CHAPTER 11

Lebanon's Accession to the WTO: An *Ex Ante* Macroeconomic Impact Assessment

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The international trade is an essential component of an integrated effort to end poverty, ensure food security and promote economic growth
Ban Ki-Moon, 2014

11.1 Introduction

As the quote highlighted, the Secretary-General of the United Nations, Ban Ki-moon, opened the 2014 WTO public forum joining traditional affirmations of the Bretton Woods Institutions. According to these institutions, openness and trade liberalization are considered to have played a major role in the remarkable expansion of industrial countries since the end of World War II and in the economic performance of countries that have taken off in recent decades. These policies are vital elements in any strategy for development and economic growth.

This development strategy is based on the liberal model of economic policy called the "Washington Consensus" by Williamson (1990). This model sets among its recommendations the liberalization of trade and the adoption of an

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extrovert growth strategy. Although this consensus was reconsidered (Stiglitz 1998) and was sometimes considered a failure (Rodrik 2001, 2006), its requirements that formed the basis of the structural adjustment programs of the 1980s continue to supply some of the content of programs against poverty in the 2000s.

The international rapid growth of trade is not a new phenomenon, but the terms of opening the economies have evolved (Cling 2006). Recently, we observe an increased trend towards further trade liberalization, which seems to be the result of a combination of unilateral, regional and multilateral liberalization. At the multilateral level, the trade liberalization has been especially strengthened by the creation of the World Trade Organization (WTO), heir to the GATT (General Agreement on Tariffs and Trade) created after the World War II. The WTO succeeded it in 1995 to mainly better support the movement of liberalization of the global market. Indeed, "the World Trade Organization (WTO) is the only international organization dealing with the global rules of trade between nations. Its main function is to ensure that trade flows as smoothly, predictably and freely as possible."

As of November 2015, the organization is composed of 162 members and 22 observers, and includes all the global economics powers with the accession of the Russian Federation in 2012. Despite criticism addressed to the ministerial conference held in Bali in July 2014, and despite the turmoil caused by the impasse in trade negotiations of the current Doha Round and the growing number of regional and bilateral trade agreements concluded outside the sphere of the WTO, there are few candidates willing to leave their place in the queue. Lebanon is not an exception.

Qualified once for Switzerland of the Middle East, Lebanon was considered before the civil war of the 1970s as a dynamic regional center, linking the East and the West. Lebanon is indeed one of the first signatories of the GATT in 1947 and had contributed significantly in the development and shaping of the GATT rules. Lebanon had to retreat in 1951 for political reasons (Dagher 2005).

Since 1990, at the end of the civil war that lasted fifteen years, Lebanon has tried to find again its commercial role. Trade liberalization and economic openness have been the two main pillars of the agenda of the Lebanese governments that have succeeded since 1990. Since 1999, Lebanon has submitted its application for membership in the WTO, and to this day, that is to say, after sixteen years of negotiations, the country is not admitted yet. The reasons are imperfectly known. They can be classified in three categories: political, technical and legislative.

On another level, Lebanon's accession to the WTO reflects currently a major concern domestically that opposes the supporters and opponents of

this process. For supporters, Lebanon is ready to face the liberalization shock; it has already relaxed its trade policy and the adherence shall promote a better access to export markets, reduce costs of imported inputs and encourage foreign direct investment. In front of these arguments, we can find those of the opponents reflecting the concerns of producers, especially the farmers, unable to face foreign competition, and are likely to exit the market before taking advantage of the probable export opportunities that such membership could offer.

This same debate taking place between the Lebanese supporters and opponents regarding the effects of further trade liberalization on growth and welfare in Lebanon is the subject of a debate, far from being concluded, among economists at the global level. It resulted in a developed economic literature, seeking to establish a link between trade and growth, and more recently between trade and poverty. This controversy among economists on the links between trade, growth and poverty is far from being settled, each part having its own theoretical and empirical arguments to advance and to defend.

The objective of this study is to identify the channels through which will pass the effects of WTO accession on the Lebanese economy, making use of a recursive dynamic Computable General Equilibrium Model (CGE Model). Taking into account the structure of the economy in general and the various interrelationships between economic agents, this model turns out to be the most appropriate tool to evaluate the potential impacts of trade liberalization policies at the macro level (Mage-Bertomeu 2006). This model has the advantage of presenting an overall view of the economy and the shock transmission channels on microeconomic agents while taking into account macroeconomic constraints within which they operate. The general equilibrium model is recursive dynamic; this implies that the economic interactions between agents and their behaviors are based on adaptive expectations. It is solved one period at a time, separating the within-period component from the between-period component (Thurlow 2008).

However, the difficulty of empirical modeling of the impact of the WTO on Lebanon is threefold: firstly, we do not really know the offer made by Lebanon to the WTO and we must therefore formulate necessarily approximate assumptions on commitments made and their impact, given that the price to pay to join the WTO is increasing and that any assumption made here will be outdated quickly if negotiations fail; secondly, there is the problem of the lack of statistical data in Lebanon. Finally, an intrinsic difficulty in macroeconomic modeling is that it assumes a stable macro-economic structure (however, joining the WTO can precisely cause a structural shock, such as the emergence of new productive sectors nonexistent in Lebanon so far).

This chapter is structured as follows: Sect. 11.2 reviews briefly the existing literature addressing the effects of trade liberalization/accession to the WTO on economic growth. Section 11.3 describes briefly the socio-economic context in Lebanon and the main challenges related to the WTO. Section 11.4 deals with the specification of database. Section 11.5 describes the methodology adopted and the different scenarios considered. Section 11.6 presents the results and analyzes the simulations. Section 11.7 concludes.

11.2 Literature Review

What link is there between trade openness and economic growth? Between the accession of a country to the WTO and its well-being? Answering these questions is a delicate task, due to the fact that the theory of international trade led to conflicting results in this area and that the economic tools, econometrics and statistics at our disposal encounter many limitations (lack of data, selection bias, etc.). At the empirical level, to test the nature of the link between trade, growth and poverty, econometric studies have multiplied. A number of empirical studies show indeed a positive correlation between trade openness and economic growth. Thus, Michaely (1977) found a positive correlation between export growth and GDP growth, taking as sample developing countries. Feder (1983) undertook the same exercise for the semi-industrialized countries, and found the same positive relationship. Syrquin and Chenery (1989) demonstrated that the trade liberalization adds 0.2–1.4 percentage points to the growth rate. Balassa (1985), in his study of the developing countries, has shown that the most open countries have on average the highest growth rates. The same observation was made in the study of Edwards (1991) and the report of the World Bank (1987).

A landmark study was conducted in 1995 by Sachs and Warner to test the trade liberalization policies' impact on growth. For this purpose, they proceeded to the classification of countries between "closed" and "open" and compared the respective growth of both groups. Their conclusion is that open economies have recorded an annual average growth rate of 4.5% in the 1970s and 1980s, while the number of closed economies barely reached 0.7%. According to them, not only do open countries grow faster than closed countries, but also poor open economies grow faster than rich open economies. The authors identify a conditional convergence: developing countries can catch up with rich countries under the condition that they

are open and integrated into the global economy. For their part, the two economists from the World Bank, Dollar and Kray (2001) in their study, "growth is good for the poor," also detect a significant positive effect of trade on growth and argue that this "leads to proportionate increases in incomes."

However, Rodriguez and Rodrik (2001) attacked those "pro-trade" findings. They especially criticized the methods used to measure the opening, which lead economists to overestimate the value of free trade regimes for developing countries. In their view, the focus on trade policy generates expectations unlikely to materialize. Bhagwati and Srinivasan (2002), for their part, consider that the regression analysis is not an appropriate method to understand the complexity of the trade-growth relationship; most studies has problems of measuring the opening and isolating the impacts of trade liberalization on growth.

As for the direct impact of the WTO on economic growth, more or less recent studies have been conducted to estimate these effects. The study of Rose (2004) is the first to estimate the impact of the WTO on trade. This study comes to the following conclusion, described as "interesting mystery": there is no empirical evidence that the WTO has promoted international trade. The study, using a large database and relevant quantitative analysis, questioned the impact of the WTO as a multilateral institution promoting international trade. The author titled his study, "*Do We Really Know that the WTO Increases Trade?*" claiming that he has doubts about the fact that the WTO has really promoted international trade.

These remarks have led many economists to empirically test the findings of Rose and the impacts of WTO accession on growth and trade. In a critical analysis of Rose's affirmations, and in an article commenting on the study, Tomz et al. (2007) argue that the solution of the mystery revealed by Rose is in the specification of the countries participating in the WTO. The authors emphasize the institutional detail and identify all the countries participating in the WTO. They reuse the same data and methods of Rose, and conclude that the WTO significantly increases the trade of formal members and non-member country participants in comparison with non-member countries not subject to the agreement.

Rose replied to the critical analysis of Tomz et al. in a paper published in 2007 entitled: "*Do We Really Know that the WTO Increases Trade? Reply*". He accords with the three authors of the specifications to be used. However, in his demonstrations, he not only shows that the affirmations of Tomz et al. and those of Subramanian and Wei (2006) subsequently were wrong,

but he still insists that the GATT, and later the WTO, has only small effects on trade. He concluded by asking how participation in the WTO can have significant effects on trade if it does not change trade policies.

The impact of accession to the WTO has attracted the interest of other researchers, including Gowa and Kim (2005), who focus their analysis on the role of "primary supplier," which has the rights of the initial negotiator in terms of tariff concessions. Using 2004 data, the two authors conclude that the WTO accession will have a positive and significant impact on trade only established between the most industrialized countries (the Great Britain, the United States, Canada, France and Germany).

Balding (2010), for his part, was interested in bilateral trade flows between countries. He concluded confirming the results of Subramanian and Wei that the impact of the WTO on trade flows is asymmetrical depending on the country and its initial level of economic development.

In conclusion, we note that these findings remain controversial, highlighting the highly variable nature of the effects of increased trade openness on economic growth of countries, which largely depends on the starting conditions of countries and their structural features.

11.3 The Lebanese Economy: Socio-economic Context

Qualified once for Switzerland of the Middle East, Lebanon was in the 1960s and early 1970s, a dynamic regional center, linking the east to the west. Its history and its demographic, geographic, religious and cultural characteristics made Lebanon a unique country in the Middle East. Historically, many civilizations had occupied the country and the Lebanese state was only created in 1920, under the name of Grand Lebanon under the French mandate (Shehadi and Mills 1988).

However, this model of democracy and economic development presented by the country after independence in the 1950s and 1960s disappeared with the civil war, which took place from 1975 to 1990. Although the causes of this war and its conduct were not justified and not clear, it resulted in structural imbalances on many levels, which are accumulating and increasingly felt: a public debt-to-GDP ratio among the highest in the world according to the IMF's 2014 report, and whose sustainability is questioned, a low coverage of imports by exports, a chronic trade deficit denoting structural weaknesses in the agricultural and industrial sectors in the country where the services sector represents more than 70% of GDP.

On the commercial side, and in an attempt to revive the "golden age" of the pre-war period, the country has tried to find its commercial role linking the Arab countries to the European ones (Corm 2012). To this end, Lebanon signed the Association Agreement with the countries of the European Union (EuroMed agreement), and it is engaged in a process of tariff dismantling with the Arab countries, as part of the Greater Arab Free Trade Area (GAFTA). On the multilateral level, Lebanon is actively pursuing its accession to the WTO. Since 1999, Lebanon has submitted its application for membership in the WTO. The Lebanese Republic's Working Party was established on 14 April 1999. The Memorandum on the Foreign Trade Regime was circulated in June 2001. The seventh meeting of the Working Party was held in October 2009, and to this date (2017) Lebanon is still not part of the organization.

The issue of Lebanon's accession to the WTO remains an intrigue at several levels: the accession process in Lebanon remains one of the longest (the second after Algeria) even though Lebanon is one of the twenty-three founding members of the GATT. Internally, this process is postponed because of the social and political priorities that continue to weigh (the most recent IMF Report on Lebanon (2014) does not mention the issue of accession to the WTO). Empirically, to our knowledge, no quantitative study has assessed yet the effects of Lebanon's accession to the WTO. The originality of our study therefore emerges.

11.4 Specification of Database

This section sets out the framework of the Social Accounting Matrix (SAM), used for the calibration of the model to the Lebanese economy. "A social accounting matrix is simply defined as a single entry accounting system whereby each macroeconomic account is represented by a column for outgoings and a row for incomings" (Round 1981). Thus, SAM is a matrix representation of transactions between all institutional groups in a socio-economic system. It is a disaggregated framework representing the generation of income by activities of production and the reallocation of income between the economic agents (Round 2003).

In a country where statistics data are almost non-existent, and where quantitative economic studies are very rare, the use of an already existing social accounting matrix was almost impossible for several reasons. Indeed, the social accounting matrices used in quantitative studies applied in Lebanon are either very aggregated or using 1997 data. Thus, a key challenge in

this study was to elaborate a SAM based on national data and its disaggregation subsequently to extend the scope of analysis. The SAM that was used is calibrated to the year 2010. It was disintegrated thereafter to include seven industrial subsectors, instead of one, according to those existing in the accounting national accounts: (1) Food products, (2) Textiles, (3) Non-metallic minerals, (4) Metals, machinery, (5) Wood, rubber and chemistry, (6) Furniture, and (7) Other branches.

The SAM is composed of forty-two aggregated accounts. It first distinguishes the sectors and the commodities produced to better visualize the assumption of the International Food Policy Research Institute (IFPRI) Model that the same commodity can be produced by several activities and one activity can produce many commodities.

The trade data are collected in the account, "rest of the world." One characteristic of the dynamic model of IFPRI is that it allows a regional disaggregation of international trade. For this purpose, the data of foreign trade of Lebanon have been classified into seven geographical areas, rather than including a single account "rest of the world". This specification allows us to account for the heterogeneity of foreign trade by region and to better examine regional substitution phenomena and the evolution of import prices following trade liberalization policies (Punt 2004). There are first the two major trading partners—the countries of the European Union (EU 28) and the Arab country members of the GAFTA. Also considered are trade relations with EFTA (Iceland, Liechtenstein, Norway and Switzerland) with other major trading partners, namely the NAFTA group (the United States, Canada and Mexico), China and Turkey.

Information on trade flows with these countries/groups of countries are collected from the MacMap database (Market Access Map), developed jointly by the International Trade Centre ITC (UNCTAD-WTO, Geneva) and the CEPII, which refers to the French *Centre d'Etudes Prospectives et d'Informations Internationales.*

The calculation of the model parameters is based on the SAM and several assumptions. The growth rate of the population is estimated at 1.3% per year, according to projections made by the International Monetary Fund (IMF 2013). The estimation of these elasticities is not available for Lebanon. This led us to review the literature of CGE models and the empirical studies applied to other developing economies.

11.5 Methodology

In this section, we quantify the macroeconomic effects of Lebanon's accession to the WTO. Specifically, we will assess whether the macro impacts of such a shock are positive or negative, and will try to identify the winners and losers. To this end, economists generally use computable general equilibrium models, which seem to be the most rigorous quantitative methods to evaluate the impact of economic shocks/reforms in the economy as a whole. Taking into account the different interactions between economic agents, these models turn out to be the most appropriate tools to evaluate the potential impacts of trade liberalization policies at the macro level. The CGE Models are a set of linear and non-linear equations describing the behavior interactions between the agents based on optimizing behavior ensuring that the macroeconomic constraints are satisfied (Thurlow and Seventer 2002). They can describe the way in which different sectors of the economy, prices, wages, and trade with the rest of the world, etc. would be affected.

Our general equilibrium model is recursive dynamic, visualizing the economic interactions between agents and their behaviors based on adaptive expectations. It is solved one period at a time, separating the within-period component from the between-period component. Also, our model is calibrated on the SAM of 2010, newly built and disaggregated to better assess the sectorial impacts of WTO accession. Several shocks, inspired by the existing literature and Lebanese context, are simulated to better understand and analyze the effects of further trade liberalization in Lebanon on different macroeconomic variables.

This study includes several "value added," which constitute the originality and contribution of our study:

- First, the impact of trade reforms on the Lebanese economy has been little studied so far in Lebanon, and most of the studies simply describe events and historical facts by introducing a qualitative analysis related this question, not making use of any model or quantitative study.
- This study aims to evaluate the effects of trade opening by using a computable general equilibrium model. It therefore can be added to the small number of studies in Lebanon using such models.
- The general equilibrium model used is recursive dynamic, developed by Thurlow in 2008 for application to South Africa.

- The simulated scenarios constitute a projection and simulation of the evolution of the Lebanese economy over the studied period, under the various shocks and reforms arising from the accession to the WTO.

11.5.1 The Scenarios Description

Several scenarios are presented in order to analyze the effects of Lebanon's accession to the WTO. They are modeled through an exogenous adjustment of model parameters to assess the effects of tariff elimination and increased competition in local markets exerted by the induced increase in imports, the increased productivity and technological efficiency induced by trade and the improvement of the investment climate. Note that WTO membership would also strengthen export opportunities as Lebanese products could access any market of a Member State benefiting from the same conditions as those granted to all member countries (as the principle of non-discrimination advocated by the organization). But this effect has not been taken into account directly in our simulations, because it would have claimed to develop assumptions about global growth supplement addressed to Lebanon, which is a heavy exercise conducted only by very few studies (Cling et al. 2009). The simulations carried out in the model are inspired by the existing literature, regional agreements already signed with trading partners and the Lebanese context. Five scenarios are studied:

- The baseline scenario reproduces the trends of the Lebanese economy in the absence of shock.
- Scenario 1 studies the effects of immediate and full tariff reduction. It has the advantage to generate a direct and cumulative effect of tariff elimination.
- Scenario 2 associates tariff reform with the effects of improving the investment climate in Lebanon.
- Scenario 3 examines the combined effects of tariff reform and an increase in total factor productivity related to trade liberalization.
- Scenario 4 combines the first three scenarios.

11.5.2 And the Services?

Because of the increasing role of services in world trade, economists have become more interested in this field. For a long time, services were considered as non-tradable internationally. However, as shown by Lautier (2013),

the opportunities of the tertiary sector in international trade seem to be underestimated. Indeed, it is expected that this sector will represent half of the world trade by 2020, as is currently recording the fastest expansion.

However, for services, the current framework of the WTO is insufficiently structured for services liberalization. It is the internal regulation, rather than border measures, that significantly affects trade in services. Thus, liberalization of trade in services requires a country to adapt its own regulations. Furthermore, measuring the actual level of protection in services, theoretically or empirically, is a difficult task. The first difficulty concerns the intangible nature of services (the barriers against trade in services are different from those imposed on trade in goods). Having said that, instead of referring to a single tariff list, as is the case in the goods sector, policymakers must implement an information-building strategy and study all the regulations for each sector (Hoekman and Mavroidis 2002). This process is long and does not allow for clear quantification of the level of barriers in place in each sector.

Given these elements (few liberalization commitments in services at this stage, the difficulties to take them into account quantitatively, etc.), the impact of Lebanon's accession to the WTO will only concern in our study its effects on goods. Those on services may be the subject of further research.

11.6 The Model Results

This section presents the results of two exercises carried out with the CGE Model. The first exercise is a projection, which is the "counterfactual scenario" (also called "base" in the tables). It shows the future trend of the Lebanese economy, in the absence of Lebanon's accession to the WTO (in the absence of an exogenous shock). The second exercise is to simulate the four scenarios described earlier. The scenarios results have been reported to those of the reference path (the counterfactual or baseline scenario). They concern the impact on prices and the exchange rate, on GDP and different macroeconomic variables and on the flow of trade. Also, the study will analyze the dynamic trajectories of macroeconomic variables during the simulated period from 2010 to 2020, and the evolution of the Lebanese sectors under the four scenarios.

Table 11.1 Regional average customs in %

	EU	*GAFTA*	*EFTA*	*ALENA*	*China*	*Turkey*	*ROW*	*Average*
Agriculture	24.0	0.0	24.0	24.0	24.0	24.0	24.0	19.2
Livestock	53.1	0.0	33.1	33.1	33.1	33.1	53.1	45.2
Energy and water	2.8	0.0	2.8	2.8	2.8	2.8	2.8	2.4
Agro-food products	17.0	0.0	17.0	17.0	17.0	17.0	17.0	13.5
Textiles	8.0	0.0	8.0	8.0	1.0	8.0	8.0	5.3
Non-metallic minerals	13.9	0.0	13.9	13.9	13.9	13.9	13.9	6.9
Metals, machinery	4.3	0.0	4.3	4.3	0.0	4.3	4.3	3.1
Wood, rubber and chemistry	2.3	0.0	2.3	2.3	2.3	2.3	2.3	2.1
Furniture	3.7	0.0	3.7	3.7	3.7	3.7	3.7	3.5
Other branches	7.6	0.0	7.6	7.6	3.2	7.6	7.6	6.4

Source: Market Access Map (2013)

11.6.1 Changes in Tariffs and Impacts on Prices

Before analyzing the effects of shocks on prices, note that the tariff structure of Lebanon is extracted from databases prepared jointly by the ITC, the CEPII and the Customs Administration in Lebanon and collected in 2013 for the 2007 (it was the most recent data at the time). Table 11.1 shows the tariffs applied in 2007 with the major trading partners.

From the table, we see that the most protected sectors are livestock (45.2% on average), agriculture (19.2%) and agri-food products (13.5%). This is consistent with the global trend to protect the agricultural sector, assumed as a fragile sector, and which remains one of the most sensitive issues in the international negotiations.

Industrial sectors are subject to lower rates than those of the agricultural sector, especially in the case of industrial goods used as inputs in the production, such as wood, rubber and chemicals (2.1%), energy and water (2.4%) and metals and machinery (3.1%).

Changes in import and intermediate goods prices are presented in the following table. The four scenarios assume a complete dismantling of tariffs; the direct effect is to lower import prices of all tradable goods (see Table 11.2). Increased trade liberalization in Lebanon will eventually generate a removal of customs duties on imports, which will directly lower import prices and will involve a decline in domestic demand addressed to domestic goods for those imported. Therefore, we observed lower prices in concerned sectors.

This drop in import prices affects in the other hand the prices of imported intermediate goods, used as inputs in the production of certain

Table 11.2 Cumulative price variation (deviation from baseline scenario, in %)

		Scénario 1	*Scénario 2*	*Scénario 3*	*Scénario 4*
Imports	Agriculture	−5.2	−1.8	−12.1	−9.4
	Elevage	−5.2	−1.8	−12.1	−9.4
	Energie et eaux	−9.1	−5.8	−15.7	−13.1
	Production Agro-alimentaires	−12.0	−8.8	−18.4	−15.9
	Textiles	−6.6	−3.2	−13.4	−10.7
	Minéraux non-métalliques	−5.5	−2.1	−12.4	−9.7
	Métaux, Machines et appareils	−6.7	−3.3	−13.5	−10.8
	Bois, caoutchouc et chimie	−2.7	−6.4	−4.8	−1.9
	Meubles	−22.5	−19.7	−28.2	−25.9
	Autres branches	−1.5	−5.2	−5.9	−3.0
Intermediate products	Agriculture	5.2	8.6	−16.0	−13.7
	Livestock	3.2	4.7	−7.9	−7.1
	Energy and water	−3.4	−0.3	−15.1	−12.8
	Agro-food products	3.8	5.9	−7.0	−5.5
	Textiles	3.2	6.0	−14.6	−12.7
	Non-metallic minerals	−8.0	−1.5	−15.6	−10.8
	Metals, machinery	0.1	3.7	−17.1	−14.5
	Wood, rubber and chemistry	2.1	5.6	−12.8	−10.2
	Furniture	−0.2	3.4	−12.0	−9.3
	Other branches	2.2	6.1	−14.8	−12.0
	Construction	−6.4	−1.1	−12.1	−8.2
	Transport and communications	−7.4	−6.0	−8.5	−7.1
	Merchant service	−3.2	−2.0	−5.6	−4.5
	Trade	0.8	0.8	0.2	0.3
	Administration	3.7	2.5	4.9	4.0

Source: CGE Model results

commodities, allowing a reduce production costs in these areas and lead to improved competitiveness. The increase in exports that follows will cause an increase in production in sectors oriented towards exports and rising prices for their products.

These effects are combined within each sector and the predominant final effect depends on the characteristics of each sector, on the initial tariff rates and on the share of imports in domestic consumption. Compared to the

baseline scenario, we note that the most protected products, subject to the higher tariffs, namely, agriculture, livestock and food products, are those that record the most significant reduction in import prices. It can also be observed from the table a reduction in the agricultural and industrial goods imported prices, which implies a lower average inputs cost, leading to a decline in the average production price of industrial goods. The latter will be more important for tradable industrial goods, such as metallic minerals and furniture. The combination of lower production and imported prices results in lower prices for the composite commodity. Prices of goods composites are formed by combining the prices of imported goods with the prices of domestic goods produced locally. These price changes are more important when taking into account improvements in total factor productivity in simulated scenarios 3 and 4.

11.6.2 The Evolution of Macroeconomic Variables and the Exchange Rate

Counterfactual Scenario

This scenario is represented in the column "base" in the tables. It is observed that imports increase in an average of 3.8% per year over the study period, while exports increase at an average rate of 6.5% per year. This seems consistent with the recent evolution of foreign trade in Lebanon, where exports are growing at a slightly faster pace than imports. If this trend continues, there would be a decrease in the chronic external deficit.

The projected growth of the productive sectors resulted in an annual increase of 4.3% of GDP. Thus, the growth rates in the domestic production and consumption are nearly equivalent. Private consumption expenditure increased at an annual average rate of 3.8%, while the population is growing at an annual rate of 1.3%, implying an increase in the consumption per capita.

The First Scenario: Tariff Dismantling

Table 11.3 shows the evolution of the Lebanese economy after a total dismantling of tariffs (scenario 1). The model has the originality to show what could happen with each regional group or country separately, in addition to the effects of a multilateral agreement in a column called "Multi".

Table 11.3 Scenario 1: Annual growth rates in % (in volume)

S1	*Structure in % baseline*	*FTAEU*		*FTAALENAFTACHINA FTATURKEY MULTI*			
GDPMP	100.0	4.3	3.9	4.0	4.2	4.1	4.4
PRVCON	77.3	3.8	5.1	4.2	3.8	4.2	4.0
FIXINV	31.7	3.0	3.0	3.0	3.0	3.0	3.0
GOVCON	13.3	3.7	3.7	3.6	3.7	3.7	3.6
EXPORTS	23.1	6.5	6.0	6.3	6.5	6.2	7.1
IMPORTS	−45.4	3.7	6.3	4.8	3.8	4.7	4.2

Source: CGE Model

The direct effect of the elimination of tariffs results in the reduction of import prices, leading to higher growth of imports compared to the baseline scenario. The average import growth over the period studied is 4.2% per year. Since these imports meet 80% of the Lebanese domestic consumption, reducing import prices also enables households to increase their consumption in almost the same proportions.

This growth in imports does not alter the balance of the current account. The current account balance is equilibrated by an adjustment of the exchange rate. The latter depreciates by 1.1% per year (Table 11.4), stimulating exports, which are increasing at an average annual rate of 7.2%. This depreciation is slightly greater than that which can occur in the absence of shock. The explanation for stimulating exports is the fact that the decline in import prices implies a reduction in average prices for imported inputs, reducing the cost of local production. Thus, the domestic production becomes more competitive and able to compete on export markets.

It turns out that the application of the most favored nation clause following Lebanon's accession to the WTO promotes trade, boosting both increased imports and exports in comparison with the baseline scenario, with the fact that the increase in exports exceeds the increase in imports. This relatively significant increase in exports can be explained by the depreciation of the exchange rate on one hand and falling inputs prices on the other.

This effect, coupled with an increase in private and public consumption leads to an increase in domestic production. The latter, considered at the market price, is experiencing an annual average growth of 4.4% per year, which is higher than that prevailing in the baseline scenario.

Table 11.4 Annual change in exchange rate in % (a positive sign of the exchange rate variation indicates depreciation)

	S0	*S1*	*S2*	*S3*	*S4*
Exports	6.5	7.1	7.6	12.1	12.2
Imports	3.7	4.2	4.5	7.6	7.7
Exchange rate	0.4	1.1	1.6	0.4	0.7

Source: CGE Model

Another account affected by the tariff reduction is the account of public savings. The public savings flexibility constraint being adopted, tariff elimination generates lower revenue and a worsening of the public deficit. However, trade liberalization stimulating the economy could generate additional tax revenue, which limits the widening of public savings.

One should note that a removal of tariffs with each partner took apart, causes a slowing of the rate of growth of Lebanon's GDP compared to the baseline scenario, and will only lead to improved results if it concerns all trading partners. Indeed, as shown in the simulation results, it is only in the case of multilateral liberalization, called "Multi," that Lebanon will experience an improvement in its economic growth. However, this improvement is not significant (4.4% per year in the scenario compared with 4.3% per year in the baseline). This can be explained mainly by the weakness of current customs duties in Lebanon.

The Second Scenario: Tariff Dismantling and Improvement in the Climate Investment

This scenario is obtained by combining the tariff reform with an increase in the investment rate. The latter is always exogenous, according to the neoclassical closure of our model. The growth of the volume of investment, however, is set at a higher level (6% per year instead of 3% per year) (Table 11.5).

An increased investment leads to increased overall production and income. This effect, combined with tariff reform reducing the cost of imported intermediate goods results in an annual increase in the overall production of 4.8%, higher than that which takes place in the isolated case of tariff reform envisaged in the previous scenario. The effects on the current account are almost the same as that of the first scenario; the increase in exports outweighed the increase in imports. However, the increase in

Table 11.5 Scenario 2: Annual growth rates in % (in volume)

S2	*Structure in % baseline*	*FTAEU*		*FTAALENAFTACHINA MULTI*	*FTATURKEY*		
GDPMP	100.0	4.7	4.4	4.5	4.6	4.5	4.8
PRVCON	77.3	3.0	4.5	3.5	3.1	3.5	3.2
FIXINV	31.7	6.0	6.0	6.0	6.0	6.0	6.0
GOVCON	13.3	3.7	3.9	3.7	3.7	3.7	3.6
EXPORTS	23.1	6.9	6.2	6.6	6.9	6.5	7.6
IMPORTS	−45.4	4.0	6.5	5.0	4.1	4.9	4.5

Source: CGE Model

exports is more pronounced than in the case of a tariff reduction (scenario 1). Improving the investment climate improves productive performance; the result is a higher export growth.

The Third Scenario: Tariff Dismantling and an Increase in the TFP

A striking difference in the magnitude of the evolution of economic indicators can be observed in the third scenario. This third scenario assumes in addition to the tariff reform of the first scenario an increase in total factor productivity, resulting in a better allocation of resources. The results put in evidence the potential dynamic gains following trade liberalization (Table 11.6).

The average annual increase in GDP is much higher than that estimated in the baseline scenario; it exceeds 7% per year regardless of the studied regional liberalization, and it is the highest in the context of multilateral liberalization (7.7% per year). With improved total factor productivity, which results in increased quality of Lebanese production, local products that quality standards required in export markets can compete with foreign products not only in the domestic markets, but also in the overseas markets. Thus, the most important change can be observed with the exports, which record an increase of 12.1% per year compared to an increase of 6.5% per year in the baseline scenario, of 7.1% per year in scenario 1 and 7.8% in scenario 2.

The Fourth Scenario: Tariff Dismantling, Improvement in the Climate Investment and an Increase in the TFP

Scenario 4 combines the increase in total factor productivity with the tariff reform and the improvement of the investment climate. The results are positive, significant and suggest positive effects on Lebanon's accession to

Table 11.6 Scenario 3: Annual growth rates in % (in volume)

S3	*Structure in % baseline*	*FTAEU*		*FTAALENAFTACHINA FTATURKEY MULTI*			
GDPMP	100.0	4.3	7.2	7.4	7.5	7.4	7.6
PRVCON	77.3	3.8	8.6	7.9	7.7	7.9	7.9
FIXINV	31.7	3.0	3.0	3.0	3.0	3.0	3.0
GOVCON	13.3	3.7	6.1	6.0	6.1	6.0	6.0
EXPORTS	23.1	6.5	11.6	11.6	11.5	11.5	12.1
IMPORTS	−45.4	3.7	9.3	8.0	7.3	7.9	7.6

Source: CGE Model

the WTO. The GDP will experience an exceptional growth rate of 8% per year, roughly double that of the reference scenario, and we will observe an annual increase in private consumption of 7.3% per year, which implies an improvement in the well-being of the Lebanese population (Table 11.7).

11.6.3 Dynamic Trajectories of the Economy

To visualize the dynamic effects of trade liberalization, we present the trajectories of evolution of the main economic variables, namely imports, exports and GDP, to observe the adjustment of the Lebanese economy between 2010 and 2020.

Evolution of Imports

Greater trade openness creates a faster increase in imports, regardless of the scenario considered. However, the evolution of imports is more important when we take into account the dynamic improvement in total factor productivity. Scenario 4, combining the first three shocks, records the largest increase. The explanation lies in the opening of the market, resulting in increased imports of consumer goods and foreign intermediaries. These come to meet the needs of a growing domestic production not only turned to the domestic market, but also to the exports (Fig. 11.1).

Evolution of the Exports

Figure 11.2 traces the evolution of exports in the reference scenario and the four simulated scenarios. Isolated tariff reform or combined with an improved investment climate appears to induce a decline in the export

Table 11.7 Scenario 4: Annual growth rates in % (in volume)

S4	*Structure in % baseline*	*FTAEU*		*FT AALENAFT ACHINA FTATURKEY MULTI*			
GDPMP	100.0	4.7	7.6	7.7	7.8	7.7	8.0
PRVCON	77.3	3.0	8.1	7.4	7.1	7.4	7.3
FIXINV	31.7	6.0	6.0	6.0	6.0	6.0	6.0
GOVCON	13.3	3.7	6.3	6.2	6.3	6.2	6.1
EXPORTS	23.1	6.9	11.6	11.7	11.7	11.6	12.2
IMPORTS	−45.4	4.0	9.4	8.1	7.4	8.0	7.7

Source: CGE Model

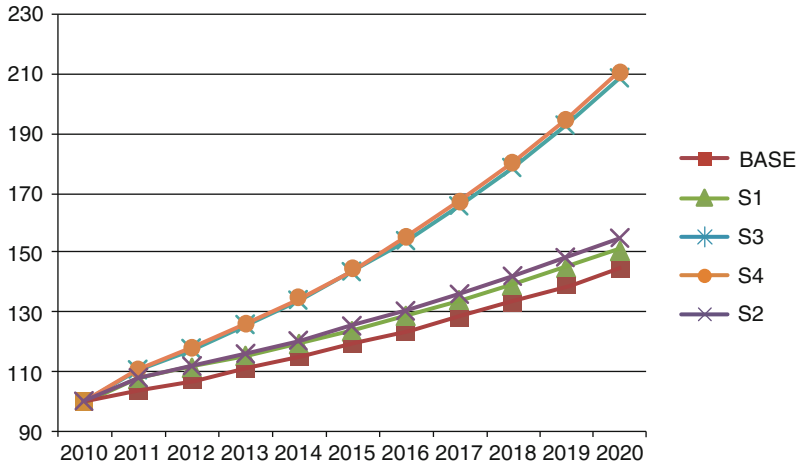

Fig. 11.1 Evolution of imports between 2010 and 2020 (Base 2010 = 100) (*Source*: CGE Model, author's calculations)

expansion rate in comparison with the counterfactual scenario. The change is much more marked and favorable when we take into account the improvement of factor productivity in scenario 3 and scenario 4. It strengthens the Lebanese productive base and the opportunity to benefit from new export opportunities.

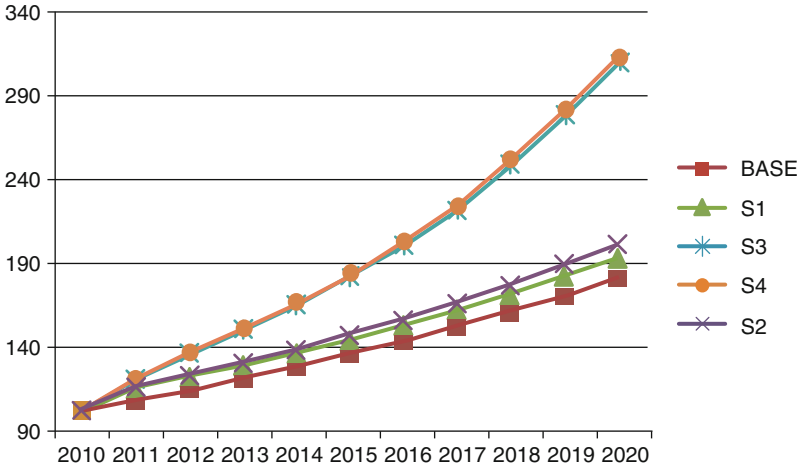

Fig. 11.2 Evolution of exports between 2010 and 2020 (Base 2010 = 100) (*Source*: CGE Model, author's calculations)

Evolution of GDP

The evolution of GDP between 2010 and 2020 in each scenario is represented by the following graph (Fig. 11.3).

The five paths are increasing with those in scenarios 3 and 4 being the most significant. Compared to the reference scenario, scenario 1 records a slight improvement; tariffs are already low in Lebanon, their reduction has little effect on growth. Again we can observe the importance of the dynamic gains that may result from better productivity factors. This promotes a more sustained economic growth.

11.6.4 The Sectorial Impacts

Table 11.8 shows the cumulative evolution of sectorial output in real terms and its deviation from the reference or baseline scenario in the four scenarios studied:

Although the sectorial effects are small, it remains that the examination of real GDP by sector shows that all sectors are experiencing an increase in their level of activity. This is the service sector, which already ranks first in the Lebanese economy, which recorded the highest increase (scenario 4), especially for transport and communications and trade. The industrial sector

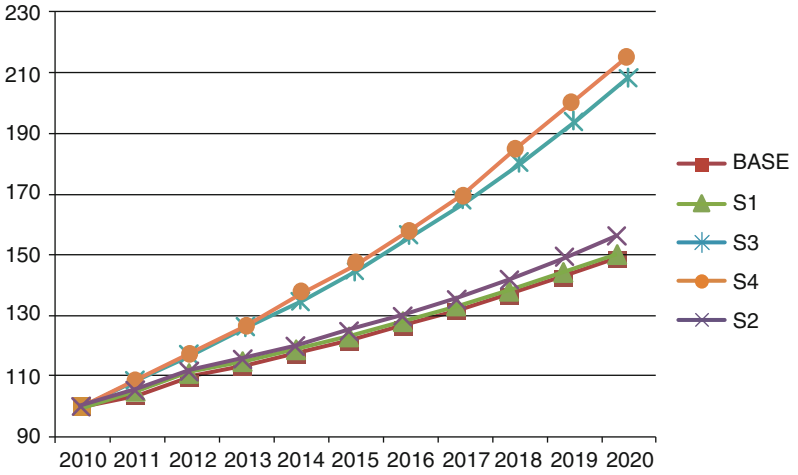

Fig. 11.3 Evolution of GDP between 2010 and 2020 (Base 2010 = 100) (*Source*: CGE Model, author's calculations)

knows in turn significant growth, particularly for food products and furniture.

The effects of the tariff reform simulated in the first scenario cause a small increase in agricultural growth rate compared to the baseline scenario, a more favorable growth in the industrial sector, and a small reduction in service sector growth. This observation reflects the fact that although the tariffs are already low, they are more pronounced in the agricultural sector. Their removal induced a resources reallocation from the most protected sector to the least protected sector, that is to say, towards the industrial sector, which knows the most marked expansion. The combination of an improved investment climate with tariff reform (scenario 2) mainly causes an improvement in the construction sector growth rate due to its strong reliance on investment. The result is a strengthening of the real annual growth rate of GDP in comparison with the baseline scenario. This is the third scenario, which assumes an increase in total factor productivity that records the highest growth gains. With the exception of construction, all sectors experienced an increase in production in comparison with the two other scenarios. The growth of the primary sector is less marked given its structural weakness. Both industrial and service sectors seem to be the more advantaged, recording exceptional growth rates. The resulting sectorial

Table 11.8 Average rate of growth in each sector and its deviation from the baseline scenario (in %)

	GDP structure in %	*Base*	*S1*	*S1 – base*	*S2*	*S2 – base*	*S3*	*S3 – base*	*S4*	*S4 – base*
GDP at factor prices	**100**	**4.4**	**4.5**	**0.1**	**4.9**	**0.5**	**7.9**	**3.4**	**8.2**	**3.7**
Agriculture	3.8	1.8	2.0	0.2	2.0	0.2	2.7	0.9	2.7	0.9
Livestock	1.1	2.5	2.6	0.1	2.6	0.1	3.5	1.0	3.5	1.0
Energy and water	0.4	2.7	3.8	1.1	3.8	1.1	3.8	1.1	3.8	1.1
Agro-food products	2.0	0.8	1.6	0.8	1.6	0.8	4.2	3.4	4.3	3.5
Textiles	0.8	3.0	3.7	0.7	3.7	0.7	6.0	2.9	6.0	2.9
Non-metallic minerals	0.9	5.1	5.7	0.6	5.6	0.5	7.4	2.2	7.4	2.2
Metals, machinery	1.1	3.6	4.4	0.8	4.4	0.8	4.4	0.8	4.4	0.8
Wood, rubber and chemistry	1.2	1.8	2.1	0.3	2.1	0.3	3.6	1.8	3.6	1.8
Furniture	0.4	7.1	8.9	1.7	8.7	1.5	10.2	2.9	10.0	2.7
Other branches	0.5	8.6	9.0	0.4	9.0	0.4	10.3	1.5	10.2	1.5
Construction	14.8	3.0	3.0	0.0	6.0	2.9	3.0	0.0	6.0	2.9
Transport and communications	5.3	9.4	9.9	0.4	10.0	0.5	13.7	4.0	13.8	4.0
Merchant service	32.5	4.4	4.4	0.0	4.4	0.0	7.6	3.0	7.5	3.0
Trade	26.0	4.7	4.7	0.0	4.7	0.0	10.7	5.8	10.7	5.7
Administration	*93*	*3.7*	*3.6*	*−0.1*	*3.6*	*−0.1*	*6.0*	*2.2*	*6.1*	*2.3*

Source: CGE Model, and author calculations

growth stimulated by the increase in factor productivity is a significant increase in GDP (7.9% per year), much higher than that of the first scenarios. Combined together in scenario 4, the sectors experienced similar average annual growth rate as the scenario 3, with no significant differences, registering an average annual increase of 8.1% of GDP over the considered period.

11.7 Conclusion

The simulation conducted using the computable general equilibrium model recursive dynamic was used to assess the medium- and long-term effects of further trade liberalization in Lebanon. Arguably, our results confirm that open trade promotes economic performance of a country. Whether through

a simple tariff reform, or through the restructuring of the legal system in the form of an improved investment climate, or through the accumulation of dynamic gains from improved total factor productivity, it seems that Lebanon's accession to the WTO can be beneficial to the country. The tariff removal, causing export competitiveness boost causes a depreciation of the exchange rate thus stimulating exports. The effects on GDP and other macroeconomic variables are accentuated when combining the elimination of tariffs with increased investment (the construction sector will be the first recipient), or with an improvement in factor productivity.

To be admitted to this organization appears to achieve positive and more favorable results than remaining marginalized and outside the sphere of international trade. If the magnitude of effects and the nature of some of them depend on the envisaged macroeconomic adjustment process, we observe, however, many similarities between the results of the four simulations. The most important challenge concerns the capacity to enhance the productivity of factors, the latter stimulating the most significant results. The analysis of sectorial impacts identified that the agricultural sector remains the least favored because of its structural weakness and its initial high level of protection. The industrial sector recorded significant growth rate especially when we take into account the improved technological efficiency of products strengthening the Lebanese productive base. The examination of the impact on the services sector confirms the essential role played by this sector since the Lebanese economy seems to benefit most from such process, observation concluded from the analysis of its favorable evolution whatever the scenario considered. Nevertheless, we have to note that our quantitative analysis cannot answer alone the scale of the challenges facing Lebanon during its multilateral integration. These challenges are huge and increasingly complex with the socio-political and economic context within which Lebanon currently operates. Also, is it appropriate to note that our work provides only a provisional answer to the question of Lebanon's accession to the WTO and should not be considered as a prediction instrument, especially considering that the details of negotiations for membership are kept secret and are still ongoing. It is only a starting point for further analysis and can be completed later by richer work, overcoming the shortcomings of quantitative models and benefiting from more completed and updated macroeconomic and microeconomic data when they become available.

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