = \left(\frac{\alpha_{i1}^e}{\alpha_{ik}^e} \right)^{\frac{1}{\rho_i^e - 1}} \quad (17)$$

such that the export shares of individual trading blocks are invariant.

Disposable land income is given by $Y_D^B = (1 - \tau^B) Y^B$, where effective direct tax rates are denoted τ with appropriate superscript. Analogously, disposable labor income is given by $Y_D^L = (1 - \tau^L) (Y^L + \bar{Y}_L^F)$, where \bar{Y}_L^F is labor income from foreign countries. Disposable capital income is defined as $Y_D^K = (1 - \tau^K - \pi^{SS} - \pi^{LS} - \pi^F) Y^K$, where π^F is the net share of capital income flowing to foreign countries. To understand π^{SS} and π^{LS} , note that the Syrian government budget distinguishes between „supply surplus“ (SS) and „liquidity surplus“ (LS) of public enterprises. The liquidity surplus comprises temporary surpluses due to depreciation or provisions, whereas the the supply surplus is similar to after tax economic profits. Hence, π^{SS} and π^{LS} denote the share of these surpluses in total capital income.

Nominal household income consists of disposable factor incomes plus exogenous transfers from the government and abroad:

$$Y^H = Y_D^B + Y_D^L + Y_D^K + \overline{TR}^G + \overline{TR}^F \quad (18)$$

Nominal household savings are assumed to be a constant fraction of household income, $S^H = s^H Y^H$, while (real) household consumption is derived from maximizing the utility function of a Stone-Geary linear expenditure system (LES)

$$\max \prod_{\substack{j=1 \\ j \neq 3}}^9 (C_j^H - \gamma_j)^{\alpha_j^H}, \quad \sum_{\substack{j=1 \\ j \neq 3}}^9 \alpha_j^H = 1 \quad (19)$$

subject to the budget constraint

$$\sum_{\substack{j=1 \\ j \neq 3}}^9 P_j^X C_j^H + S^H = Y^H - \overline{T}^H \quad (20)$$

where the γ_j are minimum consumption levels and \overline{T}^H is a catchall for other government taxes on households. Note that households do not consume raw materials (SITC 3), which is why $j=3$ is excluded in (32). Maximization yields the following demand functions:

$$C_j^H = \begin{cases} 0 & j = 3 \\ \gamma_j + \frac{\alpha_j^H \left((1-s^H) Y^H - \overline{T}^H - \sum_{\substack{j'=1 \\ j' \neq 3}}^9 P_{j'}^X \gamma_{j'} \right)}{P_j^X} & j \neq 3 \end{cases} \quad (21)$$

The capital market is modeled as an institution with revenues (supply) and expenditures (demand). Capital market revenues are defined as

$$R^K = \sum_{i=1}^{11} O_i + S^H + \overline{DS}^D + \overline{DS}^F + DE^G + \overline{DEF}^F \quad (22)$$

where \overline{DS}^D and \overline{DS}^F denote domestic and foreign debt service, respectively, \overline{DEF}^F are foreign loans, and the endogenous variable DE^G denotes government outlays for investment purposes, labelled development expenditures in the government budget.

Capital market expenditures are given by investment demand (both public and private), deficits of the government (excluding PSF) financed by domestic or by foreign loans (DEF^D and \overline{DEF}^F , respectively), PSF-deficit DEF^{PSF} , and exogenous taxes on wealth \overline{T}^W :

$$E^K = \sum_{j=1}^9 P_j^X I_j + DEF^D + \overline{DEF}^F + DEF^{PSF} + \overline{T}^W \quad (23)$$

Capital market equilibrium requires that the current account (CA) is equal to the gap between revenues and expenditures: $CA = R^K - E^K$. Assuming that total investment is a constant fraction of capital market revenues

$$\sum_{j=1}^9 P_j^X I_j = s_I^K R^K \quad (24)$$

makes it possible to treat the current account deficit CA as an endogenous variable. Using CES demand functions, gross investment is given by

$$I_j = \begin{cases} 0 & j \leq 4 \\ \frac{\alpha_j^I s_I^K R^K}{\left(P_j^X\right)^{\frac{1}{1+\rho^I}} \sum_{j'=5}^9 \alpha_{j'}^I \left(P_{j'}^X\right)^{\frac{\rho^I}{1+\rho^I}}} & j > 4 \end{cases} \quad \sum_{j=5}^9 \left(\alpha_j^I\right)^{1+\rho^I} = 1, \quad (25)$$

where I_j is zero for SITC 0 – SITC 4, since these do not include (significant) amounts of capital goods.

The PSF budget constraint is modeled as

$$\sum_{i=1}^{11} t_i^{PSF} P_i^Q Q_i + \overline{TR}^{PSF} + DEF^{PSF} = \sum_{i=1}^{11} s_i^{PSF} P_i^Q Q_i + \sum_{j=1}^9 f_j^{PSF} \bar{p}_j^m M_j, \quad (26)$$

where t_i^{PSF} and s_i^{PSF} denote PSF-specific indirect tax and subsidy rates on domestic production and f_j is a subsidy rate on imports. \overline{TR}^{PSF} is the transfer the PSF receives from the government budget.

Revenues consolidated in the government budget are given by

$$R^G = \sum_{i=1}^{11} t_i P_i^Q Q_i + \sum_{j=1}^9 \sum_{k=1}^8 c_{jk} \bar{p}_j^m M_{jk} + \tau^B Y^B + \tau^L Y^L + (\tau^K + \pi^{SS} + \pi^{LS}) Y^K \\ + \bar{T}^H + \bar{T}^W + \overline{DEF}^F + DEF^D + \sum_{i=1}^{12} t_i^{MERS} \bar{p}_i^e E_i. \quad (27)$$

Here t_i is the effective indirect tax rate per sector earmarked for the government budget, t_i^{MERS} is the effective indirect tax rate equivalent of the multiple exchange rate system and c_{jk} is the effective customs rate for good j imported from country k .

Government expenditure is given by

$$E^G = \sum_{i=1}^{11} s_i p_i^e E_i + \sum_{j=1}^9 P_j^X C_j^G + \overline{TR}^G + \overline{DS}^D + \overline{DS}^F + DE^G + \overline{TR}^{PSF}, \quad (28)$$

where s_i is the effective subsidy rate on exports and C_j^G is government consumption of good j . Development expenditures DE^G and total government consumption are assumed to be constant fractions of government revenues, such that

$$DE^G = s_i^G R^G \quad (29)$$

$$\sum_{j=1}^9 P_j^X C_j^G = s_c^G R^G \quad (30)$$

and demand functions for government consumption are specified as CES functions fulfilling budget identity and homogeneity of degree zero:

$$C_j^G = \begin{cases} 0 & j = 3 \\ \frac{\alpha_j^G s_c^G R^G}{\left(P_j^X\right)^{\frac{1}{1+\rho^G}} \sum_{j=5}^9 \alpha_j^G \left(P_j^X\right)^{\frac{\rho^G}{1+\rho^G}}} & j \neq 3 \end{cases} \quad \sum_{\substack{j=1 \\ j \neq 3}}^9 (\alpha_j^G)^{1+\rho^G} = 1 \quad (31)$$

The budget restriction is, of course, simply $R^G = E^G$.

The multiple exchange rate system is another institution with revenues given by

$$R^{MERS} = \sum_{i=1}^{11} t_i^{MERS} \bar{p}_i^e E_i + \sum_{j=1}^9 c_j^{MERS} \bar{p}_j^m M_j. \quad (32)$$

While $\sum_{i=1}^{11} t_i^{MERS} \bar{p}_i^e E_i$ is the MERS export tax due to the surrender requirement for 25 percent

of private non-agricultural exports, $\sum_{j=1}^9 c_j^{MERS} \bar{p}_j^m M_j$ is the MERS customs tariff equivalent

caused by forcing importers of goods on the „export proceeds payments list“ to purchase foreign exchange at an exchange rate higher than the Beirut free market rate. This customs tariff equivalent is hence equal to the MERS effective export subsidy due to the sale of retained export proceeds. Total expenditures of the MERS are therefore given by

$$E^{MERS} = \sum_{i=1}^{12} \left(t_i^{MERS} + s_i^{MERS} \right) \bar{p}_i^e E_i \quad (33)$$

and budget balance requires $R^{MERS} = E^{MERS}$.

In order to achieve budget balance, the share of imports with mandatory payments in export proceeds λ_j^{PEP} is required to adjust according to excess demand or excess supply on the export proceeds market¹⁰. For exogenously given exchange rates \bar{e}^{FM} and \bar{e}^{EPM} (free market Beirut and export proceeds market, respectively) and exogenously given shares of retained exports $\bar{\lambda}_i^{REP}$ the MERS subsidy rate is also exogenous and given by export proceeds market exchange rate

¹⁰ As pointed out above, this adjustment is either to be interpreted as governmental control of the export proceeds market exchange rate or as the result of substitution on the side of private importers.

$$s_i^{MERS} = \bar{\lambda}_i^{REP} \left(\frac{\bar{e}^{EPM}}{\bar{e}^{FM}} - 1 \right). \quad (34)$$

The MERS customs tariff equivalent rate, however, is endogenous and given by

$$c_j = \lambda_j^{PEP} \left(\frac{\bar{e}^{EPM}}{\bar{e}^{FM}} - 1 \right), \quad (35)$$

so that changes in the „payment in export proceeds list“ not only affect the export proceeds market balance but also the effective domestic price of imports.

Price identities complete the model: The domestic prices of exports are derived from world market prices \bar{p}_i^e , adjusted for export taxes and subsidies. Similarly, domestic prices for imports are derived from world market prices \bar{p}_j^m adjusted for customs tariffs (and equivalent) and import subsidies.

$$P_{ik}^e = (1 + s_i + s_i^{MERS} - t_i^{MERS}) \bar{p}_i^e \quad (36)$$

$$P_{jk}^m = (1 + c_{jk} + c_j^{MERS} - f_j^{PSF}) \bar{p}_j^m \quad (37)$$

Finally, the current account identity is redundant by Walras law.

V. Calibration

Calibration of the relevant parameters is mostly achieved using the 1999 Social Accounting Matrix documented in the full report (Lucke, 2001). This matrix uses national accounts, foreign trade and government budget data provided by various Syrian authorities (Central Bureau of Statistics, 1999, 2000) and the IMF (1999a, 1999b). A major limitation of the analysis is the fact that the Syrian government was unable to provide an input-output matrix for Syria¹¹. Instead, usage of material inputs was approximated using proportions borrowed from Jordan's 1987 input-output matrix. However, appropriate adjustments were made to some sectors of the economy, in particular the oil producing sector, to make the implied input usage compatible with existent data on total intermediate consumption per sector from the Syrian national accounts. Also, data on labor input and capital stocks, partially constructed from available net investment series, were used to calibrate rates of return to capital.

The remaining parameters to be specified are various elasticities of substitution and transformation. Fortunately, key parameters for Syria are available from time series estimates using modern unit root and cointegration techniques, see Devarajan et al., 1999. From this we set the elasticity of transformation between domestic and exported goods equal to 0.09 and the elasticity of substitution between imports and domestic goods equal to 0.1. In calibrating the elasticities of substitution or transformation between trading blocks I follow Martin, 2000, who argues that benchmark values of 3.0 (for both elasticities) are appropriate for Lebanon's foreign trade. This is a rather high value, which must be cautiously received given Syria's

¹¹ They acknowledged the existence of an input-output matrix constructed in the 1980s, but, unfortunately, the staff in the Ministry of Planning did not find it any more.

complex quality standard and rules of origin regulations, cf. Lucke, 2001. On the other hand, the fact that Syria is in a phase of economic transition implies that traditional trade relations may undergo vivid changes, which would justify the choice of high elasticity values for trading partners. Moreover, trade diversion in favor of trading partners with reduced import tariffs leads to revenue losses for the customs authorities. If the specified elasticities were too low, then the impact of trade liberalization on the budget deficit would be underestimated. Conversely, high elasticities give an upper limit for possible revenue losses, and this is what policy makers might be interested in.

Further, we exploit the fact that tariff rates for many products are different for different usages, see Ministry of Finance, 1989. For instance, nominal tariff rates for industrial usage are often merely 1 percent (or free of charge for projects under Investment Law No. 10). Since the model is fairly aggregated on the commodity side it is in particular incapable of distinguishing different usages of commodities. Hence the average calibrated tariff rates in the model will tend to be too high for industrial demands. I capture this bias by compensating through the specification of a low elasticity of substitution of 0.01 for investment demand, reasoning that tariff reductions are not likely to yield notable increases in capital goods and raw material imports, since these do not carry much of a tariff load anyway. Note that this is not to say that investment demand is not price elastic, the assumption merely states that investment demand is hardly price elastic along the particular variation of prices used in the simulations below.

A similar reasoning applies to the elasticity of substitution of government consumption. Government consumption is overwhelmingly consumption of services, most of which are probably domestically produced. As far as the government consumes imported services, it is essential to note that taxes on foreign trade in services are constant in most of the simulations. Hence government consumption is not likely to respond much to trade liberalization, which is why I assume an elasticity of substitution for government demand equal to 0.01 as well¹².

The main aggregate to respond to reduced import tariffs is thus private consumption. Here, the LES specification (31) requires the calibration of minimum consumption quantities, which then imply the demand elasticities. Using data from the 1985/1986 income and expenditure survey, I assume that minimum consumption levels in 1999 are equal to nominal consumption levels in 1985/1986. On average, this is precisely 25 percent of today's consumption expenditure, which seems a reasonable specification of minimum consumption¹³.

Elasticities of substitution for the production functions (1) are not readily available. In the public sector, factor substitution seems to be extremely low, since, e. g. employees intending to resign from their posts must seek official permission, which is difficult to obtain (US Department of State, 2000). Therefore, I assume an elasticity of substitution of zero (fixed proportions) for pure public sector activities. For pure private sector activities I use the Cobb-Douglas benchmark (elasticity of substitution equal to one), so that for sectors with mixed public/private activities I calibrate the elasticity of substitution with the share of private activity.

¹² This may not be appropriate for non-service component of government consumption. However, this component is very tiny (2.6 percent of total government consumption).

¹³ Minimum consumption quantities vary with product categories. They are particularly high (54 percent of today's consumption) for SITC 5, which includes medicines.

VI. Simulation results

Various liberalization scenarios are simulated. Denoting the status quo (benchmark) by L0, let us focus on the following removal of tariff barriers:

Scenario L1: 50 percent decrease in duties on agricultural products imported from the EU.

Scenario L2: Zero duties on agricultural products imported from the EU.

Scenario L3: Zero duties on non-agricultural products imported from the EU.

Scenario L4: Scenario L1 and Scenario L3.

Scenario L5: Zero duties on products imported from the EU.

Scenario L6: Zero duties on products imported from the EU, Arab, and Turkey.

Scenario L7: Zero duties on all imports¹⁴.

A first selection of results is given in Table 1, which displays real variables only. Gross domestic product at factor cost (GDPF) is hardly changed in any of the scenarios. There are slight reductions in GDP at market prices (GDPM), but comparison with GDPF shows that these are solely due to the reduced indirect tax, i. e. tariff load. Private consumption (CPRIV) is almost constant when tariffs on EU agricultural products are reduced, but increases more impressively when manufactures are liberalized. Variability in public consumption (CPUB) is tiny, there are small increases when liberalization is confined to agricultural products, and small decreases when manufactures are (also) involved. Gross investment (INVEST) grows a little, but only for the radical scenario L7 is the growth rate larger than one percent. Imports respond to trade liberalization much more than exports: Changes in imports are three to four times the changes in exports, so that the trade balance deteriorates.

Table 1								
Effects of Trade Liberalization on Main Aggregates, Real Variables in Billion 1999 LS								
	L0	L1	L2	L3	L4	L5	L6	L7
GDPF	781	781 (0.00%)	781 (0.00%)	781 (0.00%)	781 (0.00%)	781 (0.00%)	781 (0.01%)	781 (0.02%)
GDPM	821	821 (-0.01%)	821 (-0.04%)	821 (-0.05%)	821 (-0.07%)	821 (-0.09%)	821 (-0.07%)	821 (-0.01%)
CPRIV	576	576 (0.05%)	577 (0.10%)	580 (0.69%)	580 (0.74%)	581 (0.79%)	582 (1.01%)	589 (2.21%)
CPUB	93	93 (0.10%)	94 (0.21%)	93 (-0.50%)	93 (-0.40%)	93 (-0.29%)	93 (-0.22%)	93 (-0.15%)
INVEST	154	154 (0.07%)	154 (0.14%)	155 (0.21%)	155 (0.28%)	155 (0.36%)	155 (0.48%)	156 (1.08%)
Imports	292	293 (0.34%)	295 (0.74%)	298 (1.74%)	298 (2.08%)	300 (2.48%)	302 (3.41%)	314 (7.41%)
Exports	291	291 (0.14%)	291 (0.29%)	292 (0.39%)	292 (0.52%)	293 (0.68%)	294 (1.03%)	298 (2.56%)
Trade Balance	-1.777	-2.370 (33,4%)	-3.094 (74,1%)	-5.741 (223%)	-6.338 (257%)	-7.068 (298%)	-8.771 (394%)	-16.029 (802%)

¹⁴ Unlike L1-L6, this scenario also includes abolition of taxes on the import and export of services.

The effects of trade liberalization on the government budget and on capital accumulation are shown in Table 2. To interpret the effects on the government budget, it may be useful to express tariff revenue as a percentage of the 1999 government revenues (excluding loans and the PSF). This benchmark value is 178 billion LS. Thus, the tariff revenue loss implied by, say, scenario L2 is less than half a percent of today's government revenue. For L3, however, 3 percent of government revenue are affected and for L6 and L7 (complete liberalization) we find 4.4 percent and 9 percent, respectively. While these reductions in tariff revenue are not negligible, they appear considerably smaller than those reported for other MENA-countries under similar scenarios. Note that the loss of tariff revenues in absolute terms is mirrored by similar increases in private consumption, cf. Table 1.

Changes in domestic indirect taxes are small, and changes in direct taxes are not much larger. Thus, total tax revenues (excluding PSF and MERS revenues) decrease by almost the same amount as does tariff revenue. Consolidating the PSF, we see that the total government deficit increases almost one-to-one with the loss of tariff revenue. Since household savings are hardly changed and investment expenditures even increase, cf. Table 1, the government deficit must be financed from abroad, which explains the current account deterioration in the last row of Table 2. This perspective is hardly promising for the Syrian government, which is already plagued by a sizable external debt¹⁵ which requires complicated negotiations with the Paris Club, see International Monetary Fund, 1999a.

	L0	L1	L2	L3	L4	L5	L6	L7
Tariff revenue	16.090	15.789 (-1.87%)	15.397 (-4.31%)	10.525 (-34.6%)	10.213 (-36.5%)	9.808 (-39.0%)	8.183 (-49.1%)	0 (-100%)
Domest. ind. tax	30.622	30.641 (0.06%)	30.663 (0.13%)	30.874 (0.82%)	30.893 (0.89%)	30.914 (0.95%)	30.863 (0.79%)	30.716 (0.31%)
Direct taxes	54.205	54.255 (0.09%)	54.312 (0.20%)	54.557 (0.65%)	54.607 (0.74%)	54.665 (0.85%)	54.796 (1.09%)	55.490 (2.37%)
All taxes	100.917	100.686 (-0.23%)	100.372 (-0.54%)	95.956 (-4.92%)	95.713 (-5.16%)	95.387 (-5.48%)	93.842 (-7.01%)	86.206 (-14.6%)
Govern. deficit	100.501	101.131 (0.63%)	101.898 (1.39%)	105.081 (4.56%)	105.721 (5.19%)	106.498 (5.97%)	108.368 (7.83%)	116.986 (16.4%)
Househ. savings	40.049	40.083 (0.08%)	40.121 (0.18%)	40.389 (0.85%)	40.423 (0.93%)	40.462 (1.03%)	40.583 (1.33%)	41.215 (2.91%)
Current account	-4.371	-4.967 (13.6%)	-5.695 (30.3%)	8.612 (97.0%)	-9.220 (111%)	-9.962 (128%)	-11.738 (169%)	-19.632 (349%)

Table 3 illustrates trade diversion effects for scenario L1, i. e. a 50 percent reduction of import duties on EU agricultural products. The table shows percentage changes in real imports vis-à-vis the benchmark equilibrium and is confined to agricultural commodity groups (including beverages and tobacco), the effects of other commodity groups being negligible (changes of less than 0.25 percent in absolute value). Clearly, the EU benefits at the expense of all other trading partners. However, it should be noted that the magnitude of this effect is determined

¹⁵ This debt is partially denominated in hard currency, partially in Russian rubles.

by the rather high elasticity of substitution specified for the choice of trading partners. If a lower value were appropriate, trade diversion effects would generally be reduced.

Table 3								
Trade Diversion of Syrian Imports, Percentage Changes of Scenario L1								
	ABC	Arab	EU15	Ex-Soc.	Japan	ROW	Turkey	USA
SITC0+4	-2.60%	-2.60%	14.05%	-2.60%	-2.60%	-2.60%	-2.60%	-2.60%
SITC1	-	-0.41%	-0.41%	-0.41%	-0.41%	-0.41%	-	-0.41%

The same caveat applies to simulations which reduce tariff rates on non-agricultural products. Table 4 gives the respective percentage changes for a 100 percent reduction of imports from the EU (scenario L3). This scenario may be particularly relevant as it may be close to the tariff reduction finally agreed upon in an Association Agreement. With high elasticity of substitution, the EU will make large inroads into the domains of other Syrian trading partners. This holds for all product categories except agricultural products (SITC 0 and SITC 4) and Services.

Table 4								
Trade Diversion of Syrian Imports, Percentage Changes of Scenario L3								
	ABC	Arab	EU15	Ex-Soc.	Japan	ROW	Turkey	USA
SITC0+4	0.59%	0.59%	0.59%	0.59%	0.59%	0.59%	0.59%	0.59%
SITC1	-	-26.89%	182.17%	-26.90%	-26.90%	-26.90%	-	-26.90%
SITC2	-1.21%	-1.21%	13.36%	-1.21%	-1.21%	-1.21%	-1.21%	-1.21%
SITC3	-	-6.34%	26.02%	-6.34%	-6.34%	-6.34%	-6.34%	-6.34%
SITC5	-10.71%	-10.71%	13.85%	-10.71%	-10.71%	-10.71%	-10.71%	-10.71%
SITC6	-7.35%	-7.35%	35.24%	-7.35%	-7.35%	-7.35%	-7.35%	-7.35%
SITC7	-28.94%	-28.94%	59.40%	-28.94%	-28.94%	-28.94%	-28.94%	-28.94%
SITC8	-9.87%	-9.87%	48.69%	-9.87%	-9.87%	-9.87%	-9.87%	-9.87%
Services	-0.39%	-0.39%	-0.39%	-0.39%	-0.39%	-0.39%	-0.39%	-0.39%

Finally, Table 5 depicts trade diversion effects in scenario L6, where duties on all products from Arab countries, Turkey, and the EU are completely abolished. For the EU, gains in trade are then almost as large as if tariff reductions only in favor of the EU had been enacted – a result which is probably due to large differences in the product structure of exported goods between the EU on the one hand and Arab states and Turkey on the other hand.

Table 5								
Trade Diversion of Syrian Imports, Percentage Changes of Scenario L6								
	ABC	Arab	EU15	Ex-Soc.	Japan	ROW	Turkey	USA
SITC0+4	-7,23%	18,83%	27,61%	-7,23%	-7,23%	-7,23%	25,01%	-7,23%
SITC1	-	110,16%	169,00%	-30,31%	-30,31%	-30,31%	-	-30,31%
SITC2	-3,01%	8,31%	11,30%	-3,01%	-3,01%	-3,01%	11,30%	-3,01%
SITC3	-	16,33%	23,30%	-8,36%	-8,36%	-8,36%	23,30%	-8,36%
SITC5	-14,31%	4,17%	9,27%	-14,31%	-14,31%	-14,31%	9,27%	-14,31%
SITC6	-10,59%	21,23%	30,51%	-10,59%	-10,59%	-10,59%	30,51%	-10,59%
SITC7	-30,82%	33,17%	55,20%	-30,82%	-30,82%	-30,82%	55,20%	-30,82%
SITC8	-11,98%	31,80%	45,20%	-11,98%	-11,98%	-11,98%	45,20%	-11,98%
Services	-1,01%	8,78%	-1,01%	-1,01%	-1,01%	-1,01%	8,78%	-1,01%

VII. Conclusions and political recommendations

The two most important results from the CGE-analysis of Syrian trade liberalization are the following: First, revenue losses due to lower import duties can be sizable, but remain manageable. Second, there is little stimulus for the production sector of the domestic economy, i. e. efficiency gains are low.

The first result is due to the fact that Syrian customs tariff revenues are rather faible. For 1999, tariff revenues were 9 percent of government revenues (excluding PSF revenues), and merely 5.6 percent of total government outlays (including the PSF). By comparison, the average annual growth rate of the government budget in the last five years was 12.1 percent, with a maximum rate of 16.1 percent in 1996 and a minimum rate of 7.6 percent in 1999. Hence, even the total loss of tariff revenues would only be slightly larger than other fluctuations in government revenues experienced in recent years.

The comparably weak role of tariff proceeds is related to the fact that the tariff system is certainly not designed as revenue maximizing, see MEDA-Team, 2000. Rather, it seeks to ensure relatively cheap imports for industrial and public sector purposes, while protecting domestic industries through high tariff rates on non-basic consumption goods. Yet Syrian customs tariffs have a reputation of being „extremely high“ (U.S. Department of State, 1996). However, an analysis of *effective* tariff rates which corrects for overvalued customs exchange rates finds rather low average effective tariff rates for major product categories. Only few selected items carry prohibitive tariff loads. See the extensive research report on this project (Lucke, 2001) for a detailed analysis of the effective tariff structure.

Low effective import duties for almost all essential industrial inputs explain the second important simulation result. Trade liberalization hardly affects the costs of input usage, since initial tariff rates are already low. Hence the production side of the economy is largely insulated from the effects of tariff reforms. Since government consumption of traded goods is small (and a similar effect of low initial tariffs applies) private consumption is the main beneficiary of trade liberalization. Real disposable income of private households rises by approximately the amount of lost tariff revenue. This additional income is partially spent on imports and partially spent on domestic goods. Domestic industries, which suffer from increased competition of imported output goods, benefit from increased private household

demand for their products, so that the net effect on gross domestic product at producers' cost is approximately zero across all scenarios¹⁶.

These results imply that the Syrian government may not find tariff liberalization particularly attractive. Tariff barriers to foreign trade are probably a minor problem of the Syrian economy. Non-tariff barriers may be much more important, but with the exception of the MERS it was impossible to model these barriers due to the inavailability of reliable data. The scarce information that is available suggests that the intransparency of the foreign trade system, along with regulations on licences, technical and quality standards, along with rules of origin and foreign currency holdings, along with tardiness and corruption in the administration is a major impediment to foreign trade, cf. Royal Dutch Embassy, undated. Reducing non-tariff barriers might well induce stimuli to the Syrian economy from which not only households, but also private sector industries benefit greatly. In this case, positive effects on GDP and tariff revenues are likely. Thus, while the removal of tariff barriers may be essentially a zero-sum game for the Syrian economy, the removal of non-tariff barriers might pay a double dividend. The simple message is that it is not in the first place the formal tariff structure which is to be blamed for inefficiencies in the Syrian economy. Efficiency gains require deep structural reforms elsewhere in the Syrian economy before trade liberalization can prove fruitful.

Clearly, among structural economic reforms which are likely to promote growth of the Syrian economy and increased prospects for trade liberalization in particular, the following will be of prime importance: Exchange rate unification and full convertibility of the Syrian pound suggests itself, given the success of recent depreciations in the official exchange rate and the stability of the Beirut free market rate. Impediments to private sector activity should be lifted by encouraging investment and reinforcing property rights. Also, public sector monopolies should be reduced and public enterprises privatized. Marginal and average tax rates of direct taxes should be reduced to international standards. In compensating for the revenue loss, a general sales tax could replace various specific excises which are almost exclusively borne by government enterprises. This would extend the indirect tax system to the private sector, which presently carries little such load. (Lateron, the transmission to a full value added tax would be desirable, along with a general straightening of the tax system, cf. Corm, 1997a, 1997b). It is important to note that a general sales tax would also be the most suggestive measure the Syrian government could take if it agreed to trade liberalization in an Association Agreement: Since lost tariff revenue basically accrues to private households and stimulates private consumption, the introduction of a general sales tax could compensate the government's revenue loss while leaving private households at approximately the status quo ante.

VIII. References:

Augier, Patricia and Michael Gasiorek, 2000: „Trade Liberalization Between the Southern Mediterranean and the EU: An Analysis of the Sectoral Impact“. FEMISE Conference Paper, Marseille.

Central Bureau of Statistics, 1999. *Foreign Trade Statistics*. Syrian Arab Republic, Office of the Prime Minister.

¹⁶ Note that this reasoning assumes that government consumption remains constant despite the revenue loss, i. e. at the cost of increased (foreign) government debt.

Central Bureau of Statistics, 2000. *Statistical Abstract*. Syrian Arab Republic, Office of the Prime Minister.

Corm, C. G., 1997a: „Etude de Modernisation du Ministère des Finances de la République Arabe Syrienne“, Rapport d’Ensemble, Commission Européenne.

Corm, C. G., 1997b: „Etude des Besoins du Ministère des Finances en Syrie“, Rapport de Pré-Diagnostic, Commission Européenne.

Devarajan, Shantayanan, Delfin S. Go, and Hongyi Li, 1999: „Quantifying the Fiscal Effects of Trade Reform: A General Equilibrium Model Estimated for 60 Countries“, Discussion Paper, World Bank, Washington, D. C.

Ginsburgh, Victor, and Michiel Keyzer, 1997: „The Structure of Applied General Equilibrium Models“, MIT Press, Cambridge.

International Monetary Fund, 1999a. *Syrian Arab Republic – Staff Report for the 1999 Article IV Consultation*, SM/99/137, Washington D. C.

International Monetary Fund, 1999b. *Syrian Arab Republic – Statistical Appendix*, SM/99/140, Washington D. C.

Lucke, Bernd, 2001: „The Fiscal Impact of Trade Liberalization: A CGE Analysis for Syria“, FEMISE Research Report to be submitted to the Institut de la Méditerranée, Marseille.

Martin, Will, 2000: „Assessing the Implications for Lebanon of Free Trade with the European Union“, World Bank Discussion Paper, Washington, D. C.

MEDA-Team, 2000. „Report on Syria’s International Trade“, Technical Assistance Unit to the Delegation of the European Commission, Damascus.

Ministry of Finance, 1989. *Decret No. 25, Tableau des Tarifs des Douanes*, Syrian Arab Republic, Damaskus.

Royal Dutch Embassy, undated. „Trade Barriers and Constraints to Access Resulting from Syrian Commercial Policy“, Damaskus.

Syrian Arab Republic, 1980. *Loi No.1 du 20.1.1980, Relative à l’Institution de la Taxe Unique sur les Importations*, Damaskus.

U.S. Department of State, 2000. *Fiscal Year 2000 Country Commercial Guide: Syria*, Washington D. C.

U.S. Department of State, 1996. *Country Reports on Economic Policy and Trade Practices: Syria*, [Http://www.state.gov/www/issues/economic/trade_reports/neareast96/syria96.html](http://www.state.gov/www/issues/economic/trade_reports/neareast96/syria96.html) (18 April 2000)

U.S. Energy Information Administration, 2000. „Syria“. March 2000. [Http://www.eia.doe.gov/emeu/cabs/syria.html](http://www.eia.doe.gov/emeu/cabs/syria.html) (29 August 2000).