

# Impact of Trade Liberalization on Agriculture in the Near East and North Africa



INTERNATIONAL FOOD  
POLICY RESEARCH INSTITUTE  
*sustainable solutions for ending hunger and poverty*  
Supported by the CGIAR

Enabling the rural poor to overcome poverty



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# Acronyms

CGE	computable general equilibrium (model)
EMAA	European Union-Mediterranean Association Agreement
EMP	Euro-Mediterranean Partnership (Agreement)
EU	European Union
FTA	free trade agreement
GAFTA	Greater Arab Free Trade Agreement
GATT	General Agreement on Tariffs and Trade
LDC	least developed country
MENA	Middle East and North Africa
NENA	Near East and North Africa
OECD	Organisation for Economic Co-operation and Development
SAM	social accounting matrix
URAA	Uruguay Round Agreement on Agriculture
WTO	World Trade Organization

# Currencies

Algeria	Algerian dinar (DZD)
Djibouti	Djibouti franc (DJF)
Egypt	Egyptian pound (LE)
Jordan	Jordanian dinar (JOD)
Lebanon	Lebanese pound (LBP)
Morocco	Moroccan dirham (DH)
Somalia	Somali shilling (SOS)
Sudan	Sudanese dinar (SDD)
Syria	Syria pound (SYP)
Tunisia	Tunisian dinar (TND)
Turkey	Turkish lira (TL)
West Bank and Gaza	Israeli shekel/Jordanian dinar
Yemen	Yemeni rial (YER)

# Foreword

The impact of trade liberalization on developing countries has been a topic of some interest and controversy for many years, but the debate became prominent during the Doha Round of multilateral trade negotiations. The suspension of the Doha Round will likely shift attention toward regional and bilateral agreements and toward unilateral reforms, but the topic remains relevant to international organizations and decision makers in developing countries. Because trade liberalization is expected to increase the world prices of agricultural commodities, concern about the possible negative impact of trade liberalization has focused on net-food-importing regions, including the Near East and North Africa (NENA). The recent food price increases in 2006 and 2007 have added to the relevance of the issue for these countries.

Given the importance of the topic, it is surprising that relatively few studies have examined the impact of trade liberalization on small farmers and other poor households in the NENA region. With support from the International Fund for Agricultural Development (IFAD), this study attempts to fill this gap. It combines a comprehensive review of the literature on trade liberalization in the NENA region with four country case studies that examine the distributional impact in more depth. In addition to examining the likely impact of various types of trade liberalization on farmers and the poor in the region, this study identifies a number of policies and programs that would enhance the positive effects of these reforms and alleviate the negative effects.

This report is one of a series of studies carried out by the International Food Policy Research Institute (IFPRI) on the impact of trade agreements and trade policy on the poor in developing countries. Recent research on this theme includes studies of the impact of alternative Doha outcomes, the effect of global cotton markets on poverty in Pakistan, the impact of rice policy on poverty in the Philippines, and a review of trade-related agricultural policies in four developing countries. These studies aim to provide policymakers with objective, empirically-based analyses that will contribute to informed, pro-poor decisions in the area of trade policy.

We gratefully acknowledge the support of IFAD in carrying out this study and hope that it will be useful to IFAD staff and to their client countries.



DR. JOACHIM VON BRAUN

Director General

International Food Policy Research Institute

# Preface

In the past two decades, many countries in the Near East and North Africa region have reformed the agricultural sector by lowering agricultural tariffs, liberalizing domestic prices and reducing consumer food subsidies. However, trade restrictions and domestic price support mechanisms are still prevalent for a few strategic commodities (such as wheat), and there is wide divergence among the countries in terms of the extent and depth of liberalization. Under the Euro-Mediterranean Partnership launched in 1995, ongoing and future bilateral free trade agreements between the European Union and several Arab Mediterranean countries could lead to further trade liberalization. In addition, some countries have recently signed free trade agreements with the United States of America, and more countries in the Near East and North Africa region are expected to sign bilateral trade agreements with the United States in the near future.

Previous and ongoing domestic agricultural reform and bilateral and regional trade agreements, as well as any future trade liberalization that may result from further multilateral trade negotiations under the World Trade Organization, will have significant impact on the agricultural sector of the Near East and North Africa region. Some studies have tried to analyse the expected impact of these changes on the region's agricultural sector, with divergent results depending on the assumptions and methodologies used, and no analysis has been done relating these changes to small farmers and poor rural households. Given its focus on improving the livelihoods of the rural poor in the region, the Near East and North Africa Division of the International Fund for Agricultural Development, in partnership with the International Food Policy Research Institute, has undertaken this study to examine the expected impact of agricultural domestic and international trade liberalization on this target group.

The results of the study are very useful in identifying the measures that could be employed either to mitigate the potential negative impacts of trade liberalization on small rural producers or to help these producers seize new domestic and international market opportunities. The study concludes that trade policy by itself is an imprecise and costly instrument for addressing poverty. There is a need, however, for complementary policies to enhance the positive effects of trade liberalization (or reduce the negative impact); these include flexible factor markets (especially for labour), trade facilitation measures, support for public goods, direct income support for farmers, and safety net programmes.

The complementarity between the research capabilities of the International Food Policy Research Institute and the operational experience of the International Fund for Agricultural Development has greatly contributed to enhancing the relevance of this research to the Fund and its country and regional partners in formulating pro-poor policies, strategies and programmes for agricultural and rural development. The findings of this study will contribute to the establishment of a common understanding of the impact of trade liberalization in the region and, hence, to an increase in the effectiveness of the collaborative efforts among policymakers, the International Fund for Agricultural Development and other development cooperation partners in their ongoing joint efforts to reduce rural poverty in the Near East and North Africa region.

It is hoped that the success of the International Fund for Agricultural Development-International Food Policy Research Institute collaboration in producing this study will lead the way for further, similar partnerships in the future.



DR. MONA BISHAY

Director

Near East and North Africa Division  
International Fund for Agricultural Development

# Executive summary

This report examines the impact of agricultural trade liberalization on the countries of the Near East and North Africa (NENA), with emphasis on the impact on small-scale farmers in the region. In particular, the study has four objectives:

- to examine current agricultural trade policies in the NENA region;
- to evaluate the degree of agricultural liberalization likely to occur as part of various trade agreements;
- to analyse the impact of further trade liberalization on small farmers and other poor households; and
- to explore policy options for mitigating the negative effects of agricultural trade liberalization.

The study focuses on 13 countries and territories in the region: Algeria, Djibouti, Egypt, Jordan, Lebanon, Morocco, Somalia, the Sudan, Syria, Tunisia, Turkey, the West Bank and Gaza, and Yemen. We refer to these as the NENA13 countries.

## Background

Most of the NENA13 countries are semi-arid, with limited water and arable land per capita, making agricultural production highly dependent on rainfall. The overall population density of the region is low compared to other developing areas, though the region is also more urbanized than the average for developing countries. The economic performance of many of the NENA13 countries has been relatively weak, with real per capita GDP growth during the 1990s of only 1.3% per year. The region has been subject to various conflicts, including the Arab-Israeli conflict, the Sudanese civil war, the insurgency in Algeria (until recently), the lack of a central government in Somalia, and the Iraq War. The slow economic growth means little expansion in formal-sector employment, resulting in persistent problems of unemployment, particularly among youth. Nonetheless, strong economic performance in Lebanon, the Sudan (recently) and Tunisia suggests that these problems are not insurmountable.

For most NENA13 countries, agricultural exports represent a relatively small share of total exports. Wheat is a staple food and a major import for most of the NENA13 countries. Almost all the NENA13 countries are net food importers. Some countries in the region have relatively high levels of protection for farmers: Egypt, Morocco and Tunisia are among the 15 most protected economies in the world, according to one study. The commodities that are the most protected in the region are wheat, sugar, dairy, and livestock products. The European Union (EU) is the most important trading partner for most of the countries in the region.

## Trade agreements

The NENA countries have signed a series of multilateral, regional and bilateral trade agreements. The Uruguay Round Agreement on Agriculture has had only a modest impact on trade policy in the region. Seven of the NENA13 countries are either not members of the World Trade Organization (Somalia, Syria, and West Bank and Gaza) or they are least developed countries (Djibouti, Somalia, the Sudan and Yemen) and are thus exempt from most of the agreement's commitments. For the remaining six countries, the bound rates are often far above the applied tariff rates, particularly for agricultural products. Thus, the agreement commitments to reduce the bound rate have had little effect on the actual level of agricultural protection.

The EU has signed European Union-Mediterranean Association Agreements (EMAAs) with five NENA countries, and three others are in the process of ratification, but the EMAAs generally make

exemptions for agriculture. In 2001, the EU launched the Everything But Arms Initiative, under which the least developed countries have duty-free access to EU markets for almost all goods. Within the NENA region, Djibouti, Somalia, the Sudan and Yemen can take advantage of the initiative's provisions. Bananas, rice and sugar were temporarily exempted, and duty-free access was delayed until January 2006, July 2009, and September 2009, respectively.

Under the US-Middle East Free Trade Initiative, the United States has signed bilateral free trade agreements (FTAs) with Jordan and Morocco and intermediate agreements with four other NENA countries. The effect of the US-Jordan FTA will be small because Jordan's level of protection is already low and because US-Jordan trade is small. The effect of the US-Morocco FTA will be larger because Moroccan trade barriers are higher. Of particular importance, Morocco's wheat tariffs will be phased out over ten years. The US African Growth and Opportunity Act allows duty-free access to US markets for sub-Saharan African countries that meet certain criteria; however, within the NENA13 region, only Djibouti qualifies.

A number of bilateral and regional agreements within the NENA region have been signed, but their effectiveness has been limited by the structural similarities of the NENA economies and the granting of exceptions for sensitive products. Nonetheless, a number of NENA countries, most notably Egypt and Tunisia, have reduced tariff barriers unilaterally in recent years. In other words, trade liberalization has occurred outside the context of global, regional and bilateral trade agreements.

### **Impact of trade liberalization**

The evidence suggests that global trade liberalization, by reducing agricultural support policies in countries of the Organisation for Economic Co-operation and Development and by reducing protection, will increase world agricultural prices. The markets for wheat, rice, sugar, cotton and dairy products are the most distorted, and the prices in these markets will rise by 3-20%. Almost all the NENA13 countries are net agricultural importers; so, there is clearly some basis for concern that these countries will lose as a result of global trade liberalization. Our analysis finds that the terms-of-trade effect of a 15% increase in all world agricultural prices on the NENA13 countries is approximately US\$1.2 billion, or 0.2% of regional GDP. This estimate is an upper limit because it assumes no response on the part of producers and consumers and because it does not include the efficiency gains associated with reducing distortions in domestic agricultural markets. Most studies of trade liberalization suggest that the efficiency benefits are larger than the terms-of-trade losses.

Several dozen studies have been undertaken to examine the macroeconomic impact of various types of trade liberalization in NENA. These studies suggest that multilateral trade liberalization generally results in net gains to countries in the region, with real GDP expanding 1-3%. The benefits of trade liberalization to a given country depend largely on the degree of domestic liberalization carried out by the country. Most of the gains from agricultural trade liberalization are associated with domestic reform rather than changes in trade policy in other countries. Furthermore, the benefits of multilateral trade liberalization are generally greater than the gains associated with bilateral trade agreements with the EU or the United States and the gains from regional trade agreements within the region.

### **Effects on small farmers and the poor**

Few studies look at the distributional effect of liberalization on small farmers and the poor in the NENA countries. We use household survey data and computable general equilibrium (CGE) models to simulate the impact of trade liberalization on small farmers and the poor in four NENA countries.

*Egypt* has undertaken significant trade liberalization, but costly obstacles to doing business and investing remain. It is a major wheat importer and exports cotton, rice and horticulture. We analyse the data from the 1998 Egypt Integrated Household Survey to examine the distributional effect of hypothetical changes in agricultural prices. According to this analysis, a 40% increase in wheat prices would reduce the incidence of poverty among wheat growers by 3 percentage points. In the case of rice and cotton, a 40% price increase would decrease poverty among growers of those crops by 7 percentage points. For fruits and vegetables, an equivalent price increase would lower poverty among horticultural growers by 7 percentage points. The largest effect is for sugar cane growers, for whom a 40% increase in sugar prices would reduce poverty by 20 percentage points, largely because

sugar cane growers are poorer and highly dependent on sugar cane income. However, the effect of each of these price increases on national poverty is negligible because only a small share of the population grows each crop.

Unlike Egypt, *Tunisia* maintains high tariffs on many products, including agricultural commodities. At the same time, Tunisia has a relatively good investment climate, which contributed to significant inflows of foreign direct investment and a healthy growth rate through the 1990s. Tunisia's main exports are olives and dates, while the principle imports are wheat and maize. In order to study the distributional impact of trade liberalization in Tunisia, we use a CGE model linked to survey data for 400 representative households. The model is used to simulate the elimination of industrial tariffs on goods from the EU, the removal of *all* tariffs on imports from the EU, the elimination of all tariffs from all countries, and the elimination of all tariffs, combined with global liberalization, which is assumed to raise world agricultural prices by 15%. Domestic trade liberalization has the largest positive effect on GDP, but the fourth scenario (global trade liberalization) has the most positive effect on agriculture and poverty. In this scenario, poverty declines to its lowest level among the four scenarios.

*Syria* has one of the most highly regulated economies in the region. Reforms in recent years have only begun to dismantle some of these restrictions. Although Syria has been successful in achieving wheat self-sufficiency and promoting cotton exports, these accomplishments have come at a high cost in terms of inefficiency and an unsustainable fiscal burden. The likely depletion of oil reserves is forcing the Government to reduce costs and find new sources of revenue. We use a CGE model to simulate the effect of liberalizing wheat markets on households in ten income categories. The macroeconomic effects are relatively modest, although government savings increases by almost 3% of GDP. Complete liberalization reduces the producer price of wheat by about 17% and production by about 2%. The effects of subsidy removal on the welfare of Syrian households is regressive in the sense that high-income households gain, while lower-income households lose. The size of the effects, however, is less than 1% of base income for all but the richest income group.

Since the mid-1980s, *Morocco* has carried out a series of economic reforms to allow the market to play a larger role in production and consumption decisions, including price liberalization, a reduced role for state enterprises and the promotion of private investment. Morocco has signed an EMAA with the EU and an FTA with the United States, but the level of agricultural protection remains relatively high. A study by Ravallion and Lokshin (2004) uses a CGE model to simulate the effect of grain import liberalization and then uses projected price changes to simulate the impact on households in a nationally representative survey. The CGE model suggests that full liberalization of grain imports would reduce the producer price of grain by 24% and the consumer price of grain by 27%. This would reduce poverty in urban areas, where households benefit from lower priced grain, but raise poverty in rural areas because of the losses among net sellers of grain. The overall incidence of poverty in Morocco rises from 20% to 22%. These results, however, do not take into account the effect of global trade liberalization, which is expected to increase the world price of wheat and other grains.

### **Implications for trade policy**

*Global trade liberalization* will likely increase world agricultural prices by 3-20%, imposing a terms-of-trade loss on 11 of the 13 countries under consideration (the Sudan and Turkey have small agricultural trade surpluses). The net food-importing countries have used the expected terms-of-trade loss associated with global trade liberalization to request special concessions in the form of reduced commitments to opening their own borders. The flaw in the mercantilist logic is that it only takes into account the gains and losses of producers, ignoring the effects of trade policy on consumers. Studies of trade liberalization suggest that most of the benefits to a given country from trade liberalization are the result of reforms within the country. Thus, the net food-importing countries appear to be demanding the right to forgo the efficiency gains associated with domestic trade liberalization as "compensation" for the terms-of-trade losses associated with reforms in other countries.

The effect of agricultural trade liberalization on poverty varies widely across countries in part because the effect of liberalization on agricultural prices is ambiguous. Global agricultural trade reform is likely to increase world agricultural prices, but domestic trade liberalization will reduce domestic agricultural prices relative to the world price. The net effect of liberalization on domestic

agricultural prices depends partly on the country's trade patterns, the original level of protection and the details of the liberalization. If the level of domestic protection is high, then full trade liberalization is likely to reduce domestic agricultural prices. If, on the other hand, domestic protection is modest, then full trade liberalization may increase domestic agricultural prices.

Furthermore, the impact of changes in agricultural prices on poverty is ambiguous. Higher agricultural prices benefit farmers who can produce a marketed surplus, but they hurt the urban poor and rural net buyers. The analysis presented in this report suggests that higher agricultural prices benefit the poor on net, but the effect is quite small. Thus, the link between trade liberalization and agricultural price changes is ambiguous, and the effect of agricultural price changes on poverty is weak. This suggests that trade policy is a poor instrument for addressing overall poverty in the NENA13 region.

The economic benefits of *regional integration* (such as the Greater Arab Free Trade Agreement) have been limited to date. One reason for this is that these agreements tend to be fairly flexible, allowing numerous exceptions for "sensitive goods". A relatively small number of exceptions can largely negate the gains from trade liberalization. To generate significant gains for member countries, the Greater Arab Free Trade Agreement and other regional agreements will have to achieve a greater level of discipline over tariff and non-tariff barriers. The second reason for the modest benefits associated with these trade agreements is that regional trade is hampered by a variety of factors in addition to trade policy. The transportation infrastructure linking NENA countries is generally poor; transportation services in the region are characterized by lack of competition and high costs, and many of the countries suffer from cumbersome customs procedures that raise the cost of trade. Measures to streamline customs procedures and introduce greater competition in regional transportation services would enhance the benefits of regional trade agreements. The third reason for the modest gains associated with regional trade agreements is the similarity of the economic structures in the member countries. If all member countries import wheat and maize, export fruits and vegetables and have similar wage rates, then the gains from trade are likely to be limited.

Regarding *bilateral agreements*, the EMAAs generally exclude agriculture. Simulation studies confirm the economic intuition that the gains from these agreements would be much larger if they included liberalization in the agricultural sector. The five countries with EMAAs should begin to explore the feasibility of a second round of negotiations that would include agriculture. While recognizing the political sensitivity of agricultural prices, NENA countries should keep in mind that most of the benefits of an expanded association agreement will be related to the degree of domestic liberalization in their own countries. At the same time, the liberalization of EU tariff and non-tariff barriers on fruits, vegetables, olive oil and sugar would be particularly beneficial to NENA countries.

Regarding the US FTAs, the United States is a relatively minor trading partner with all of these countries; so, the NENA13 countries should not expect large impacts, positive or negative, as a result of these agreements. On the other hand, these agreements may facilitate investment (local and foreign) in the NENA countries, partly because they include measures to create a more favourable climate for private investment and partly because they signal a commitment to greater integration in the global economy.

Regarding *unilateral liberalization*, economic analysis suggests that, in general, unilaterally reducing import protection and domestic support of agriculture will increase aggregate income. Indeed, it is easy to demonstrate that the benefits of lower domestic prices to consumers are greater than the losses to producers. Yet, policymakers, trade negotiators and many non-economists see reducing domestic protection as the "price" a country must pay to gain access to markets in other countries. One argument is that, in developing countries in general and in the NENA region in particular, poor farmers cannot compete with large-scale technologically advanced farmers in developed countries, particularly if the latter receive production subsidies. Certainly, commercial farmers in developing countries are hurt by the subsidies given to farmers in the countries of the Organisation for Economic Co-operation and Development. However, in spite of these subsidies, Egypt is a competitive exporter of cotton and rice, Morocco is able to export tomatoes to Europe, and Tunisia is a major exporter of olive oil. These examples suggest that NENA countries can compete in markets where they have comparative advantage.

According to another argument, import barriers on agricultural products reduce poverty among poor agricultural producers. The analysis presented in this report suggests that higher agricultural prices have small and mixed effects on the poor. This is because: (i) higher agricultural prices benefit some poor households (farmers with net sales), but they hurt other poor households (the urban poor and net buyers in rural areas); (ii) the percentage of households that are net sellers of agricultural goods is relatively small; (iii) farmers who are net sellers tend to be richer than the average farmer, so higher farm income does not always translate into lower poverty; and (iv) even those farmers who are both poor and net sellers rely on non-agricultural activities for a significant share of their incomes. In other words, agricultural protection is a costly and imprecise tool with which to address the problem of rural poverty.

### Complementary policies

The impact of trade liberalization on small farmers and other poor households in the NENA region partly depends on non-trade policies. Several studies have indicated that the size of the gains from trade liberalization will be greater when there are *flexible factor markets* that allow land, labour and capital to be reallocated from formerly protected sectors to newly profitable sectors. Regulations that constrain the response of these factor markets reduce the positive impact of liberalization. In agriculture, flexibility is likely to be enhanced by effective agricultural services such as extension and market information systems that can provide farmers with useful information about the agronomic and economic aspects of shifting into new commodities.

Another type of policy that enhances the economic effect of trade liberalization is *trade facilitation*. This refers to measures that reduce the transaction costs related to trade, including excessive documentation requirements, authorizations from multiple agencies, unclear or subjective criteria for applications of duties, and delays and uncertainties related to customs clearance. One study found that the gains from trade liberalization are twice as large if combined with trade facilitation measures.

Under World Trade Organization rules, the agricultural sector can be directly supported through a variety of *green box programmes*, such as agricultural research and extension, pest and disease control, inspection services, marketing infrastructure, market information services, environmental protection programmes and regional assistance programmes. Most of these investments involve the provision of public goods, implying that they may be justified in terms of economic efficiency, as well as in terms of supporting poor farmers.

One type of green box programme does not involve the provision of public goods: *decoupled payments* to farmers. Payments are decoupled when they are not based on current production, but rather on some fixed basis such as production or area planted in a base year. Over the last 15 years, economists and policymakers have become increasingly interested in agricultural reform that shifts from producer subsidies and import protection towards decoupled payments to farmers. This type of reform has been tried in the EU, Mexico, Turkey and the United States with some success. At the same time, it should be recognized that switching from import protection to a programme of decoupled payments implies both a loss in tariff revenue and significant new expenditure.

If the objective is to assist poor and vulnerable households regardless of their occupation, a different type of programme should be considered. A wide variety of *safety-net programmes* have been established in developing countries with the goal of reducing poverty. Targeted food subsidies make subsidized food available to selected households either geographically, through low-price shops located in poor neighbourhoods, or some form of ration card that entitles the bearer to purchase food at subsidized prices. Egypt, Jordan and Tunisia have attempted to introduce targeting into food subsidy programmes. Labour-intensive public works programmes usually combine infrastructure development (such as road building) with hiring policies to maximize the pro-poor impact. If designed well, they can improve community infrastructure and provide assistance to the poorest households with able-bodied members. Conditional cash transfer programmes have generated considerable interest in the last 10-15 years. These programmes provide cash grants to households that comply with certain requirements, usually keeping children in school, attending health clinics, or receiving pre- and postnatal care. Conditional cash transfers serve a dual purpose: providing assistance to poor households and encouraging investments in human capital that reduce the chance that poverty will be transmitted to the next generation.



# 1

## Introduction

## 1.1 Background

Agriculture is one of the most problematic areas in international trade negotiations. While significant progress has been achieved in reducing trade barriers and other policy distortions in manufacturing through various multilateral agreements, in regional and bilateral arrangements and under unilateral trade reforms, agricultural markets remain highly distorted. Both industrial and developing countries still provide relatively high levels of protection to agricultural sectors. In addition, many countries, particularly the industrialized countries, provide various forms of support for agriculture. Agricultural trade liberalization is particularly sensitive in developing countries because policymakers are concerned about the potential impact on small-scale farmers, who typically account for a large share of the poor. The issue is politically sensitive in industrialized countries as well, at least partly because of the disproportionate political power of farm groups.

In spite of this sensitivity, there is a widespread belief that reducing the trade barriers and policy distortions affecting agriculture will increase economic efficiency and aggregate income. The theory of comparative advantage suggests that aggregate income is higher when trade barriers are lower. Empirical studies of trade liberalization generally show that the aggregate benefits of trade liberalization outweigh the costs. Studies also show that more outward-oriented countries tend to grow more rapidly over time, suggesting that trade liberalization generates dynamic gains through the free flow of investment and technology. By this logic, even unilateral trade liberalization should usually benefit a country. In the political arena, however, there is resistance to unilateral liberalization. In the view of many policymakers, reducing domestic protection is a necessary cost used as a bargaining chip to gain access to markets in other countries. In addition, there is concern that, even if liberalization brings benefits in the aggregate, the distributional impact may be negative.

Economic theory and empirical studies suggest that current agricultural policies suppress the world price of many agricultural commodities below what they would be under liberalized trade. This is because import restrictions reduce world demand, and agricultural producer support tends to stimulate supply. The effect on *domestic* agricultural prices in countries that protect their agriculture is ambiguous, however, because multilateral trade liberalization may increase world agricultural prices, but unilateral liberalization in the form of lower tariffs will reduce domestic prices relative to world prices.

The impact of trade policy reforms varies substantially across commodities, across countries and across households within a country. Some commodity markets, such as those for sugar and rice, are more distorted than others; so, trade liberalization would have a larger effect on the prices of these commodities. Some countries are net exporters of agricultural commodities; so, they would gain from the higher agricultural prices associated with multilateral liberalization. Net importers of agricultural commodities could lose from multilateral trade liberalization, though this depends on the degree of reform they carry out in their domestic policies. The negative effect of multilateral reform that raises prices of imports could be partially or wholly offset by domestic trade liberalization, which reduces market distortions and tends to lower agricultural prices.

Obviously, urban households gain from lower food prices and lose from higher prices, but the effect is ambiguous for rural households because some are net sellers, while others are net buyers of agricultural products.

The region of the Near East and North Africa (NENA) examined in this report comprises 12 countries considered traditional borrowing countries by IFAD. The countries are Algeria, Djibouti, Egypt, Jordan, Lebanon, Morocco, Somalia, the Sudan, Syria, Tunisia, Turkey and Yemen. The study also includes the West Bank and the Gaza territory, which has not yet achieved full sovereignty. For convenience, we will refer to the 13 as countries and refer to the group as the NENA13 region.

The NENA13 region has experienced slow economic growth in recent years, leading to various social problems, including high levels of unemployment. The growth of per capita GDP in the region has generally lagged behind the average of developing countries, and some countries, such as Djibouti and West Bank and Gaza, have suffered negative growth rates over the period 1990-2003 (UNDP 2005a, Table 14). At the same time, the countries in this region often have levels of trade protection (including agricultural trade protection) that are higher than the levels in many

other regions of the world. This raises the question whether a more outward-oriented trade policy would stimulate more rapid growth in the NENA13 region. Even if this is the case, one of the main concerns of policymakers regarding agricultural trade liberalization is whether it will adversely affect poverty and inequality in the region and thereby heighten social tensions.

## 1.2 Objectives

In light of the background described in the previous section, this report has four objectives:

- to describe the current agricultural and trade policies of the NENA countries and their impact on the agricultural economy of the region;
- to describe the current status of agricultural trade liberalization in the NENA region and the extent of additional agricultural trade liberalization that will result from the Euro-Mediterranean Partnership (EMP) agreements, bilateral FTAs, and World Trade Organization (WTO) multilateral trade negotiations;
- to analyse the potential impact of unilateral, bilateral, and multilateral trade liberalization efforts (including the reduction of domestic support) on the agricultural economy in the NENA region, with particular emphasis on agricultural commodity prices, rural wages and small farmer income; and
- to explore the types of measures that could be used to mitigate the potential negative impact of trade liberalization on small farmers and rural wage-earners in the NENA region.

Because of the large number of countries in the NENA region, we provide two levels of analysis. For all 13 countries, we provide a descriptive analysis of trade patterns and levels of trade protection and a review of previous research on the impact of trade liberalization. In addition, we provide more in-depth analysis of four countries in the region: Egypt, Morocco, Syria and Tunisia.

## 1.3 Organization of the report

This report addresses trade policy issues and concerns through three complementary approaches. The first part of the report provides a regional overview that characterizes the current status of each country with respect to its economic and international trade environment. Chapter 2 provides background information on NENA13 countries, based on various economic and social indicators of the economies. Chapter 3 describes the structure of agricultural production and trade in the 13 countries, as well as ongoing trade liberalization initiatives under multilateral and regional trade agreements. Chapter 4 discusses the likely impact of further trade liberalization, including the effect on world agricultural prices and the effect on the NENA13 countries.

In the second part of the report, we provide a more in-depth assessment of the impact of trade liberalization on four countries in the region: Egypt, Tunisia, Syria and Morocco. These four countries are broadly representative of the range of policies in the lower-middle income NENA13 countries. We exclude the four least developed countries (LDCs) in the region (Djibouti, Somalia, the Sudan and Yemen) both because of lack of data and because these countries face very different challenges relative to the other NENA13 countries. We also exclude Turkey as the only food surplus country and one that is moving towards membership in the EU, albeit slowly. Among the remaining countries, Egypt represents an early reformer with relatively low levels of agricultural protection, though it maintains a large system of consumer food subsidies. Morocco and Tunisia have made significant progress in recent years in opening their borders to trade and foreign investment, though the overall level of agricultural protection remains high. And Syria retains many of the policies that characterized the region 20 years ago: fixed producer prices, large-scale public procurement of major crops and high levels of agricultural protection. In the chapters devoted to each case study, we examine the structure of the agricultural sector and the composition of international trade, agricultural and trade policies, trade agreements, a brief profile of poverty in the country, and then an analysis of the impact of trade liberalization on small farmers and other poor households.

In Chapter 5, we examine the case of Egypt. After a description of agricultural and trade policies in Egypt, we simulate the impact of trade liberalization on different types of households using a partial equilibrium analysis that combines household survey data and hypothetical changes in the price of individual agricultural commodities. In this analysis, the impact of an agricultural price

change on the income of each household depends on the share of income from that commodity and the share of expenditure allocated to that commodity. Information on the income of each household before and after the price change allows us to estimate the change in poverty overall and for specific types of households.

In contrast, the Syria and Tunisia case studies are based on computable general equilibrium (CGE) models for each country. In Chapter 6, a CGE model of the Tunisian economy is linked to data from 400 representative households, allowing estimation of the impact of three variants of unilateral trade liberalization and one scenario combining unilateral and multilateral trade liberalization. In Chapter 7, a CGE model of Syria is used to examine the distributional impact of liberalization. The Syrian CGE model incorporates ten representative households, each representing an income decile of the population. Since wheat is the most distorted agricultural market and the most sensitive crop politically, the model is used to simulate a reduction in producer wheat subsidies and consumer bread subsidies of 20%, 50% and 100%.

The Moroccan case study in Chapter 8 includes a detailed description of an analysis by Ravallion and Lokshin (2004). In their study, the authors use a CGE model to simulate the effect of unilateral trade liberalization on prices and then use detailed household survey data to simulate the effect of these price changes on incomes and poverty.

In the final chapter of the report, we summarize the main findings and discuss the implications for policy. In particular, we explore alternative policies and programmes that might enhance the positive impact and alleviate some of the negative effects of trade liberalization, with particular attention to the impact on small farmers and other poor households.

# 2

## Basic Characteristics of the Economies

## 2.1 Classification of NENA13 countries

Although NENA13 countries share geographical and cultural similarities, they form a heterogeneous group with respect to income, food security and their integration in the global economy. They are all developing countries, but, based on their differing attributes, distinctions are drawn among them by various international organizations and by researchers.

The Food and Agriculture Organization of the United Nations (FAO) classifies seven of the NENA13 countries as low-income food-deficit countries (Table 2-1). These countries are poor, with per capita gross national product of US\$1,465 (at 2003 prices) or less. They also have had a deficit in grain trade over the preceding five years (FAO 2006). Included within this group are four NENA13 countries that are classified by the United Nations as LDCs: Djibouti, Somalia, the Sudan and Yemen; also included are the developing countries, Egypt, Morocco and Syria.

In a related classification, WTO considers NENA13 member countries Egypt, Jordan, Morocco and Tunisia as net food-importing developing countries (Table 2-1). WTO recognizes this group of countries, together with the LDCs, as vulnerable to the possible negative effects of implementing agreements for free trade in agriculture. Specifically, both LDCs and net food-importing developing countries are expected to experience difficulties in financing food imports (WTO 2006a).<sup>1</sup>

In a recent study, Diaz-Bonilla et al. (2000) argue for better indicators of the food security status of countries. They use cluster analysis to classify 163 developed and developing countries based on five measures of food security: food production per capita (measuring the ability of a country to feed itself), the ratio of food imports to total exports (an indication of a country's ability to finance its food imports), calories per capita and protein per capita (measuring the level of nutrition), and the nonagricultural population share (an indication of how vulnerable the population is to changes in trade and agricultural policies). Results generated from the cluster analysis classify NENA13 countries across all three groups of food security: food insecure, food neutral and food secure. The listing of countries in Table 2-1 is organized using these categories. The classification of LDCs as food insecure is in accordance with the WTO definition, but Diaz-Bonilla et al. classify the other NENA13 countries as food neutral, with the exception of Turkey, which is classified as food secure. While this classification of countries differs from the classification of low-income food-deficit countries and the net food-importing developing countries, Diaz-Bonilla et al. (2000) report that the NENA13 countries classified as food neutral are nonetheless trade stressed due to a high ratio of food imports to total exports.

The NENA13 countries also vary in their integration into the global economy. Only six countries, Djibouti, Egypt, Jordan, Morocco, Tunisia and Turkey are WTO members. Four other countries, Algeria, Lebanon, the Sudan and Yemen, are observers at various stages of accession. All 13 countries have entered into some type of free trade arrangements with the EU or the United States or both. The various trade agreements and the composition of trade flows determine the differences in the level of protection and access to trading partner markets among the countries.

1/ While LDCs are defined by the United Nations, the net food-importing developing countries are a WTO defined group. Both groups are subject to differential treatment under a special ministerial decision agreed during the Uruguay Round WTO negotiations. The decision recognizes that trade reforms in agriculture could have negative effects on these groups "in terms of the availability of adequate supplies of basic foodstuffs from external sources on reasonable terms and conditions, including short-term difficulties in financing normal levels of commercial imports of basic foodstuffs". The ministerial decision recommends such measures as food aid and aid for agricultural development. It also refers to the possibility of assistance from the International Monetary Fund and the World Bank to finance commercial food imports (WTO 2006a). The definition of low-income food-deficit countries provided by the Food and Agriculture Organization of the United Nations overlaps with the LDC and net food-importing developing country classifications.

**TABLE 2-1**  
Food security and openness classification of NENA13 countries

	World Bank Income group	FAO <sup>a</sup>	UN <sup>b</sup> Classification	WTO <sup>c</sup>	Openness <sup>d</sup> category
<b>Food insecure<sup>e</sup></b>					
Djibouti	Lower middle	LIFDC	LDC		High
Somalia	Low income	LIFDC	LDC		Low
Sudan	Low income	LIFDC	LDC		Low
Yemen	Low income	LIFDC	LDC		Low
<b>Food neutral</b>					
Algeria	Lower middle				Low
Egypt	Lower middle	LIFDC		NFIDC	Low
Jordan	Lower middle			NFIDC	Low
Lebanon	Middle income				Low
Morocco	Lower middle	LIFDC		NFIDC	Low
Syria	Lower middle	LIFDC			Low
Tunisia	Lower middle			NFIDC	Low
<b>Food secure</b>					
Turkey	Lower middle				Low
<b>Not classified</b>					
West Bank and Gaza					Low

Sources: WTO (2005a); FAO (2006); UNCTAD (2004a, Part I, Annex 2); Bouet et al. (2004, Appendix I); Diaz-Bonilla et al. (2000, Table 8).

<sup>a</sup> Low-income food-deficit countries (LIFDCs) are defined by the Food and Agriculture Organization of the United Nations (FAO) as those countries that have a per capita gross national product below US\$1,465 (2003) and that are net importers of food (defined on a calorie basis).

<sup>b</sup> Least developed countries (LDCs) are defined by the United Nations with respect to income and human development indicators.

<sup>c</sup> The net food-importing developing countries (NFIDCs) are so defined by the WTO Committee on Agriculture.

<sup>d</sup> The openness clusters are defined with respect to GDP and trade openness indicators computed from the MacMap-HS6 database (Bouet et al. 2004, Appendix I).

<sup>e</sup> The food security classification is defined with respect to five measures of food security: food production per capita, the ratio of total exports to food imports, calories per capita, protein per capita and the share of non-agricultural population consumption and trade variables (Diaz-Bonilla et al. 2000, Table 8).

Most of the NENA13 countries have high levels of import protection. According to Bouet (2006b), who has ranked 147 countries with respect to their overall level of protection, Egypt is ranked 5th, Morocco 10th and Tunisia 11th among the most protectionist countries. Only Lebanon and Turkey are relatively open countries. Bouet finds that Algeria and Syria face relatively low duties on their exports, while Jordan and Lebanon face relatively high levels. He concludes that, in general, countries in the NENA13 region, while protectionist, benefit from relatively good access to world markets, either as a result of a specialization in products that do not incur high taxation (e.g., oil) or because of preferential agreements with the countries of the Organisation for Economic Co-operation and Development (OECD). The study also shows that all NENA countries face higher duties on their agricultural exports than they do on their non-agricultural exports. This pattern is not surprising given the high protection of agriculture in the EU, a major trading partner, and exemptions afforded the agricultural sector in trade liberalization. The patterns of trade protection are discussed in more depth in Section 3.2.

The next three sections examine economic performance, social indicators, and the role of agriculture in the NENA13 countries.

## 2.2 Economic performance and growth

NENA13 countries are low-income or lower-middle income countries according to the World Bank classification (World Bank 2005a). Their national average per capita incomes range from below US\$600 in the poorest LDCs (Somalia, the Sudan and Yemen) to US\$3,925 in Lebanon (Table 2-2). The average growth in per capita GDP was only 1.3% across the NENA13 countries over the 1990s and barely 1.2% over 2000-03. The growth has been uneven among countries. Lebanon and Tunisia experienced solid economic growth (at least 3% per year in per capita GDP) during the 1990s, and the Sudan and Tunisia enjoyed solid growth in 2000-03. In contrast, Algeria, Djibouti, Somalia, and West Bank and Gaza experienced negative growth in the 1990s, and the decline continued (and even accelerated) in West Bank and Gaza during 2000-03. As a whole, the NENA13

region has fared better than sub-Saharan Africa (excluding South Africa) and is on a par with South Asia during 2000-03 (World Bank 2005a), but the NENA13 region faces significant political and economic uncertainties.

Various hypotheses have been advanced for the relatively weak growth rates among the NENA13 countries, as follows:

- Conflict: The four countries with negative per capita GDP growth over the 1990s all experienced some conflict. In Somalia, there has been no central government since 1991. Algeria experienced a decade-long civil war following the 1991 elections. Djibouti also underwent a civil war in the early 1990s. And the West Bank and Gaza stagnated during the 1990s as a result of the Israeli-Palestinian conflict. Conflicts have direct costs in terms of lives and property, but they also destroy social capital (Collier 1999). Moreover, conflicts create a climate of uncertainty and discourage investment.
- The policy and regulatory environment: In 2005, the International Finance Corporation started ranking countries annually on the ease of doing business based on 39 indicators grouped into ten categories. The categories include starting a business, licensing, employing workers, registering property, legal protections for investors and so on. In 2006, the International Finance Corporation ranked 175 countries, including all the NENA13 countries, except Somalia. Only three NENA13 countries are in the top half of the rankings (Jordan, Lebanon and Tunisia), and they are ranked in the 45th to 49th percentile range. According to this ranking, Djibouti, Egypt and the Sudan are among the 25 countries in the world with the most adverse environment for private sector investment and operations (IFC 2006).
- Trade barriers: High import barriers in the region distort economic incentives and impede the flow of new technology, thus reducing productivity growth. As discussed below in Section 3.2, the average import protection is higher in the NENA13 countries than in other developing countries. Agricultural import tariffs in particular are 50% higher than the average for other developing countries. Indeed, this hypothesis is one of the main motivations for this report.

The population of the NENA13 region has been estimated at slightly above 300 million in 2003 (Table 2-2). During 2000-03, the average population growth rate was 1.9%, a decline from the previous decade, when the rate averaged over 2% (World Bank 2005a). The average conceals the very high population growth rates still experienced by some countries, notably, Jordan, Somalia, West Bank and Gaza, and Yemen. In Somalia and West Bank and Gaza, population growth rates have increased compared to the 1990s (DeRosa 1997; Table 2-2). Lebanon, Tunisia and Turkey, the three highest-income countries in the region, have among the lowest rates of population growth.

A serious economic problem facing many of the NENA countries is unemployment. Reflecting the low rates of economic growth, combined with the rapid population growth in some countries, the unemployment rate averaged 13% for the NENA13. The worst situation is found in Djibouti, where half of the work force is unemployed, and in Yemen, where the unemployment rate is 35%. Among non-LDCs, Algeria registered the highest unemployment rate, 27% in 2001 (Table 2-2). The rate came down significantly in 2004, to less than 18%, but youth unemployment remains persistently high (World Bank 2005b).

**TABLE 2-2**  
Summary statistics for the NENA13 economies, 2003

	Real GDP per capita (2000 US\$)	Population (million)	Land Area (1 000 km <sup>2</sup> )	Annual growth in GDP per capita		Annual population growth 2000-03 (%)	Unemployment rate <sup>c</sup> (%)	Share of urban population (%)	Population density (per km <sup>2</sup> )
				1990-2000 <sup>a</sup> (%)	2000-03 <sup>b</sup> (%)				
Algeria	1 916	31.8	2 382	-0.3	2.9	1.5	27	59	13
Djibouti	848	0.7	23	-4.0	0.7	2.0	50	85	30
Egypt	1 622	67.6	995	2.3	1.4	1.8	11	43	68
Jordan	1 801	5.3	89	0.6	1.3	2.8	13	79	60
Lebanon	3 925	4.5	10	5.3	1.0	1.3	9	91	440
Morocco	1 278	30.1	446	0.4	3.2	1.6	11	57	67
Somalia	600	9.6	627	-8.1	-	3.3	-	29	15
Sudan	433	33.5	2 376	3.3	3.8	2.1	19	39	14
Syria	1 135	17.4	184	2.1	0.6	2.4	12	53	95
Tunisia	2 214	9.9	155	3.1	2.8	1.1	14	67	64
Turkey	2 977	70.7	770	1.7	0.2	1.6	10	67	92
West Bank & Gaza	849	3.4	6	-1.7	-16.2	4.2	26	87	541
Yemen	553	19.2	528	1.7	0.9	3.0	12	26	36
<b>NENA13</b>	<b>1 530</b>	<b>303.7</b>	<b>8 592</b>	<b>1.3</b>	<b>1.2</b>	<b>1.9</b>	<b>13</b>	<b>53</b>	<b>35</b>

Sources: World Bank (2005a) unless otherwise specified; CIA (2005) for the per capita GDP of Somalia (PPP estimate for 2004), for the land area of West Bank and Gaza and for the unemployment rate in Djibouti and the Sudan.

<sup>a</sup> Annual growth rates for West Bank and Gaza are 1994-2000.

<sup>b</sup> Average growth rate excludes Somalia, for which GDP growth data do not exist.

<sup>c</sup> Unemployment rates are from the last year available in World Bank (2006), covering 2000 to 2004 except for Lebanon, which refers to 1997.

Population density is high in Lebanon (440 persons per km<sup>2</sup>) and West Bank and Gaza (541 persons per km<sup>2</sup>), but the average in the region is lower than the developing-country average of 63 and just above the European average of 31 (WRI 2005).<sup>2</sup> Yet, in Egypt for example, the national average of 68 persons per km<sup>2</sup> hides the fact that most of the population is concentrated along the Nile and in the Suez Canal regions, with an average of over 1,475 persons per km<sup>2</sup>. The NENA13 region is relatively urbanized (on average, 53% of the population live in urban areas), but the level of urbanization varies considerably across these countries. In the LDCs, less than 40% live in urban areas, except in Djibouti, where two thirds of the population live in the capital area (CIA 2005). Lebanon and West Bank and Gaza have the largest share of the population living in urban areas (91 and 87%, respectively), followed by Jordan with 79% (Table 2-2). The high rate of urban population is the result of a rural exodus due to the dwindling opportunities in rural areas. According to Fedjari (2000, cited in Radwan and Reiffers 2003), there are 180,000 rural migrants per year in Morocco, and 60,000 of these head for Casablanca.

The statistics presented above illustrate an economic situation in NENA13 countries dominated by relatively low GDP growth per capita and high unemployment. These features are particularly notable in NENA13 LDCs and in countries that are developing in a conflict environment, notably Djibouti, Somalia, and West Bank and Gaza.<sup>3</sup> GDP growth increased in the region during 2000-03 relative to the preceding decade, especially in oil-exporting countries, but the region faces substantial uncertainty in the mid-2000s.

### 2.3 Poverty, inequality and other social indicators

The incidence of poverty varies widely across NENA13 countries. The LDCs have higher rates of poverty than other NENA13 countries; Somalia and Djibouti record the highest share of the population below the US\$1-per-day poverty line, 72% and 56%, respectively (Table 2-3). Most other

<sup>2/</sup> The population density in Gaza is 3,853 persons per km<sup>2</sup> (UNDP 2004a).

<sup>3/</sup> The increase in restrictions since September 2000 on the movement of people and goods in West Bank and Gaza has contributed to the loss of jobs and to the increase in the unemployment rate from around 10% before September 2000 to 27% in 2002 (FAO 2003a, p. 21) to 31% in 2003 (Table 2-2).

NENA13 countries show low levels of extreme poverty, but register higher poverty incidence at the US\$2-per-day and national levels. West Bank and Gaza also has a high proportion of people living below the US\$1-per-day poverty line, a reflection of the burden the Israeli-Palestinian conflict continues to impose on the economy. Given its per capita income, Egypt has the highest poverty incidence (44%) using the US\$2-per-day poverty line, more than twice the incidence under the national level. In contrast, Algeria, Jordan, Morocco and Turkey show higher incidence of poverty with respect to the national lines than with respect to the US\$1-per-day or US\$2-per-day poverty lines. The national indicators reveal unambiguously that poverty is more prevalent in rural areas than in urban areas. The ratio of rural to urban poverty ranges from 1.5 in Yemen to 4 in Tunisia.

The Gini index of income inequality does not differ much across the seven NENA13 countries for which it has been calculated.<sup>4</sup> In general, the higher-income countries, such as Tunisia and Turkey, show greater inequality, while the lower-income countries, such as Egypt and Yemen, show relatively low inequality by international standards (Table 2-3).

Except for the LDCs, the NENA13 countries have relatively long life expectancies of 68 to 73 years. In the four LDCs, life expectancy ranges from 44 to 58, and infant mortality is at least three times as high as it is in the non-LDCs. These patterns reflect the low income and high poverty rates in these four countries (Table 2-3).

The education index combines indicators of adult literacy and the gross enrolment ratios for primary, secondary and tertiary schools (UNDP 2005a). This index is generally higher in the non-LDC Middle East countries (Jordan, Lebanon, and West Bank and Gaza) of the NENA13 region than in the North African countries (Algeria, Egypt, Morocco and Tunisia). It is lowest in the LDCs and in Morocco. Countries with the highest education index, Jordan and West Bank and Gaza, have also the highest female to male literacy ratio. Adult literacy rates are roughly proportional to income levels, though among NENA13 countries, Djibouti and the Sudan have relatively high literacy rates given their income level, and literacy in Morocco is less than would be expected given its income level (Table 2-3).

**TABLE 2-3**  
Poverty and social indicators for the NENA13 countries, 2003

	Population below poverty line <sup>a</sup>					Gini index	Life expectancy	Education index	Adult literacy	Female/male literacy ratio	Infant mortality rate
	\$1	\$2	National	Urban	Rural						
	(%)					(%)	(years)		(%)		(per 1 000 live births)
Algeria	<2	15	12	7	17	35	71	0.69	69	76	35
Djibouti	56	87	29	-	45	-	43	0.52	65	71	97
Egypt	3	44	17	9	22	34	69	0.62	56	65	33
Jordan	<2	7	12	10	18	36	72	0.86	91	90	23
Lebanon	-	-	6	-	12	-	71	0.84	87	-	27
Morocco	<2	14	19	12	27	40	69	0.53	51	61	36
Somalia	72	91	85	-	90	-	47	-	24	39	133
Sudan	23	70	85	-	87	-	59	0.52	60	69	63
Syria	-	10	27	-	45	-	70	0.75	83	82	16
Tunisia	<2	7	4	2	8	40	73	0.74	73	76	19
Turkey	<2	10	16	-	40	40	69	0.80	87	83	33
West Bank and Gaza	24	36	32	-	55	-	73	0.86	91	91	24
Yemen	16	45	42	31	45	33	58	0.50	49	41	82
<b>NENA13<sup>b</sup></b>	<b>19</b>	<b>39</b>	<b>31</b>	<b>13</b>	<b>40</b>	<b>37</b>	<b>65</b>	<b>0.69</b>	<b>68</b>	<b>71</b>	<b>48</b>

Sources: World Bank (2005a), unless otherwise indicated; World Bank (2005c, Table 2) for poverty headcount below the poverty line (national and rural); World Bank (2005b) for Algeria national poverty count; UNDP (2004a) for West Bank and Gaza literacy ratio; UNCTAD (2004a) for Djibouti and Somalia literacy ratio; UNDP (2005a, Statistical Table 1; Table 27) for education indices and Egypt's literacy ratio and Syria poverty count under US\$2 a day.

<sup>a</sup> For Algeria (2003), Djibouti (1996), Egypt (1999/2000), Jordan (1997), Morocco (1998/99), Tunisia (1995), Turkey (2000) and Yemen (1998).

<sup>b</sup> Unweighted averages.

4/ The Gini index measures the degree of inequality in income (or, in some cases, consumption expenditure) among individuals or households within an economy. The index may vary between 0, representing perfect equality, to 100, representing perfect inequality.

The various indicators demonstrate that the criteria used for measuring poverty and social circumstances matters among the NENA13 countries. In general, incidence with respect to the national poverty lines is greater than with respect to the US\$1-per-day or US\$2-per-day poverty lines. Poverty within the NENA13 region, as in many developing countries, is mainly rural. In terms of education and literacy, the NENA13 region is not homogeneous, with the Middle Eastern countries doing better than the North African countries, which do not fare much better than the LDCs. A higher female to male literacy ratio is generally associated with lower infant mortality rates.

## 2.4 Structure of GDP and the role of agriculture

The GDP structure of the NENA13 countries indicates the dominant role of services and industry in these economies. On average for the region, the service sector contributes more than half of GDP, and industry nearly a third. But countries differ widely around these averages. Services account for two-thirds or more of GDP in Djibouti, Jordan, Lebanon, Tunisia, Turkey, and West Bank and Gaza. Algeria is the exception due to the dominance of the oil sector in the economy (Table 2-4).

The contribution of industry to GDP for most countries reflects the region's average. For some countries, this sector is dominated by manufacturing, and, in some countries, such as Syria, manufacturing accounts for nearly 90% of industry's contribution to GDP (Table 2-4).

The trade structure also varies across countries. Jordan, Lebanon, and West Bank and Gaza suffer from large trade deficits; the share of imports in GDP ranges from 1.5 to 5 times that of exports. Djibouti shows large shares of GDP for both imports and exports, reflecting the large share of re-exports to Ethiopia, for which it is the main transit port (WTO 2006b).

In most of the countries in the region, agriculture comprises 10-20% of national output. The contribution of agriculture is highest in the Sudan (65%) and in Somalia (39%), which are LDCs. It is lowest in Djibouti, Jordan, and West Bank and Gaza. In all countries for which data are available, except in the Sudan, the contribution of agriculture to GDP has been declining since 1993 (DeRosa 1997). This reflects a structural transformation of the economy that is an almost universal pattern among countries experiencing GDP growth.

For some countries (Algeria, Djibouti, Jordan and Morocco), the average annual growth rate of the agricultural sector has shown notable improvement between 1990-99 and 2000-03, but, for most NENA13 countries, it has stagnated (Egypt, the Sudan and Yemen) or deteriorated (Lebanon, Syria, Tunisia, Turkey, and West Bank and Gaza) (Table 2-4).

Still, agriculture continues to play a crucial role in the NENA13 region, as in most developing countries, due to its contribution to employment (Table 2-4). This combination reflects the low productivity in agriculture in these countries and, consequently, the relatively large share of poverty in rural areas (IFAD 2003).

In the NENA13 LDCs, the labour force engaged in agriculture is significant, more than 70% in Djibouti and Somalia and more than 48% in the Sudan and Yemen. This is consistent with the fact that, at least in three of these countries (Djibouti is the exception), the majority of the population lives in rural areas. Turkey has the highest share of employment in agriculture among non-LDCs, 45%, followed by Morocco and Egypt with 35% and 32%, respectively (Table 2-4).

Another measure of the importance of the agricultural sector is the share of agricultural exports in total exports. In NENA13 countries, the contribution of agriculture to exports is below 10% in every country except the Sudan, and it has decreased since 1993 when it ranged between 10 and 28% (excluding LDCs). The Sudan saw a drastic fall from 95% in 1993 to 13% in 2003 (Table 2-4 and DeRosa 1997).<sup>5</sup> However, the impact of agricultural trade liberalization on households may be large even if only a small share of exports is from the agricultural sector, because agriculture trade affects food prices and, thus, food security, especially among poor households.

5/ The last available figure for Somalia is for 1990 when the share was 82%.

**TABLE 2-4**  
Structure of the economies and the agricultural sector of NENA13 countries, 2003

	Structure of production (% share in GDP)			Trade (% share in GDP)		Agriculture				
	Agriculture	Industry	Services	Exports	Imports	Annual growth (%)		Share (%) in total employ- ment	Share (%) in total exports	
		Of which mfg.				1990-99	2000-03			
	(%)									
Algeria	10	55	7	35	39	24	4.1	6.0	24	<1
Djibouti <sup>a</sup>	4	16	3	81	46	66	0.5	2.0	-	<1
Egypt	16	34	19	50	22	24	3.0	3.2	32	5
Jordan	2	26	16	72	45	70	2.8	6.2	11	10
Lebanon	12	20	9	68	13	39	2.5	1.5	3	9
Morocco	17	30	17	54	32	36	5.5	8.9	35	7
Somalia	65	10	5	25	2	7	1.3	-	70	-
Sudan <sup>a</sup>	39	20	9	41	16	12	6.4	6.6	59	13
Syria	23	29	25	48	40	33	7.2	2.8	27	7
Tunisia	12	28	18	60	43	47	6.7	1.9	24	4
Turkey	13	22	13	65	28	31	1.7	0.7	45	7
West Bank and Gaza	9	18	10	73	10	49	-4.8	-8.6	12	<1
Yemen	15	40	5	45	31	36	5.4	5.3	48	3
<b>NENA13<sup>b</sup></b>	<b>18</b>	<b>27</b>	<b>12</b>	<b>55</b>	<b>27</b>	<b>40</b>	<b>3.3</b>	<b>3.0</b>	<b>36</b>	<b>7</b>

Sources: World Bank (2005a) unless otherwise specified. CIA (2005) for Somalia's structure of GDP; and West Bank and Gaza's share of arable land. UNCTAD (2004a) for manufacturing share of GDP for Somalia; and employment in agriculture for 2002 for Djibouti and Somalia. WTO (2006b) for Djibouti's trade shares in GDP, 2000-2004 average.

<sup>a</sup> Djibouti's indicators are for 2000 and Sudan's for 2002.

<sup>b</sup> Unweighted averages.

## 2.5 Summary

The 13 countries of Near East and North Africa under consideration in this study share a number of cultural characteristics, including language and religion. In addition, most of the NENA13 countries are semi-arid, with limited water and arable land per capita, making agricultural production highly dependent on rainfall. The exceptions are Turkey, which has relatively abundant water and land resources, and Egypt, where virtually all crop production is irrigated. The overall population density of the region is low compared to other developing areas, though Lebanon and West Bank and Gaza are quite densely populated. The region is also more urbanized than the average for developing countries, though Somalia, the Sudan and Yemen are exceptions to this pattern.

The 13 countries also have some economic similarities. Nine of the 13 countries are lower-middle income countries according to the World Bank (Lebanon is classified as a middle-income country, while Somalia, the Sudan and Yemen are low-income countries). The economic performance of many of the NENA13 countries has been relatively weak, with real per capita GDP growth during the 1990s of 1.3% per year. Performance was no better during 2000-03 in spite of the global economic recovery during those years. The economies have been adversely affected by various conflicts, including the Arab-Israeli conflict, the Sudanese civil war, the insurgency in Algeria (until recently), the lack of a central government in Somalia and the Iraq War. Other possible explanations for the slow growth include the business climate and relatively high trade barriers in many NENA countries. The slow economic growth means there has been little expansion in formal-sector employment, resulting in persistent problems of unemployment, particularly among youth. Nonetheless, strong economic performance in Lebanon, the Sudan (recently) and Tunisia suggest that these problems are not insurmountable.

# 3

## Agricultural Production and Trade Patterns

Trade liberalization is expected to result in relative price changes that will affect each country at the national level according to its pattern of production and trade. NENA13 countries are characterized by a high dependence on food imports, a situation that may threaten food security if international food prices rise significantly. This chapter describes the patterns of agricultural trade and trade policy in the NENA13 countries so as to provide a background for the discussion of the impact of trade liberalization in the next chapter. Section 3.1 examines the patterns of agricultural production and trade in each of the 13 countries under consideration. In Section 3.2, measures of protection are computed for the NENA13 countries and for commodities of importance for the region. Section 3.3 provides an overview of the various trade agreements in the region.

### 3.1 Structure of agricultural production and trade

The NENA13 region faces adverse climatic conditions, including low and highly variable annual rainfall patterns and poor soils for the most part. According to the Food and Agriculture Organization of the United Nations (FAO 2004), 62% of the region is hyper-arid, 17% arid, 11% semi-arid and 4.4% sub-humid. Agriculture in the region operates under severe limitations in water resources. Only a few countries rely strongly on irrigation (Egypt and Lebanon); the rest depend on rainfall (FAO 2003b). Yet, irrigated agriculture may provide the largest share of agricultural exports. For example, in Morocco, products from irrigated arable land account for 75% of total primary and processed agricultural exports (Roe et al. 2005). In the countries where irrigated agriculture is important, water for expansion will have to come mainly from efficiency savings on existing schemes (FAO 2004).

Agricultural land represents 38% of total land area in the NENA13 region. Of the agricultural land, almost three quarters (73%) is permanent pasture, while the remainder (23%) is used for crop production. This type of distribution of area is a pattern found in the majority of countries. Egypt, Lebanon, Tunisia and Turkey are exceptions, with higher percentages of agricultural land in crops (Table 3-1).

In this section, we discuss patterns in agricultural production and trade. We devote more attention to 7 of the 13 traditional borrowing countries of the Near East and North Africa. These seven represent the larger economies among the NENA13 that are not currently affected by civil conflict. They are discussed in the order of the size of their economies: Turkey, Egypt, Algeria, Morocco, Tunisia, Syria, and Jordan. The other six countries, most of which are smaller or have experienced some type of conflict in recent years, are also described, but in less detail.<sup>6</sup>

#### 3.1.1 Turkey

Turkey is the most populous of the NENA13 countries under consideration, with almost 70 million inhabitants. Per capita GDP is close to US\$3,000, second to Lebanon among the 13 countries under consideration. As a result of the high income and large population, Turkey has, by far, the largest economy in the NENA13 region, accounting for more than 40% of the region's GDP. Turkey is the only country among the 13 that is classified as food secure by Diaz-Bonilla et al. (2000). Turkey shows indicators of food security for the period 1997-99 comparable to those of developed countries: high per capita calorie and protein consumption (3,522 calories and 100.5 g, respectively), high production per capita and a low ratio of food imports to exports. The ratio of food imports to total exports is quite low, around 2% since the mid-1990s (Figure 3-1). The agricultural sector plays a fairly important role in the economy, considering the high income. It employs one third of the labour force, contributes 13% of GDP and accounts for 6% of exports.

In the 1980s, Turkey first launched a series of reforms to allow markets to play a greater role in the economy. Some steps were taken towards trade liberalization, and banking system reforms were implemented. As a result of the trade reforms, the ratio of trade to GDP rose from only 17% in 1980 to 33% in 1987, while the economic growth rate rose from 2% to 9%. In spite of these reforms,

6/ To be more precise, when measured in terms of GDP, the largest economies are, in order, Turkey, Egypt, Algeria, Morocco, Tunisia and Syria. Although Jordan has a smaller GDP than Lebanon, the Sudan and Yemen, we include it among the countries that are described in more depth.

macroeconomic stability was threatened by fiscal policy. The Government ran large budget deficits in the mid-1980s and, again in the 1990s, leading to a 15-year period of relatively high inflation. From 1988 until 1998, the rate of inflation was above 60% every year. During the 1990s, economic growth was very volatile, including a sharp recession in 1994 (WTO 1998; World Bank 2004).

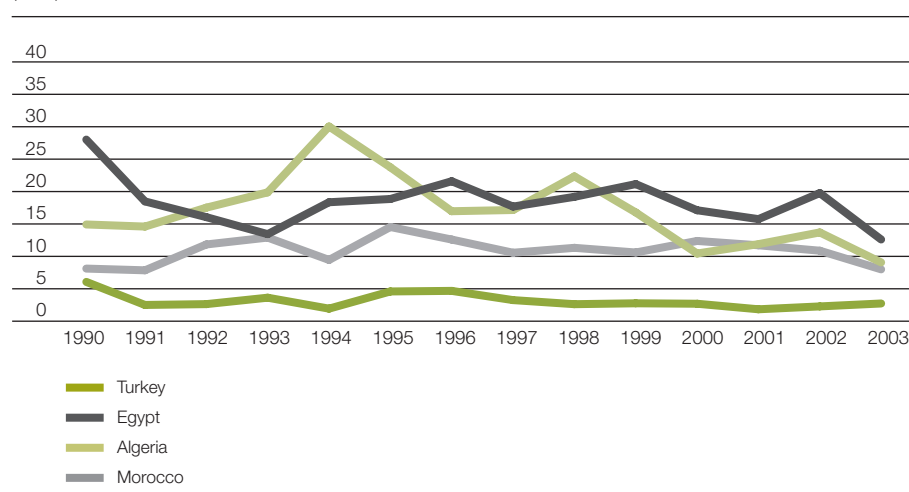
Under the Uruguay Round Agreement on Agriculture (URAA), Turkey bound 100% of duties on agricultural products and committed itself to decreasing the simple average tariff rate by 24% by the year 2004 and to reduce each tariff line by at least 10%. Domestic support for agriculture is well below the *de minimis* level; so, no further reduction was required. Turkey also agreed to reduce export subsidies by 24% by 2004.

**TABLE 3-1**  
Agricultural land use, 2002

	Arable land				Share in agricultural land		
	Share of arable land in total land	Ha per person	Share under cereal production	Share of irrigated land in cropland	Share of agricultural area in total area	Arable and permanent crops	Permanent pasture
	(%)	(ha)	(%)	(%)	(%)	(%)	(%)
Algeria	3	0.25	23	7	17	21	79
Djibouti	<1	0.00	1	100	56	0	100
Egypt	3	0.04	94	100	3	100	0
Jordan	3	0.05	19	19	13	35	65
Lebanon	17	0.04	30	33	32	95	5
Morocco	19	0.29	61	15	69	32	68
Somalia	2	0.12	0	19	69	2	98
Sudan	7	0.51	46	12	53	12	88
Syria	25	0.28	66	26	74	40	60
Tunisia	18	0.29	27	8	55	55	45
Turkey	34	0.37	55	18	50	68	32
West Bank and Gaza	18	-	-	-	32	-	-
Yemen	3	0.08	41	30	33	9	91
<b>NENA13</b>	<b>-</b>	<b>-</b>	<b>50</b>	<b>21</b>	<b>38</b>	<b>23</b>	<b>77</b>

Sources: World Bank (2005a); FAO (2004, Appendix Tables); CIA (2005) for data on West Bank and Gaza.

**FIGURE 3-1**  
Ratio of food imports to total exports in Turkey, Egypt, Algeria, and Morocco  
(in %)



Sources: FAO (2005a); World Bank (2005a).

Starting in 1996, Turkey entered into a customs union with the EU that required far-reaching changes in trade policy. Under this agreement, Turkey became committed to set external tariffs no higher than those in the EU (except for a small number of goods) and provided preferential treatment to imports from the EU. The customs union covers industrial trade, but not agricultural trade, pending harmonization of Turkey's agricultural policies with the common agricultural policy of the EU. Partly as a result of this customs union, the simple average tariff rate for imports declined from 27% in 1993 to 13% in 1998 (WTO 1998). These measures have led to a more open economy, as the ratio of trade to GDP rose from 44% in 1995 to 60% in 2002 (World Bank 2004). In 1999, Turkey became a pre-accession candidate for membership in the EU. The Government continues to carry out legal, economic and political reforms to boost its case for EU membership.

In spite of these reforms, continued fiscal imbalance in the late 1990s (over 10% of GDP) led to a banking and exchange rate crises in 1999-2001. A stabilization programme was implemented with support from international financial institutions. Macroeconomic reforms and fiscal control reduced inflation from 55% in 2000 to around 12% in 2004, while the economy has rebounded with 6-8% GDP growth in recent years (World Bank 2004).

In the agricultural sector, Turkey maintained input and credit subsidies and output price supports that artificially raised agricultural prices through the 1990s. However, these policies mostly benefited large farmers and proved fiscally unsustainable. In 2000, the Government implemented a reform programme replacing the subsidy scheme with direct income support paid to farmers as a flat rate per hectare. These payments, intended to soften the shock from removing the subsidies, are not linked to the production of any specific crop. In addition to direct income support, the reform programme provides farmers with transition payments to facilitate switching to more profitable crops or activities. Finally, it encouraged commercialization and the privatization of national parastatals in sugar and tobacco and the restructuring of the Turkish Grain Board (World Bank 2004; WTO 2003a).

Because 34% of the land is arable (the highest share in the region), and because there are 0.37 ha of arable land per person (second highest in the region), agriculture continues to be a crucial sector of the economy (Table 3-1). Farming is carried out throughout the country, although it is less common in the mountainous eastern regions, where animal husbandry is the main activity. In the mid-1990s, crop cultivation accounted for about two thirds and livestock for one third of the gross value of agricultural production, forestry and fishing. Turkey's leading crops (in terms of area) are wheat, barley, grapes for raisins, maize, chickpeas, cotton and olives. As shown in Table 3-2, Turkey accounts for a large share of the region's agricultural output. Turkey produces between one third and one half of the total NENA13 output of wheat, fruits and vegetables, and meat and dairy products, and it produces over half of the region's cotton and sugar beets.

**TABLE 3-2**  
Agricultural production, 2002-04 average

	Meat and dairy products	Total cereals	Wheat	Milled rice	Fruits and vegetables	Sugar		Cotton lint	Olive oil
						Beets	Cane		
(1 000 t)									
Algeria	2 273	3 404	2 356	<1	4 678	-	-	<1	30
Djibouti	25	0	-	-	29	-	<1	-	-
Egypt	6 517	17 781	6 882	6 143	22 302	2 741	16 229	260	-
Jordan	366	95	45	-	1 355	-	-	-	27
Lebanon	535	144	118	-	1 676	-	-	-	6
Morocco	2 167	7 279	4 682	20	7 119	3 658	959	<1	50
Somalia <sup>a</sup>	2 319	369	-	-	240	-	200	-	-
Sudan	5 851	4 626	304	13	3 027	-	5 500	74	-
Syria	2 403	5 801	4 742	-	4 240	1 312	-	286	180
Tunisia	1 286	1 672	1 376	-	3 260	-	-	2	120
Turkey	12 078	31 743	19 839	377	36 236	14 370	-	931	175
West Bank & Gaza	314	71	48	-	779	-	-	-	-
Yemen	497	489	114	-	1 309	-	-	10	-
<b>NENA13</b>	<b>34 312</b>	<b>73 105</b>	<b>40 506</b>	<b>6 554</b>	<b>86 011</b>	<b>22 081</b>	<b>22 688</b>	<b>1 562</b>	<b>588</b>

Sources: FAO (2004), (2005a).

<sup>a</sup> Somalia production statistics are from FAO estimates for 2004.

**TABLE 3-3**  
Main agricultural exports and imports of Turkey

Commodity	Net exports (average over 2000-02 in US\$ millions)	Commodity	Net imports (average over 2000-02 in US\$ millions)
Hazelnuts	402	Sheep skins	239
Prepared nuts	172	Maize	108
Raisins	170	Soybeans	97
Sugar (refined)	127	Soybean cake	91
Dry apricots	103	Palm oil	86
Pastry	94	Soybean oil	62
Confectionary sugar	90	Sunflower seed	58
Prepared fruit	90	Dry natural rubber	58
Cigarettes	85	Rice, paddy	44

Source: FAO (2005b).

**TABLE 3-4**  
Net exports of selected commodities, 2001-03 average

	Total cereals	Wheat	Rice, milled	Sugar (raw equivalent)	Cotton lint	Olive oil
(thousand metric tons)						
Algeria	-6 947	-4 872	-58	-1 024	-9	-1
Djibouti	-114	-65	-19	-57	0	0
Egypt	-8 668	-4 681	535	-467	135	0
Jordan	-1 430	-414	-110	-211	-1	1
Lebanon	-849	-396	-45	-150	0	1
Morocco	-4 366	-2 938	-2	-546	-36	-6
Somalia <sup>a</sup>	-227	-60	-99	-179	-	0
Sudan	-1 088	-893	-38	-10	56	0
Syria	-231	569	-203	-807	192	9
Tunisia	-2 742	-1 552	-13	-317	-25	52
Turkey	-1 406	-709	-309	417	-466	65
WBGS	-515	-35	-53	-77	0	1
Yemen	-2 336	-1 464	-249	-569	1	0
<b>NENA13</b>	<b>-30 691</b>	<b>-17 450</b>	<b>-487</b>	<b>-2 736</b>	<b>-154</b>	<b>123</b>

Source: Based on trade volumes from FAOSTAT (2005).

<sup>a</sup> Statistics for Somalia are for 1997-99.

Turkey's export revenue<sup>7</sup> in 2002 was US\$55 billion, while agricultural exports represent about 6% of the total (WTO 2003a). As shown in Table 3-3, Turkey has a relatively diversified base of high-value agricultural exports. It exports over US\$400 million in hazelnuts per year, followed by prepared nuts, raisins, sugar, and apricots (see also Table 3-4).

Total imports of goods and services by Turkey were US\$55 billion in 2003. Of this amount, agricultural imports were 6% of the total. The largest agricultural imports are sheepskins, maize, soybeans, and cooking oil (Table 3-3 and Table 3-11). Thus, Turkey's agricultural trade is unusual compared to its NENA neighbours in three respects. First, agricultural exports are dominated, more than in any other NENA country, by fruits and nuts. Second, the country is self-sufficient in grains, unlike most NENA countries which import large quantities of wheat, barley, and other grains. Third, Turkey has a surplus in agricultural trade; the value of agricultural exports greatly exceeds the value of agricultural imports.

7/ In this section, export revenue refers to revenue from the exports of goods and services, while imports refer to the value of imports of goods and services. The data are from World Bank (2005a).

### 3.1.2 Egypt

Among the NENA13 countries under consideration, Egypt has the second largest population and the second largest economy after Turkey. The per capita GDP is US\$1,622, higher than most of the NENA13 countries, but significantly lower than that of Lebanon, Tunisia and Turkey. The population is concentrated in the Nile Delta and along the banks of the Nile River. With 43% of the population living in urban areas, Egypt is less urbanized than most of its NENA neighbours.

Like many developing countries, Egypt pursued a strategy of import-substitution industrialization in the 1960s and 1970s. Following a debt crisis in 1982, Egypt became one of the first NENA countries to launch a series of economic reforms to adopt a more outward-oriented trade policy. These reforms included reduction and simplification in import tariffs, reduction in non-tariff barriers, unification of multiple exchange rates and depreciation of the real exchange rate to stimulate exports. According to the World Bank, the simple average tariff rate in Egypt is low by world standards, lower than 60% of the countries in the world. Furthermore, the progress in trade liberalization over 2000-04 was among the strongest in the world (World Bank 2005d). Egypt is currently enjoying a windfall as a result of the high world prices for its oil exports and increased revenue from the Suez Canal, since the high cost of fuel has made the alternative – circumnavigating Africa – more costly.

Part of this liberalization was unilateral, and part was related to various trade agreements. Egypt signed an ECAA with the EU in 2001; the agreement came into force in 2004. It is a member of the Greater Arab Free Trade Agreement (GAFTA), under which all intra-Arab trade would be duty free by 2005. Egypt also signed the Agadir Declaration, establishing free trade among Egypt, Jordan, Morocco and Tunisia (Hoekman and Konan 2005).

Agricultural production is highly concentrated along the Nile River and in the Nile Delta. About 97% of the area of Egypt is uncultivated due to the extremely limited rainfall. Virtually all agricultural land is allocated to crop production, and all crop production is irrigated (World Bank 2004). Although the arable land per person is quite small (0.04 ha), this is offset by multiple cropping and intensive production. The main crops are wheat, cotton, rice, and fruit and vegetables.

Egypt is a net importer of food, and the self-sufficiency ratio in various food crops has declined since the 1960s. The rising dependence on imported food is a major concern among policymakers and has resulted in various attempts to restrict food imports and stimulate domestic production. On the other hand, the value of food imports as a ratio of total exports declined from 28% in 1990 to 12% in 2003 (Figure 3-1). Diaz-Bonilla et al. (2000) classify Egypt as food neutral.

Egypt's agricultural exports were US\$800 million in 2002, about 5% of total exports. As shown in Table 3-5, cotton is the most important agricultural export. Egyptian cotton has long fibres and is considered one of the best in the world, fetching high prices on international markets. The average value of cotton exports over 2000-02 was US\$205 million, but, more recently, cotton exports have surpassed US\$500 million thanks to expanded output and higher world prices. Cotton is also used in Egypt's textile sector, which produces cloth and garments for domestic use and for export. Egypt also exports rice, fruits and vegetables, including oranges, onions, potatoes and mango juice (Table 3-4 and Table 3-5).

Agricultural imports were US\$4 billion in 2002, or one fifth of the total. As in many countries in the region, wheat is the most important agricultural import (Table 3-5). Over 2000-02, Egypt imported an average of US\$732 million in wheat per year. Wheat is a politically sensitive commodity because bread is the main staple food. Wheat production and marketing were strictly controlled until market reforms in the 1980s and 1990s. Agricultural input and output markets have been liberalized to some degree, but the Government maintains subsidies on some types of bread and attempts to boost domestic production by restricting imports of wheat and flour. The second largest agricultural import is maize. Maize demand is rising due to the use of maize as animal feed. Chapter 5 provides more information on the Egyptian agricultural sector, agricultural trade patterns and trade policies.

**TABLE 3-5**  
Main agricultural exports and imports of Egypt

Commodity	Net exports (average over 2000-02 in US\$ millions)	Commodity	Net imports (average over 2000-02 in US\$ millions)
Cotton (lint)	205	Wheat	732
Milled rice	100	Maize	561
Molasses	22	Soybean cake	207
Oranges	31	Beef and veal, boneless	185
Onions (dry)	17	Tobacco leaves	168
Vegetables dehydrated	15	Tea	112
Potatoes	6	Soybean oil	76
Vegetables frozen	9	Broad beans (dry)	66
Flax fibre and tow	7	Soybeans	68
Mango juice	4	Sugar (refined)	44

Source: FAO (2005b).

### 3.1.3 Algeria

Among the NENA13 countries, Algeria is the third largest economy, in terms of GDP, after Turkey and Egypt. It is also the largest country in terms of area, but four fifths of the land is in the Sahara. Agricultural land accounts for 17% of total area, and more than three fourths of this is under permanent pasture. Still, in terms of arable land per capita, Algeria is on a par with Morocco, Syria and Tunisia (Table 3-1).

From independence until the late 1980s, the Government followed a socialist model of development based on centralized planning, price controls and the creation of large numbers of state enterprises. The 1990s were also marked by violent conflict between the Government and Islamist rebels. The annulment of the 1992 elections, apparently won by the opposition, sparked a seven-year period of violence, costing over 150,000 lives. In 1999, the new Government of President Bouteflika offered rebels amnesty and implemented a series of political reforms that have been credited with bringing peace to Algeria.

Starting in 1990 and accelerating in the mid-1990s, the Government began to liberalize prices, devalue the exchange rate, privatize state enterprises and promote private investment (IMF 2004a). It has liberalized the marketing of agricultural inputs and outputs, though it continues to control and subsidize the price of staple foods, such as wheat, for consumers.

Algeria's simple average tariff rates remain quite high, among the top 5% of countries in the world. On the other hand, its progress in trade liberalization over 2000-04 was greater than two thirds of the world's countries (World Bank 2005d). The state continues to play a major role in the economy, accounting for 60% of GDP. The Government appears committed to changing this situation. However, in December 2004, following the re-election of President Bouteflika, the Government announced a plan to sell off 1,200 of the 1,500 state-owned enterprises in Algeria, including the state oil company. The high price of oil in global markets has created a windfall for Algeria, some of which is being devoted to addressing problems of unemployment and housing (Jeune Afrique 2005).

Some of this trade liberalization has been implemented in preparation for WTO membership. Algeria applied for WTO membership in 1987, but the working group to negotiate accession did not meet until 1998. Since then, negotiations and regulatory reform have moved more quickly towards WTO membership.

In the 1960s, the agricultural sector satisfied almost all the country's food requirements and accounted for over half of export revenues. The importance of agriculture, however, diminished steadily as oil and gas became driving forces of the economy. Following the "Dutch disease" pattern, oil and gas exports reduced the competitiveness of other exports such as agricultural commodities and facilitated food imports. By 1990, the share of agriculture in GDP had fallen to 11%. Although it is clear that agriculture's role has declined appreciably, agriculture remains important. About 42% of the population lives in rural areas, and 26% depend on agriculture as a means of livelihood.

**TABLE 3-6**  
Main agricultural imports of Algeria

Commodity	Net imports (average over 2000-02 in US\$ millions)
Wheat	824
Maize	206
Barley	58
Milled paddy rice	16
Beer of barley	2
Wheat flour	4
Barley malt	3
Pastry	2
Oats	2
Maize flour	1

Source: FAO (2005b).

In 2002, Algerian export revenue was about US\$20 billion per year, of which hydrocarbons (gas and oil) represented about 96%. Recent increases in oil prices have increased export revenues to US\$35 billion. Agricultural exports are very minor by comparison: less than US\$50 million in 2000. The largest agricultural export commodity is cooking oil, which generates less than US\$5 million in revenue per year.

Algerian imports were about US\$14 billion in 2002. Agricultural imports were roughly 20% of the total: US\$2.8 billion in 2000. As shown in Table 3-6, Algeria imported US\$800 million of wheat and smaller amounts of maize, barley, rice and other commodities. Wheat production in the country supplies only 10-30% of domestic consumption. Almost all maize and most of the barley consumed in Algeria are imported. On the other hand, the country is self-sufficient in potatoes, the second most important commodity in terms of the volume of domestic production. Overall, Algeria is a net agricultural importer by a large margin. In spite of the fact that Algeria imports almost all its food, the ratio of food imports to total exports is below 20%, thanks to oil exports (Figure 3-1).

#### 3.1.4 Morocco

The population of the Kingdom of Morocco is about 30 million, making it about half the size of Egypt or Turkey. Per capita GDP is US\$1,457, close to the average of the NENA13 countries under consideration. According to the World Bank classification, Morocco is a lower-middle income country.

King Hassan II ruled Morocco from 1961 until his death in 1999. He was succeeded by his son, who became King Mohammed VI. Under the new Government, political, economic and social reforms have been initiated. King Mohammed VI has allowed moderate Islamist parties to operate legally, eased restrictions on the press and given greater rights to women. Since 1996, Morocco has been liberalizing staple food marketing. The state monopoly on the importation of staple foods has been dismantled except for the import of common wheat flour. Quantitative import restrictions were converted into tariffs, resulting in import tariffs as high as 339%. Tariffs on agricultural imports average 33%. Price controls have been largely removed, although the legislation allowed a continuation of price controls on common wheat flour, sugar and tobacco for five years (until 2006). Consumer subsidies remain on common wheat flour and sugar. Variable import duties are used to stabilize and support the farmgate price of wheat, barley, maize, rice and sorghum (WTO 2003b).

Morocco is a member of WTO and has signed an EMP agreement with the EU and an FTA with the United States. In spite of these agreements, Morocco retains a relatively high tariff structure. The World Bank estimates that the simple average tariff rate is among the highest 1% among the world's countries (World Bank 2005d).

**TABLE 3-7**  
Main agricultural exports and imports of Morocco

Commodity	Net exports (average over 2000-02 in US\$ millions)	Commodity	Net imports (average over 2000-02 in US\$ millions)
Tangerines and other citrus	100	Wheat	531
Oranges	90	Sugar (raw)	137
Tomatoes	88	Soybean oil	123
Olives, preserved	73	Maize	120
String beans	31	Barley	91
Prepared fruit	27	Tea	61
Processed cheese	25	Soybeans	58
Wheat flour	24	Cigarettes	46
Crude organic materials	24	Butter	46
Strawberries	20	Beet pulp	39

Source: FAO (2005b).

Morocco has more agricultural potential than many NENA countries due to suitable soils and rainfall, combined with irrigation potential. Currently, Morocco satisfies about two thirds of its grain requirements, growing wheat, barley and maize in the rainfed areas. Wheat is the main agricultural import, followed by sugar and soybean oil (Table 3-7). Food imports have been 7-15% of the total value of exports since the 1990s (Figure 3-1).

Agricultural exports are dominated by fruits and vegetables (Table 3-7). Citrus fruits, tomatoes, olives, potatoes and other horticultural crops are grown, often under irrigation, and exported to Europe. Exports are facilitated by the short distance across the Strait of Gibraltar to Spain. Fruit and vegetable exports account for about 80% of Moroccan agricultural exports. More information on agriculture and trade in Morocco is provided in Chapter 8.

### 3.1.5 Tunisia

Tunisia is a relatively small country, with only 10 million inhabitants. Although the country has few natural resources, per capita GDP grew at a healthy rate (around 3%) over the 1990s and into the first years of the current decade. Per capita GDP was over US\$2,500 in 2002, giving Tunisia the third highest income in the NENA13 region behind Lebanon and Turkey.

From independence in 1956 until 1987, Tunisia was ruled by President Habib Bourguiba. He attempted to create a modern state, promoting the rights of women and implementing universal primary schooling. In 1987, Ben Ali was elected president. President Ben Ali has implemented some political and economic reforms; he was re-elected for a third time in 2004.

The high income and positive growth rate in Tunisia have been attributed to the relatively favourable investment climate, significant foreign investment, expanding industrial output (particularly textiles) and good relations with both Europe and the rest of North Africa. At the same time, Tunisia maintains relatively high tariff barriers. According to the World Bank (2005d), the average tariff rate is among the top 1% of countries. There has been some trade liberalization, however: the average tariff rate came down from 29% in 2000 to about 25% in 2004.

Agriculture accounts for about 10% of GDP and employs about 20% of the labour force. The main grain crops are wheat and barley. Olives, dates and citrus fruits are grown for both export and domestic consumption.

Over 2000-02, the average value of Tunisian agricultural exports was about US\$500 million. The dominant agricultural export commodity has been olive oil, although the value of olive oil exports fluctuates sharply from year to year. Other important agricultural exports include dates, wheat flour, tomato paste and pasta, reflecting the importance of the food processing sector (Table 3-8).

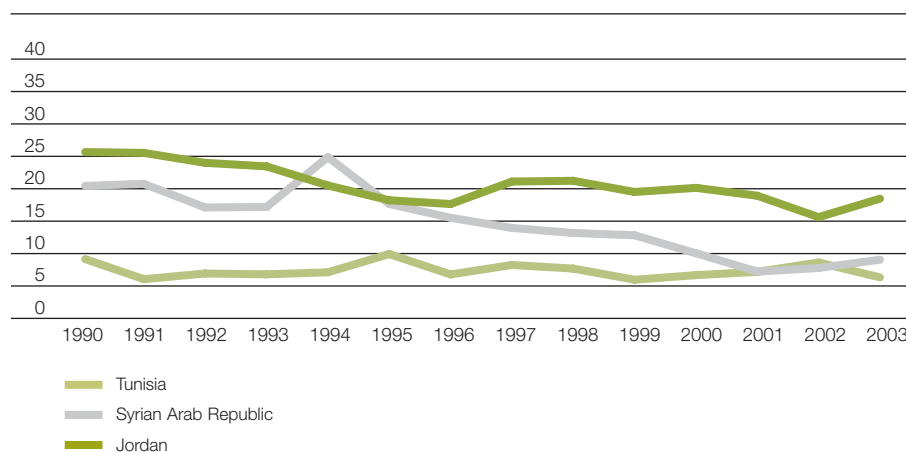
Agricultural imports were US\$1.2 billion, about 12% of total imports. As is the case with many other NENA countries, wheat is the most important agricultural import. Other important agricultural imports are maize, barley, soybean cake, soybean oil and sugar (Table 3-8). Like most other NENA countries, the value of agricultural imports exceeds the value of agricultural exports. However, the value of food imports has remained at only 5-10% of the total value of exports (Figure 3-2). More information on the agricultural sector and trade in Tunisia is provided in Chapter 6.

**TABLE 3-8**  
Main agricultural exports and imports of Tunisia

Commodity	Net exports (average over 2000-02 in US\$ millions)	Commodity	Net imports (average over 2000-02 in US\$ millions)
Olive oil	123	Wheat	208
Dates	60	Maize	82
Wheat flour	23	Barley	65
Tomato paste	22	Soybean cake	60
Pasta	10	Soybean oil	52
Oranges	8	Sugar (refined)	39
Maize oil	7	Cotton	33
Beverages (non-alcoholic)	7	Sugar (raw)	23
Pastry	5	Tobacco leaves	17
Food wastes	2	Potatoes	14

Source: FAO (2005b).

**FIGURE 3-2**  
Ratio of food imports to total exports in Tunisia, Syria, and Jordan  
(in %)



Source: FAO (2005a); World Bank (2005a).

### 3.1.6 Syria

The Syrian Arab Republic has about 17 million inhabitants, about half of whom live in urban areas. Per capita GDP is US\$831, above that of the poorest NENA countries (Djibouti, Somalia, the Sudan and Yemen), but below the others. The agricultural sector is relatively large, accounting for 23% of total GDP. This places Syria third after Somalia and the Sudan among the NENA13 countries under consideration.

In the late 1950s, the Syrian Government adopted socialism, maintaining control of major industries, though private services and retail trade were allowed. The economy has been adversely affected by various conflicts in the region, including the Arab-Israeli wars of 1967 and 1973 and the civil war in Lebanon. In the early 1990s, growth was stimulated by limited economic reforms and a major expansion in oil exports, but growth has been slow since then. The Government still imposes significant controls on the economy, including price controls, state monopolies in certain sectors, large agricultural subsidies and a large number of state-owned enterprises. Overall, per capita GDP grew at 2.2% per year during the 1990s, an improvement over its performance during the 1980s, when per capita GDP fell in real terms.

**TABLE 3-9**  
Main agricultural exports and imports of Syria

Commodity	Net exports (average over 2000-02 in US\$ millions)	Commodity	Net imports (average over 2000-02 in US\$ millions)
Cotton	204	Sugar	119
Sheep	144	Maize	80
Tomatoes	66	Tea	44
Anise/fennel	65	Soybean cake	38
Wheat	48	Milled rice	51
Grapes	15	Cigarettes	11
Oranges	12	Dry skim milk	8
Fruit, prepared	10	Soybeans	18
Cherries	9	Sugar (raw)	11
Goats	8	Coffee, green	19

Source: FAO (2005b).

As in many NENA countries, wheat is the most important food crop. Syria is self-sufficient in wheat thanks to import restrictions and subsidies to promote wheat production. Barley and maize are also grown, but domestic production is not sufficient to satisfy demand. Syria also produces grapes, apples and olives in the highlands and citrus fruits along the coast. Horticultural production is often irrigated. About 26% of the arable land in Syria is irrigated, much of this due to the Euphrates Dam built in the 1970s.

Agricultural exports are about US\$1 billion; the main exports are cotton, sheep, tomatoes and anise/fennel (Table 3-9). As a group, fruit and vegetable exports earn over US\$100 million per year. Syria imports about US\$860 million in agricultural products. The main agricultural imports are sugar, maize and tea (Table 3-9). These import patterns partly reflect import barriers on agricultural goods. According to the Foreign Agricultural Service of the US Department of Agriculture, "Processed foods, canned foods, frozen foods, snack foods, meat, fruits, and vegetables are, in general, not permitted to be imported." The ratio of agricultural imports to total exports has fallen from over 20% in the early 1990s to less than 10% in recent years thanks in part to oil exports (Figure 3-2). More information on agricultural and trade patterns in Syria is provided in Chapter 7.

### 3.1.7 Jordan

The Hashemite Kingdom of Jordan is a relatively small country with a population of 5 million. It is highly urbanized (79% of the population lives in urban areas), and the agricultural sector is small, contributing only 2% of GDP. Jordan does not have oil reserves, unlike many of its neighbours, and water resources are limited.

Jordan's economy was severely affected by the 1967 Arab-Israeli war, in which it suffered heavy casualties, was forced to absorb large numbers of Palestinian refugees, and lost the West Bank, representing one third of its most fertile land and one third of its GDP. The civil war of 1970, conflicts with Israel, the Palestinians and Syria, and the two wars in Iraq have also curtailed economic growth. In 1989, Jordan suffered an exchange rate crisis; a spike in inflation and external imbalance necessitated a 50% devaluation against the dollar, causing a sharp drop in the purchasing power of Jordanian consumers.

In the 1990s, the Government was able to reduce inflation and stabilize the economy. It also initiated a series of trade and market reforms. The tariff structure, which was characterized by high and variable tariff rates, was simplified, bringing the weighted average rate down from 34% in 1987 to 25% in 1994 and 13% in 2004. Price controls on wheat, rice, barley, sugar, meat and milk had been phased out by 1999. Food subsidies, the cost of which was 3% of GDP in 1990, were also phased out, with the exception of a small subsidy on wheat. Universal food subsidies were replaced with increased targeted assistance through the National Aid Fund (IMF 2004b). These policies have kept inflation below 5% and have led to sustained economic growth of 4-5% since 2000.

In 1997, Jordan signed an EMP agreement with the EU, involving phased reduction in tariffs. The following year, Jordan signed GAFTA with other Arab countries. In 1999, it joined WTO. And,

in 2000, Jordan signed an FTA with the United States. Over a ten-year period, the two countries will eliminate most tariffs on imports from each other. According to the World Bank, the degree of trade openness in Jordan is relatively low, in the 20th percentile among countries of the world. Nonetheless, progress over 2000-04 was relatively rapid, putting Jordan at the 86th percentile in terms of progress (World Bank 2005d).

The Jordanian economy relies heavily on three foundations: (i) its status as the world's third largest producer of phosphates, (ii) its educated work force, and (iii) its role as a transit port for trade between Europe and the Near East. Before the Iraq War, Jordan served as a key transshipment point in the oil-for-food programme. The war disrupted these trade flows and adversely affected the economy, though Jordan benefits from the reconstruction effort. Because re-exports are an important activity in Jordan, the trade ratio (the value of imports and exports expressed as a percentage of GDP) is over 100%.

Revenues from the export of goods and services by Jordan were US\$4.3 billion in 2002 (US\$2.7 billion for goods exports). Phosphates and other fertilizers were the most important exports during the 1990s. Agricultural exports were US\$400 million, about 9% of the total. The main agricultural exports are hydrogenated oil, tomatoes, cigarettes and other vegetables, as shown in Table 3-10. Since 2000, Jordanian exports have grown very rapidly (16.6% per year), driven largely by textile and apparel exports (IMF 2004b). The Multi-Fibre Arrangement, which established quotas to regulate trade in textiles and apparel, expired in January 2005. This removes Jordan's preferential access to European markets, exposing textile and apparel exporters to greater competition, particularly from China, India and Pakistan.

Total imports in 2002 were US\$6.2 billion; agricultural imports represented US\$900 million. As in many NENA countries, wheat is the largest agricultural import product (US\$79 million). Other major imports are maize, sugar, barley and rice (Table 3-10).

Unlike in many North African countries, domestic grain production is minimal in Jordan. Wheat and barley are grown in rainfed upland areas, but the domestic production of wheat accounts for less than 10% of consumption. Instead, agricultural production is focused on fruits and vegetables, which are grown in the fertile Jordan Valley. In fact, nine of the top ten most important agricultural commodities in terms of the volume of production are fruits and vegetables, led by tomatoes, olives, and cucumbers and gherkins. Merchandise imports are twice the value of merchandise exports; the difference is made up by foreign direct investment, foreign aid and remittances from Jordanian citizens working abroad.

**TABLE 3-10**  
Main agricultural exports and imports of Jordan

Commodity	Net exports (average over 2000-02 in US\$ millions)	Commodity	Net imports (average over 2000-02 in US\$ millions)
Hydrogenated oils	67	Wheat	79
Tomatoes	48	Maize	53
Cigarettes	20	Sugar	52
Cucumbers and gherkins	19	Barley	43
Chilies and peppers	8	Milled paddy rice	38
Cauliflower	8	Palm oil	35
Eggplants	6	Soya bean cake	32
Lettuce	5	Tobacco products	26
Green beans	5	Prepared food	26

Source: FAO (2005b).

### 3.1.8 Other countries

This section briefly describes the other six countries in the NENA13 group: Djibouti, Lebanon, Somalia, the Sudan, West Bank and Gaza, and Yemen. In general, these economies are smaller than those described in more depth above. Furthermore, many of them have been affected by civil war, insurgency, or some other type of conflict making trade liberalization a less immediately relevant issue.

#### Djibouti

Djibouti is one of the poorest among the NENA13 countries under consideration. Its GDP fell by more than 25% over the 1990s, reaching about US\$700 per capita in 2002. A large share of the population (84%) lives in urban areas. The social indicators on Djibouti (such as life expectancy, primary school enrolment and unemployment) are among the lowest in the region.

Djibouti gained its independence from France in 1977 and has maintained a neutral stance with respect to its two larger neighbours, Ethiopia and Somalia. It has few natural resources, and its economy is based largely on transport and service activities associated with its deep-water port. The port is a free trade zone and has become an international transshipment and refueling centre. The only rail link between Ethiopia and the Red Sea is in the port of Djibouti.

The agricultural sector is quite small, accounting for only 3% of GDP. In rural areas, nomadic pastoralism is a chief occupation; goats, sheep and camels are raised. Date palms and some vegetables are grown, and there is a small fishing industry. Manufacturing is mainly limited to food processing, shipbuilding and repair. The main exports are hides, cattle and coffee (transshipped from Ethiopia). Djibouti imports transport equipment and petroleum, as well as consumer goods and 90% of its food needs. The value of food imports in the 1990s was 20-30% of the total value of exports (Figure 3-3). Diaz-Bonilla et al. (2000) classify Djibouti as a food insecure country. Its economic development depends largely on foreign investment and aid. The main trading partners are France and other EU countries, Ethiopia, Japan, Saudi Arabia and Yemen.

#### Lebanon

Lebanon has had a dynamic economy. Although imports are generally five to six times greater than exports, the earnings from tourism, transit trade and remittances from abroad compensate for the merchandise trade deficit. The long-term civil war (1975-91) and the Israeli invasion in 1982 damaged Lebanon's economy. In 2005, Syrian troops and advisors left the country, giving Lebanon the opportunity for greater autonomy in economic and political decisions. The optimism created by this withdrawal was dashed by the Israeli invasion in July 2006 and the subsequent 34-day conflict with Hezbollah forces.

The Lebanese economy is one of the most open economies in the NENA region. The simple average tariff was 11% in 2000 and was reduced to 6% in 2004. This places Lebanon in the 81st percentile in terms of the degree of trade openness among the world's countries (World Bank 2005d).

Almost one fourth of Lebanon's land is cultivated, the highest proportion in the Arab world. In the utilization of the arable land, almost one third is devoted to growing cereals. In spite of this, Lebanon produces only 15% of its wheat requirements, 45% of its legume needs and 10% of its sugar consumption. Its exports are primarily fruits and vegetables, including apples, potatoes, citrus fruit and tomatoes. Exports are primarily destined for neighbouring countries in the Middle East. The recent association agreement with the EU should make horticultural exports to the EU more feasible, though it will be necessary to meet strict sanitary and phytosanitary requirements. One study suggests that exports of tomatoes to the EU would not be feasible, but exports of cucumbers and eggplants would be (UNEP 2005).

Over the 1990s, the burden of food imports on the Lebanese economy declined markedly. In particular, the ratio of food imports to total exports fell from over 100% in the early 1990s to about 40% in 2004 (Figure 3-3). Although the value of food imports roughly doubled over this period, the value of exports increased fourfold. Nonetheless, this food import ratio is second only to West Bank and Gaza in the NENA13 region.

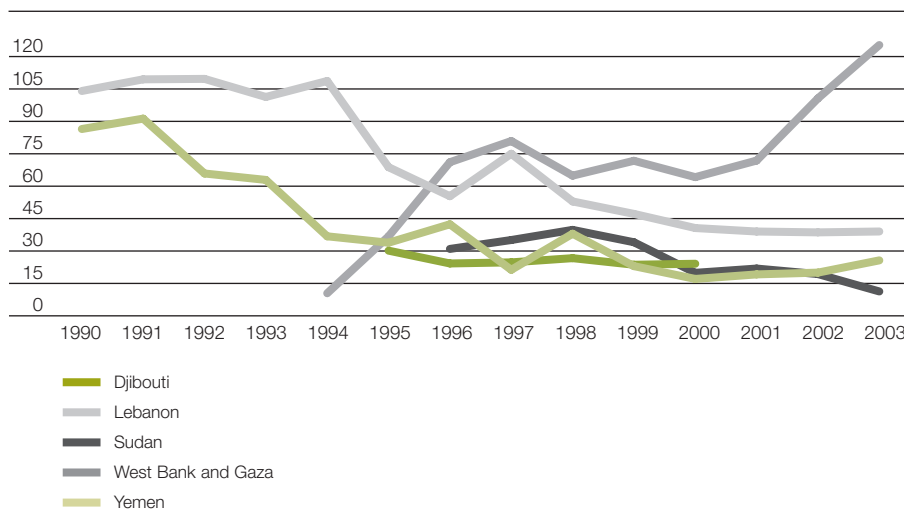
## Somalia

Somalia is one of the poorest and least developed countries in the world. In addition to the lack of natural resources and vulnerability to drought, a civil war has devastated the economy. After the death of President Siad Barre in 1991, clan leaders were unable to agree on a replacement and the country disintegrated into warring factions. Although the civil war has ended, no central government controls the entire territory. In some areas, local authorities collect taxes and provide some basic public services. Other areas are more chaotic, but, even there, banks, traders and even mobile telephone companies operate in a lawless environment. Protracted negotiations in Kenya led to the formation of an interim government backed by the United Nations, but it has not been able to gain control over much of the country. In December 2006, the Ethiopian military, acting in support of the Transitional Federal Government, defeated the Islamic Courts Union. International peacekeeping troops are now maintaining a fragile peace in the country.

The last time statistics were compiled, in 1990, agriculture was the most important sector, contributing 65% of GDP and absorbing about 70% of the labour force (Table 2-4). Less than 16% of the land area is considered arable, and 60% of this was allocated to grain production (Table 3-1). The use of agricultural inputs and equipment such as fertilizer and tractors was the lowest among the NENA13 countries under consideration. Nomads and semi-nomads who are dependent on livestock production make up a large portion of the population. Trade data available from Somalia's trading partners on more recent years indicate that livestock (sheep, cattle, goats and camels) account for almost all Somalia's agricultural exports, though, in the 1980s, bananas were an important export. Sugar, wheat flour, rice and cooking oil are the main agricultural imports (FAO 2005b).

Serious humanitarian concerns continue to be expressed in several areas of the northern and central regions as a result of the effects of successive droughts and conflicts among factions. In some areas, destitute pastoralists have congregated steadily to form camps in villages, along roads and at permanent water points in Sool and Nugal. Water shortages, depleted pastures and exorbitant water prices still affect much of the region (FAO 2004).

**FIGURE 3-3**  
Ratio of food imports to total exports in Djibouti, Lebanon, The Sudan, West Bank and Gaza, and Yemen  
(in %)



Source: FAO (2005a); World Bank (2005a).

## Sudan

The Sudan is the largest of the NENA13 countries in terms of area and, with 33 million inhabitants, the third most populous. The country has significant natural resources, including oil reserves, gold and abundant arable land. It has suffered from a long-lived civil war between the Government in the north (which is largely Arab and Muslim) and separatists in the south (which is primarily African and Christian). President Bashir has been under considerable international pressure to end the war and control the activities of paramilitary groups in the south. In January 2005, the Government and the Sudan People's Liberation Movement and Army signed a peace agreement, known as the Naivasha Agreement, to put a formal end to the civil war, which had lasted over 20 years. The conflict, however, continues with attacks by militia groups on residents in western Sudan.

In spite of the war, economic growth has been quite robust: 3.2% growth in per capita GDP over 1990-2002. This has been attributed to strong economic reforms carried out in the 1990s, favourable weather for agriculture and the development of oil reserves, with exports starting in 1999. Inflation was reduced from 130% in 1996 to 8% in 2002.

Large investments continued to be made in the 1980s in mechanization and irrigation. Agriculture accounts for about 13% of total exports. The main agricultural exports are cotton, textile fibres and sesame. The most important agricultural import is wheat, which accounted for 38% of agricultural imports in 2001-03 (Table 3-11). It should be kept in mind that these import statistics include food aid. However, food aid has represented less than 10% of total wheat imports into the Sudan in recent years.<sup>8</sup> The value of food imports as a proportion of total exports fell from about 40% in 1998 to about 10% in 2003 (Figure 3-3) as a result of oil exports beginning in 1999. On a per capita basis, the agricultural imports into the Sudan are small. Somalia and the Sudan each have agricultural imports of only US\$13 per person, compared to US\$45-200 per person among all other NENA13 countries. Diaz-Bonilla et al. (2000) classify the Sudan as a food insecure country.

Although the relative importance of the agricultural sector has declined, it still accounts for 39% of GDP and 59% of employment. Relative to the size of the economy, the Sudan has the largest agricultural sector among the NENA13 countries under consideration.

Crop cultivation is divided between a modern market-oriented sector comprising mechanized, large-scale irrigated and rainfed farming (mainly in central Sudan), and small-scale farming following traditional practices that is carried on in the other parts of the country where rainfall or other water sources are sufficient for cultivation.

The Sudan has about 1 million ha under irrigation, or 12% of the arable land in the country. The Gezira irrigation scheme established in 1925 accounts for somewhat more than half of this area. Today, the Gezira irrigation scheme is managed by the Government using tenant farmers who grow cotton, sugar cane, wheat and sorghum. About 93% of the irrigated area is in government projects; the remaining 7% belong to private operations. Although there is scope for expanding irrigation in the Sudan, the allocation of Nile River water is limited by international treaty.

## West Bank and Gaza

West Bank and Gaza is not a sovereign nation, but rather a territory with limited autonomy. It represents land that has been occupied by Israel since the 1967 Arab-Israeli War. The 1993 Oslo Accords provided for the establishment of the Palestinian National Authority and granted limited self-rule to the territory. West Bank and Gaza has a population of 3.4 million and is the most densely populated of the NENA13 countries. Approximately 87% of the population lives in urban areas, making it the second most urbanized country within the NENA13 region (only Lebanon is more urbanized).

Per capita GDP was US\$849 in 2003, towards the bottom of the range of lower-middle income countries. Agriculture represents only 9% of GDP; citrus and olives are important crops. Services account for 73% of GDP, partly due to the importance of public services, police and security services, and construction.

8/ Statistics of the Food and Agriculture Organization of the United Nations indicate that wheat imports have been around 1 million t per year since 2000, while wheat received as food aid has been in the range of 50,000-90,000 t per year.

The economy of West Bank and Gaza is highly dependent on Israel. This is partly caused by the proximity of the two countries and the wage differentials between them. In 1992, it was estimated that one third of the Palestinian workforce was employed in Israel (Farsakh 2001). Furthermore, about 96% of West Bank and Gaza exports go to Israel, and Israel is the source of 76% of the imports of West Bank and Gaza (Astrup and Dessus 1998). The Protocol on Economic Relations between Israel and the Palestinian Liberation Organization signed in 1994, established a de facto customs union between Israel and West Bank and Gaza. The protocol calls for the elimination of restrictions on trade or the movement of workers between Israel and West Bank and Gaza. However, Israel closed the borders with and between the West Bank and Gaza more than 20% of the period between 1994 and 1999. The existence of Israeli settlements and movement restrictions within the West Bank and Gaza also limits the flow of goods and services. In response to the second Intifada, which began in September 2000, Israel further restricted trade and the movement of workers across the border between West Bank and Gaza and Israel. This caused a sharp reduction in the number of Palestinians working in Israel and was a major factor in the 35% decline in per capita GDP between 2000 and 2003 (Farsakh 2001). Although West Bank and Gaza has signed trade agreements with Egypt and Jordan, an association agreement with the EU, and an FTA with the United States, its growth and trade remain highly dependent on access to the Israeli economy.

### **Yemen**

The Republic of Yemen has 19 million inhabitants, 75% of whom live in rural areas. It is one of the poorest countries in the region, with per capita GDP of barely US\$300. The agricultural sector represents 15% of GDP, down from 24% in 1990. Yemen became a net oil exporter in the late-1980s, which contributed to the fall in the share of agriculture in total exports from 11% in 1990 to only 2% in 2002.

After years of border wars, the traditional North Yemen and Marxist South Yemen merged in 1990. In 1994, there was a brief civil war in which forces in the south attempted to secede, but the revolt was suppressed. In April 2000, Yemen applied to become a member of WTO, and a working party has been established to negotiate the terms. The main export from Yemen is oil, and cotton is a distant second. In recent years, Yemen has benefited from the rise in world oil prices. In spite of some reforms, the policy environment is not considered favourable for private investment. Foreign direct investment is only 0.1% of GDP, compared to the regional average of 0.7%. Furthermore, the World Bank estimates that the investment climate in Yemen is less favourable than that in three quarters of the countries in the world (World Bank 2005d).

### **3.2 Structure of protection**

The agricultural trade structures in NENA13 reveal similar patterns across countries, characterized by a high dependence on cereal imports (a regional average of 30% of agricultural imports), and the importance of fruit and vegetables exports, a regional average of 44% of total agricultural exports (Table 3-11 and Table 3-12). For most of these countries (Algeria, Egypt, Morocco, Syria, Tunisia and Turkey), the EU is the main trading partner: exports from these countries to the EU average between 41 and 80% of their respective total exports. The direction of trade flows is different in the region's LDCs: their main trading partners are other LDCs in the region and other Arab countries, particularly Saudi Arabia and the United Arab Emirates, with the exception of the Sudan, which trades mostly with China, Japan, and other Asian countries (IMF 2005).

Table 3-13, Table 3-14 and Table 3-15 summarize the average level of protection among ten NENA13 countries and other groups computed using the MAcMap-HS6 database developed by Bouet et al. (2004). The MAcMap-HS6 database is a collection of weighted averages of the tariffs or tariff equivalents of applied border protection for 165 reporting countries, 5,111 commodities and 208 trading partners. The tariff equivalents reflect all regional agreements and trade preferences, resulting in true measures of the degree of trade discrimination. Table 3-13 indicates that, relative to other regions in the world, the NENA13 countries have high levels of protection. Except for Lebanon and Turkey, NENA13 countries have levels of protection ranging between 11 and 30%. Bouet (2006b) ranks Egypt, Morocco and Tunisia among the 11 most protectionist countries in the MAcMap set of countries. For these countries, the results are consistent with earlier tariff rankings

**TABLE 3-11**  
Structure of agricultural imports, 2001-03 average

	Share in agricultural imports										
	Total agriculture imports <sup>a</sup>	Food and animals	Meat and meat products	Dairy and eggs	Cereals	Wheat	Rice	Fruit and vegetables	Sugar (raw equivalent)	Cotton lint	Olive oil
	(US\$ '000s)	(%)									
Algeria	2 772 566	87.7	1.6	18.8	37.7	28.2	0.6	8.2	8.9	0.4	0.0
Djibouti	144 695	64.0	1.1	12.6	19.9	11.3	3.6	8.2	8.7	0.2	0.1
Egypt	3 151 279	81.9	6.3	4.2	40.4	22.1	0.5	7.8	3.2	0.4	0.0
Jordan	897 943	80.9	5.9	9.3	24.7	7.8	4.8	10.9	5.9	0.1	0.0
Lebanon	1 229 602	76.6	4.6	12.3	10.0	4.5	1.4	13.4	2.9	0.0	0.0
Morocco	1 692 366	72.3	0.2	5.3	40.7	28.8	0.1	4.2	7.8	2.6	0.8
Somalia <sup>b</sup>	121 333	92.5	0.0	1.0	48.9	10.9	28.1	1.6	34.6	0.0	0.0
Sudan	443 422	85.4	0.0	5.5	47.0	38.3	2.2	5.9	4.3	0.0	0.0
Syria	811 095	78.9	0.1	4.6	19.5	1.3	6.9	7.7	22.0	0.0	0.0
Tunisia	944 523	73.6	0.2	3.0	40.9	24.2	0.4	4.4	7.1	3.1	0.1
Turkey	3 223 593	33.8	0.0	1.1	12.9	4.9	2.8	4.0	0.0	17.1	0.1
West Bank and Gaza	500 749	85.0	1.8	7.1	23.1	1.8	6.1	17.8	5.9	0.0	0.0
Yemen	893 075	84.1	9.1	10.1	32.8	17.4	7.3	5.6	13.1	0.0	0.0
<b>NENA13</b>	<b>16 826 242</b>	<b>71.9</b>	<b>2.7</b>	<b>7.4</b>	<b>29.5</b>	<b>16.9</b>	<b>2.1</b>	<b>7.2</b>	<b>5.9</b>	<b>3.9</b>	<b>0.1</b>

Source: Based on trade values from FAO (2005a).

<sup>a</sup> FAO defines imports to include food aid. FAO statistics on food aid indicate that, over the period 2000-04, the proportion of wheat imports that are in the form of food aid has been 5-10% for the Sudan and Yemen and close to zero for Somalia.

<sup>b</sup> Statistics for Somalia are for 1997-99.

**TABLE 3-12**  
Structure of agricultural exports, 2001-03 average

	Share in agricultural exports										
	Total agriculture exports <sup>a</sup>	Food and animals	Meat and meat products	Dairy and eggs	Cereals	Wheat	Rice	Fruit and vegetables	Sugar (raw equivalent)	Cotton lint	Olive oil
	(US\$ '000s)	(%)									
Algeria	39 167	58.3	0.1	2.0	0.1	0.0	0.0	45.4	0.0	0.0	0.1
Djibouti	10 565	91.6	0.0	3.2	52.0	43.4	5.9	8.0	2.7	0.0	0.0
Egypt	777 612	53.0	0.2	1.7	17.3	0.0	16.7	24.2	1.5	37.8	0.1
Jordan	389 514	66.5	1.7	11.3	0.6	0.0	0.3	38.9	0.2	0.0	0.5
Lebanon	195 835	66.6	1.3	1.5	1.8	0.0	0.9	38.5	0.9	0.0	1.1
Morocco	834 636	88.2	0.0	4.0	4.1	0.4	0.0	74.1	0.0	0.0	0.4
Somalia <sup>a</sup>	162 542	99.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.0
Sudan	347 829	47.2	3.8	0.0	1.3	0.0	0.0	6.7	5.5	15.3	0.0
Syria	771 701	67.7	0.0	1.2	13.9	11.7	0.0	23.3	0.0	23.7	2.4
Tunisia	438 317	53.5	0.2	2.0	6.2	0.0	0.0	25.8	0.0	0.0	20.4
Turkey	4 133 669	78.6	0.4	0.8	3.9	1.2	0.0	53.4	2.4	1.5	2.8
West Bank and Gaza	61 036	88.6	1.1	3.7	2.7	0.2	0.6	62.8	1.3	0.0	1.9
Yemen	87 279	68.8	0.0	3.7	3.1	0.5	0.0	31.5	0.2	1.2	0.0
<b>NENA13</b>	<b>8 249 702</b>	<b>72.9</b>	<b>0.5</b>	<b>1.8</b>	<b>5.9</b>	<b>1.8</b>	<b>1.6</b>	<b>44.1</b>	<b>1.6</b>	<b>7.2</b>	<b>2.8</b>

Source: Based on trade values from FAO (2005a).

<sup>a</sup> Statistics for Somalia are for 1997-99.

generated by various international organizations between 1988 and 1998, including the United Nations Conference on Trade and Development, OECD, the World Bank and the International Monetary Fund, summarized in Oliva (2000, Table 1). The organizations rank Egypt, Morocco and Tunisia as more often restrictive than not, but the rankings differ among the studies. There is less consistency on Jordan and Syria, which appear restrictive in some studies (the ranking of the International Monetary Fund and Oliva's own index in the case of Syria) and open in others (the ranking according to the United Nations Conference on Trade and Development). In all the studies that include it, Djibouti is consistently ranked least restrictive. Zarrouk and Zallio (2000) argue that industrial strategies founded on import substitution and a large public sector have led to high protection in NENA13 countries and that governments have ended up relying on import duties as a main source of revenues.

**TABLE 3-13**  
Applied global and sector-level protection in NENA13 countries

Regions	Countries	Level of Protection			Ratio (2)/(3)	Agriculture is more protected (Ratio>1.4)
		Overall (1) (%)	Agriculture (2) (%)	Industry (3) (%)		
NENA13	Algeria	14	20	13	1.48	yes
	Egypt	29	16	30	0.55	no
	Jordan	11	18	10	1.74	yes
	Lebanon	4	9	3	2.92	yes
	Morocco	21	43	19	2.32	yes
	Sudan	19	26	18	1.45	yes
	Syria	16	16	16	1.00	no
	Tunisia	20	56	17	3.37	yes
	Turkey	6	41	3	14.57	yes
	Yemen	12	11	12	0.96	no
	<b>Average</b>	<b>13</b>	<b>32</b>	<b>12</b>	<b>2.74</b>	<b>yes</b>
OECD	Australia	5	3	5	0.58	no
	Canada	3	13	3	5.17	yes
	EU15	3	15	2	7.02	yes
	Japan	4	32	1	23.40	yes
	Switzerland	5	37	2	23.81	yes
	United States	2	5	2	2.14	yes
		<b>Developed country average</b>	<b>4</b>	<b>21</b>	<b>3</b>	<b>7.79</b>
Others	Argentina	12	12	12	1.00	no
	Brazil	12	11	12	0.96	no
	China	14	26	13	2.01	yes
	India	33	61	30	2.05	yes
	Pakistan	18	29	17	1.71	yes
	South Africa	8	19	7	2.71	yes
	Bangladesh	17	22	16	1.40	no
	Cambodia	15	14	15	0.97	no
	Chad	16	22	14	1.53	yes
	Ethiopia	14	18	13	1.36	no
	Lesotho	8	22	6	3.94	yes
	Madagascar	4	5	4	1.26	no
		<b>Developing country average</b>	<b>10</b>	<b>22</b>	<b>8</b>	<b>2.69</b>
	<b>LDC average</b>	<b>12</b>	<b>17</b>	<b>11</b>	<b>1.48</b>	<b>yes</b>

Source: CEPII (2005).

Table 3-13, which classifies countries as protectors of agriculture if the ratio of the level of agricultural protection to industrial protection is at least 1.4, shows that, on average, countries protect agriculture more than industry and that developed countries do this much more often than developing countries. NENA13 countries, led by Turkey, have, on average, a slightly higher ratio (2.74) than do other developing countries (2.69) and a much higher ratio than the ratio in LDCs.

This is in contrast with the findings on 18 developing countries summarized in Schiff and Valdes (1992, Table 1) that illustrate the bias against agriculture emanating from agricultural sector policies (direct effects) and from industrial protection and macroeconomic policies (indirect effects). Considering only the direct effects, one sees that taxation on agriculture was 25% in Egypt over the period 1964-84 and 15% in Morocco over the same period.<sup>9</sup> In Turkey, agricultural policies resulted in an average of 5% protection over the period 1961-83.

Since the structural adjustment programmes and accession to WTO, which curtailed industrial protection, the average global tariff has decreased (WTO 2002), but agriculture protection has been reduced at a much slower pace. By 2001, seven of the ten NENA13 countries included in the MACMap database were protecting agriculture more than industry: for example, 41% versus 3% in Turkey, 56% versus 17% in Tunisia and 43% versus 19% in Morocco. Bayar (2001) finds similar rates for Turkey, slightly above 3% for industrial tariff (a consequence of the Customs Union with the EU and implementation of the Uruguay Round reduction) and 41% for agriculture (which has been left out of the Custom Union between the EU and Turkey and is lagging in multilateral negotiations). Egypt, Syria and Yemen are classified as non-protectors of agriculture, with a ratio equal to or below 1.00 (Table 3-13).

Agricultural protection in NENA13 countries also varies relative to trading partners. NENA13 countries impose an average agricultural tariff rate on imports from NENA13 countries, 31%, that is nearly equal to the average tariff on the rest of the world, 32% (ROW in Table 3-14). Conversely, the tariff faced by the exports of NENA13 countries to other NENA13 countries, 31%, is higher, on average, than the tariffs faced by exports to other country groups: 12% to developed countries, 20% to developing countries and 22% to LDCs. In spite of the various regional agreements among Arab countries, regional integration among NENA13 countries has been limited.

Within the NENA13 region, a few patterns emerge for agriculture: Tunisia and Turkey have the highest protection rates on goods imported from other NENA13 countries, 72% and 41%, respectively. They also face the highest rate of protection from NENA13 countries, 36% in both cases. Finally, they discriminate most against each other: Tunisia imposes a 97% tariff rate on imports from Turkey, and Turkey imposes a 60% rate on imports from Tunisia. These average high tariffs may fall because the two countries signed an FTA in 2004. The average tariff is zero between Algeria and Morocco due to bilateral agreements between the two countries (Bouet 2006b). Djibouti and the Sudan face the lowest protection from other NENA13 countries, 4 and 20%, on average, respectively (Table 3-14).

In general, NENA13 countries face higher protection from Asian middle-income countries such as China, India and Pakistan (21, 42 and 25%, respectively) than from OECD countries (12% on average). Among OECD countries, Japan and Switzerland have the highest tariff rates, on average, especially with respect to imports from Egypt (60 and 68%, respectively) and from Jordan, which faces a 120% tariff rate in Switzerland. NENA13 countries face lower tariffs with respect to the EU15<sup>10</sup> and the United States. The rates are particularly low or zero in the case of LDCs due to the Generalized System of Preferences accorded to them. Yet, although it entered into an FTA with the EU15 in 1998, Tunisia faces a 26% tariff rate on exports to the EU15, higher than the union's average tariff of 6% for imports from the NENA13 countries and 16% on imports from the rest of the world. This is also true, though to a lesser extent, for Egypt and Jordan, although their FTAs with the EU15, as of 2004 and 2002, respectively, would not be registered in the 2001 protection rates (Table 3-14).

9/ To maintain consistency in comparing the results of Schiff and Valdes (1992) and the MACMap database, we do not include the indirect effect part of the tax on agriculture from the former study.

10/ The EU15 refers to the 15 members of the European Union prior to the accession of ten candidate countries on 1 May 2004. The EU15 includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.

**TABLE 3-14**  
Applied bilateral protection on agriculture, 2001

Importers		Exporters												NENA13 average	Rest of world average
Regions	Countries	Algeria	Djibouti	Egypt	Jordan	Lebanon	Morocco	Somalia	Sudan	Syria	Tunisia	Turkey	Yemen		
(%)															
NENA13	Algeria	-	24	15	29	26	0	20	11	20	28	23	30	21	2
	Egypt	26	0	-	13	14	10	15	0	9	10	25	12	18	16
	Jordan	18	6	6	-	13	8	17	3	9	11	21	11	15	18
	Lebanon	6	5	6	26	-	4	5	1	3	7	16	3	11	9
	Morocco	0	35	40	24	21	-	41	26	22	24	45	22	37	43
	Sudan	35	0	0	17	21	21	25	-	12	19	22	16	16	26
	Syria	16	14	19	21	28	15	8	5	-	25	22	11	21	16
	Tunisia	93	27	29	63	54	39	37	20	55	-	97	22	72	56
	Turkey	24	8	32	39	34	53	40	35	33	60	-	44	41	41
	Yemen	25	8	4	7	8	7	5	4	6	6	10	-	7	12
	<b>Average</b>	<b>27</b>	<b>4</b>	<b>23</b>	<b>32</b>	<b>29</b>	<b>28</b>	<b>25</b>	<b>20</b>	<b>26</b>	<b>36</b>	<b>36</b>	<b>27</b>	<b>31</b>	<b>32</b>
OECD	Australia	6	1	4	1	5	1	0	3	1	2	5	0	3	3
	Canada	5	1	4	10	8	2	0	0	3	3	4	4	3	13
	EU15	3	0	13	16	9	4	0	4	8	26	4	0	6	16
	Japan	9	14	60	7	20	8	4	21	16	5	11	12	13	32
	Switzerland	11	7	68	120	28	23	1	14	31	5	13	16	21	37
	United States	8	0	4	0	5	2	0	5	3	3	4	1	3	5
	<b>Developed country average</b>	<b>9</b>	<b>6</b>	<b>26</b>	<b>21</b>	<b>23</b>	<b>9</b>	<b>5</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>12</b>	<b>11</b>	<b>12</b>	<b>21</b>
Other	Argentina	12	7	13	9	14	13	3	5	6	12	14	12	11	13
	Brazil	13	5	14	13	13	15	11	6	10	14	13	11	13	11
	China	27	7	13	23	24	23	14	10	17	32	23	18	21	26
	India	41	13	48	39	57	39	31	31	38	36	46	45	42	61
	Pakistan	31	5	17	30	26	25	9	13	14	20	20	15	25	29
	South Africa	5	2	11	10	11	8	2	12	5	9	15	16	11	20
	Bangladesh	19	2	14	19	32	28	21	26	25	24	24	29	22	22
	Cambodia	7	12	10	18	23	15	16	10	11	21	11	18	15	14
	Chad	30	23	22	26	28	29	15	21	24	29	22	23	24	22
	Ethiopia	20	16	9	28	32	34	7	6	22	29	21	27	20	18
	Lesotho	4	4	16	14	14	15	0	11	9	21	25	10	17	22
	Madagascar	10	0	0	7	9	6	2	0	5	5	5	8	4	5
	<b>Developing country average</b>	<b>21</b>	<b>31</b>	<b>21</b>	<b>30</b>	<b>25</b>	<b>19</b>	<b>8</b>	<b>14</b>	<b>12</b>	<b>21</b>	<b>21</b>	<b>22</b>	<b>20</b>	<b>22</b>
	<b>LDC average</b>	<b>17</b>	<b>12</b>	<b>11</b>	<b>49</b>	<b>22</b>	<b>22</b>	<b>9</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>18</b>	<b>20</b>	<b>22</b>	<b>17</b>

Source: CEPII (2005).

**TABLE 3-15**  
Applied protection rates for selected commodities, 2001

	Total agriculture	Livestock	Meat	Dairy	Wheat	Milled rice	Other cereals	Fruit and vegetables	Sugar (raw equivalent)	Sugar (semi-processed)	Cotton	Olive oil	Fishing
(%)													
Algeria	20	13	28	14	3	5	13	24	18	20	30	30	29
Egypt	16	6	11	16	1	20	2	23	20	8	54	12	22
Jordan	18	3	12	10	0	5	4	20	30	13	10	30	25
Lebanon	9	0	5	11	0	5	0	38	5	5	0	69	5
Morocco	43	226	161	86	29	140	19	45	32	35	33	54	48
Sudan	26	24	32	36	22	0	20	32	23	15	25	43	41
Syria	16	2	8	12	1	7	1	24	7	12	30	12	11
Tunisia	56	51	92	64	90	25	22	152	85	18	31	156	41
Turkey	41	89	166	103	27	35	51	45	22	112	5	36	42
Yemen	11	10	12	9	5	5	15	17	15	5	10	11	24
EU15	22	34	63	43	1	138	24	20	55	125	5	71	6
United States	5	0	3	19	2	5	1	3	0	35	14	1	0
Rest of world	19	14	27	37	19	71	35	18	10	40	13	6	7

Source: CEPII (2005).

The NENA13 countries with the highest average tariff rates also have very high tariffs on selected commodities: Morocco has a 226% tariff on livestock, 161% on meat and 140% on rice. Tunisia protects fruits and vegetables at an average tariff of 152% and olive oil at 156%. Turkey has a 166% average tariff rate on meat, 103% on dairy and 112% on sugar. Algeria has a more evenly distributed protection pattern and lower rates, as does Egypt, except for cotton, which has a tariff rate of 54%. Fruit and vegetables and olive oil, the main export sectors in the NENA13 countries, are consistently protected (Table 3-15).

Among the protection instruments used by NENA13 countries, in addition to standard tariffs, are para-tariff measures (custom surcharges, additional taxes and surcharges, stamp taxes, statistics taxes, and sales taxes levied on imports) and non-tariff barriers (quantitative restrictions and technical requirements). In 1994, 23% of the total custom value in Egypt came through customs clearance charges. Algeria imposed, on average, 64% specific additional taxes on imports in 1998. In 1996, the custom clearance tax of 6.7% on Sudanese imports was higher than the most favoured nation average tariff rate of 5.4% (Oliva 2000). These measures are not included in the protection indicators presented in this section and would not be addressed directly by trade policy reforms. Yet, they represent institutional constraints that would lower the ability of NENA13 countries to benefit fully from trade liberalization.

Trade reform is sometimes seen as an area where the NENA13 countries have made progress, especially in dismantling non-tariff barriers. Yet, despite these initiatives, some countries, such as Egypt, Morocco and Tunisia, registered a high overall trade restrictive index in 2001 of 44, 25.4 and 24.9, respectively, compared to an average of 10.7 for other developing countries. The index nearly doubles for Morocco when non-tariff barriers are included in the measure (World Bank 2005d). In the case of Egypt, recent reforms are not reflected in the index. Since the swearing in of a new cabinet in July 2004, Egypt has reduced tariff bands, annulled import fees and surcharges incompatible with the old General Agreement on Tariffs and Trade (GATT) and made drastic cuts in tariff rates on most imports. Consequently, Egypt's simple average tariff declined by half between 2000 and 2004, to 20% (World Bank 2005d).

The progress (or lack thereof) towards trade openness in the region is captured in the World Bank's structural reform indicators (World Bank 2005d). These indicators are used to rank countries with respect to the restrictiveness of their current trade policies and to the progress they have made in trade reforms over 2000-04. Algeria, Morocco and Tunisia are among the 5% of countries with the most restrictive trade policies, but the reform progress indicators of 66, 49 and 49 for these countries, respectively, indicate sizable improvement (100 reflecting the country with greatest improvement).<sup>11</sup> Still, the countries with a higher ranking in terms of trade openness, such as Egypt (60) and Lebanon (81), also exhibit the highest reform progress ranking, 100 and 87, respectively, implying more progress than 87% of the world's countries.

### 3.3 Trade agreements

Trade reform in NENA13 countries has been motivated in part by the region's participation in multilateral negotiations in the context of the WTO framework and in regional agreements under the EMP, or in the context of GAFTA, or the Mediterranean Arab Free Trade Area. In addition, as progressive steps to the US-Middle East Free Trade Area initiative, six NENA13 countries (Algeria, Egypt, Jordan, Morocco, Tunisia and Yemen) have entered into bilateral Trade and Investment Framework Agreements or FTAs with the United States. Trade and Investment Framework Agreements establish mechanisms to address bilateral commercial issues and are often a first step towards negotiating FTAs. Finally, NENA13 countries have entered into FTAs with each other (Table 3-16). In most cases, regional and bilateral trade accords are driven by political interests. For example, the creation of Associations Agreements within the EMP is seen as a key element in support of peace and stability in the region both for the security of the EU and to reduce the problem of illegal immigration (McQueen 2002). These agreements are usually limited by lack of coverage (agriculture and services, both crucial for NENA13 countries, are effectively excluded), by

11/ The trade reform index measures the change in country rank in a worldwide ranking of simple average tariffs in 2000 and 2004 (World Bank 2005d).

lack of depth (technical barriers to trade remain because of differences in regulatory requirements and the need to duplicate testing) and by restrictive rules of origin limiting the degree of effective market access (World Bank 2005d; Zarrouk and Zallio 2000).

### 3.3.1 The Uruguay Round under WTO

In 1947, the GATT was signed with the goal of reducing protectionism and discrimination in international trade. The agreement was followed by a series of rounds of international negotiations to reduce protectionism and other distortions in trade. These agreements have been successful in dramatically reducing the protection on manufactured goods; the average tariff fell from 38% in 1947 to only 4% in 1994. Because of a reluctance to extend trade liberalization to agriculture, however, the average agricultural tariff remained high, 60% in 1994 (Ingco and Nash 2004). The Uruguay Round, signed in 1994, established the WTO to monitor and enforce the trade agreements; it also included the URAA, which attempts to reduce agricultural protection, limit agricultural subsidies and make trade policy more transparent.

The URAA reduces agricultural protection through the following commitments:

- Quantitative restrictions (such as import quotas) and other non-tariff barriers (such as variable levies) were to be converted to tariffs or tariff rate quotas. An exception is sanitary and phytosanitary import requirements; these are regulated by the Agreement on the Application of Sanitary and Phytosanitary Measures, which also came out of the Uruguay Round.
- Each country sets a maximum (bound) tariff rate for each product. In industrialized countries, the bound tariff is the tariff equivalent of the earlier quantitative restrictions.
- Countries agree to reduce the bound tariff rate according to a specific schedule.
- Developing countries are given special and differential treatment. They are allowed to set bound tariffs above the tariff equivalent of the earlier quantitative restrictions. They have a longer schedule (ten years instead of six years) to implement the changes, and their tariff reductions are generally two thirds of those required of industrialized countries.

In order to reduce farm subsidies, the URAA defines different types of government spending on agriculture, as follows:

- Green box expenditures include agricultural research and extension, infrastructure, animal and plant health programmes, food safety programmes, disaster relief, anti-poverty feeding programmes and farm credit. These are not subject to limits by the URAA.
- Blue box expenditures include payments to farmers that are combined with supply controls and are based on production or planted area in a base period. These are not subject to limits by the URAA.
- Amber box expenditures include subsidies on agricultural inputs such as fertilizers and irrigation, as well as price supports for agricultural production. Under *de minimis* exemptions, product specific subsidies are permitted if they are less than 5% of the value of the output of the commodity, and non-product specific subsidies are permitted if they are less than 5% of the value of all agricultural output. The value of non-exempt amber box expenditures is called the aggregate measurement of support. Some 30 countries declared this support spending and made commitments to reduce it over 1995-2001.

Developing countries are given "special and differential treatment" in that their *de minimis* exemption is 10%, rather than 5%, and they have ten years (1995-2005) to reduce their aggregate measurement of support spending. In addition, the LDCs are not required to cap or reduce such support spending.

As noted previously, six NENA13 countries are members of the WTO. The most recent member is Jordan (2000). Four countries are in the process of accession: Algeria, Lebanon, the Sudan and Yemen (Table 3-16). As developing countries, NENA13 countries that are WTO members have been given greater flexibility under the URAA with regard to cutting their subsidies and lowering their tariffs: the average cuts for all agricultural products are two thirds the rates of developed countries. They were also given more time to meet their commitments: ten years from 1995 instead of six. LDCs are exempt from all URAA commitments.

**TABLE 3-16**  
Multilateral, regional and bilateral agreements

	WTO	EMP	US-MEFTA <sup>a</sup>	GAFTA	MAFTA <sup>b</sup>	Others
Algeria	Observer	2005	TIFA <sup>c</sup>			
Djibouti	Member					COMESA <sup>d</sup>
Egypt	Member	2004	TIFA	X	X	COMESA
Jordan	Member	2002	FTA	X	X	
Lebanon	Observer	Interim Accession Agreement		X		
Morocco	Member	2000	FTA	X	X	EFTA <sup>e</sup> (2004)
Somalia	Non-member			X		
Sudan	Observer			X		COMESA
Syria	Non-member	Candidate		X		
Tunisia	Member	1998	TIFA	X	X	EFTA (2004)
Turkey	Member	1998				
West Bank & Gaza	Non-member	Interim Accession Agreement		X		
Yemen	Observer		TIFA	X		

Sources: WTO (2005b) web site; Europa (2005); USTR (2006).

<sup>a</sup> MEFTA, Middle East Free Trade Area, includes other members such as Bahrain, Israel and Oman.

<sup>b</sup> MAFTA, Mediterranean Arab Free Trade Area.

<sup>c</sup> TIFA, Trade and Investment Framework Agreement; also FTA.

<sup>d</sup> COMESA, Common Market for Eastern and Southern Africa.

<sup>e</sup> EFTA, European Free Trade Association (Iceland, Lichtenstein, Norway and Switzerland).

For NENA13 countries, bound rates on agricultural products, on average, remain well above the duties applied to most favoured nations. For example, in 2005, Egypt's average bound rate in agriculture (excluding alcoholic beverages) was 27%, while its average applied most favoured nation tariff was 5.8% (WTO 2005c, Table III.1).<sup>12</sup> Within the framework of the WTO trade negotiations, large gaps between bound and most favoured nation tariffs may create uncertainty because countries could raise their protection to their higher bound rates. The gap between bound and applied tariffs is not large, on average, in Morocco, 60.4 and 53.2%, respectively (WTO 2003b, Table III.1), but, for some products, it can be quite large. For example, wheat has an average applied rate of 29% against a bound rate of 144% (Table 3-15; WTO 2003b, Table AIII.2). These large gaps for specific products are sometimes the result of tariff rate quotas whereby products may be subject to two tariffs: a lower one on import quantities within the quota and a much higher one on quantities above the quota. Morocco and Tunisia have 16 and 13 tariff rate quotas in their commitments, respectively (on cereals, meat, sugar and dairy).

### 3.3.2 The Doha Round under WTO

The Doha Round, launched in 2001, was supposed to reflect both the increased prominence of development concerns in WTO negotiations and the increased participation by developing countries in the trading system (World Bank 2002b). Specifically, the new round was to incorporate the negotiations on agriculture and services that started in 2000. But, originally targeted to conclude by January 2005, this new round has been marked by missed deadlines, failed discussions and inconclusive conferences (Pal and Prakash 2005). Ministerial meetings in Cancun (2003) and in Hong Kong (2005) saw few results in terms of achieving better market access for developing countries. Developing countries continue to complain that they still face exceptionally high tariffs, "tariff peaks", on selected products that are important for their exports (textiles, clothing, fish and fish products). They are also subject to tariff escalation, whereby an importing country protects its

12/ The rates quoted by WTO are different from the rates generated by the MAcMap database (Table 3-13) for several reasons. First, the MAcMap data set is for 2001, while WTO's rates are usually more recent. Second, WTO takes simple averages, while the MAcMap data set rates are obtained by applying weights that rely on the composition of the imports of a reference group of countries similar to the reporting country, taking into account preferential agreements. If the structure of the imports of the reference group shows very low levels of imports on products at the highest tariff rates, the weighted average would result in rates that are lower than the simple average (see details in Bouet et al. 2004, p. 23).

processing or manufacturing industries by setting lower duties on imports of raw materials and components and higher duties on finished products (WTO 2005d). This is especially important for NENA13 countries, which experience high levels of unemployment and would benefit from better market access for their processed products.

According to Hanrahan and Schnepf (2005), the US proposals in the Doha Round negotiations include:

- eliminate agricultural export subsidies;
- cut amber box ceilings by at least 60%;
- limit blue box expenditures to 2.5% of the value of production;
- reduce *de minimis* exemptions to 2.5% of the value of production;
- cut tariffs by 55-90%;
- set maximum agricultural tariffs at 75% (100% for developing countries); and
- limit “sensitive products” to 1% of tariff lines.

In contrast, the EU proposals include the following elements:

- eliminate agricultural export subsidies;
- reduce amber box ceilings by 60-70%;
- reduce *de minimis* exemptions to 1% of the value of production;
- tighten limits on blue box programmes;
- reduce tariffs 35-60%;
- limit sensitive products to 8% of tariff lines;
- establish new provisions to protect geographic indication labelling;
- implement smaller tariff cuts for developing countries; and
- eliminate tariff cuts for LDCs.

Increasingly, WTO member countries are forming groups and alliances within WTO to increase their bargaining power in negotiations. The G20, a group of developing countries that became active at the WTO meeting in Cancun, favours substantial reforms of developed country agricultural subsidies and protection. Other alliances, such as the G10 and the G33, have made separate proposals (Hanrahan and Schnepf 2005). Djibouti, Egypt, Morocco and Tunisia belong to the African group and the G90. Egypt and Morocco have submitted their own proposals arguing for the substantial and rapid dismantling of tariffs and the elimination of domestic support on the part of developed countries, more flexibility for developing countries that is consistent with their development needs and an increased level of technical and financial assistance to net food-importing developing countries and LDCs (WTO 2001a, 2001b).

### 3.3.3 The Euro-Mediterranean Partnership<sup>13</sup>

Apart from WTO, the EMP (or Barcelona Process) involves the largest number of NENA13 countries. It was signed on 28 November 1995 by the EU and 12 Mediterranean partner countries to create a framework for political, economic, cultural and social ties among the partners.<sup>14</sup> The main instruments of the EMP, the EMAAs, have replaced the cooperation agreements of the 1970s, which were characterized by non-reciprocal preferences accorded by the EU to developing countries (McQueen 2002). The EMAAs provide for the establishment of FTAs over a transitional period lasting a maximum of 12 years from the date of the entry into force of the agreements. An important element of these association agreements is trade liberalization in goods, services and capital. The main economic target is the creation of the EU-Mediterranean free trade area by 2010, which will constitute, when fully implemented, the world’s largest free trade area. By the end of 2005, one NENA13 country – Turkey – had formed a customs union with the EU, and five – Algeria, Egypt, Jordan, Morocco and Tunisia – had ratified Associations Agreements with the EU.<sup>15</sup>

13/ This section is based on Beuchelt (2005), unless otherwise indicated.

14/ The 12 Mediterranean countries include nine NENA13 countries and Cyprus, Israel and Malta.

15/ In the case of Turkey, the agreement is aimed towards the country’s future accession to the EU.

Syria is still in the process of ratification, and Lebanon and West Bank and Gaza have entered into an interim agreement for early implementation of trade measures while awaiting ratification (Table 3-16; see Panagariya 2002).<sup>16</sup>

EMAAs are based on reciprocal liberalization for industrial trade and eventual liberalization for agricultural and fisheries products. Measures to liberalize trade in manufactured products are well defined and adhere to fixed timetables. However, with regard to agriculture and services, measures are less clear and involve no specific schedule (McQueen 2002). Under the EMAAs, the EU has not offered significant new concessions to Mediterranean partner countries in terms of market access for their agricultural exports. By contrast, at the end of a fixed schedule for phasing out the tariffs on manufactured products, the EU will benefit from duty-free access to the partners' markets (GarciaAlvarez-Coque 2002). Reciprocity in industrial trade makes a substantial difference with respect to the earlier preferential agreements, increasing market access for European products. Agriculture remains an exception; this has limited the possible benefits for NENA13 countries, which, as exporters, find competing with European producers difficult given the high protection that the EU offers its agriculture. Furthermore, because of the high concentration among a few products in agricultural exports from NENA13 countries, if the EU blocks entry of a few commodities, this could be equivalent, for some countries, to blocking their total agricultural exports. While the EU absorbed nearly 46% (2001) of the agricultural exports of Mediterranean partner countries, these exports amount to only 2% of EU imports. That this share has not changed significantly since 1990, in spite of the partnership agreements, reflects the relative exclusion of agriculture (Radwan and Reiffers 2003).

Some analysts have questioned the benefits of the EMP for partner countries in the region. The agreements largely eliminate the tariffs on industrial goods exported from NENA to the EU, but the benefits may be modest because EU industrial tariffs are already low and because the manufacturing sector in the NENA countries may face difficulties competing in European markets. Furthermore, the agreements open NENA markets to the imports of manufactured goods from the EU. This may have negative effects on employment in local industries that are unable to compete with EU imports. Finally, reducing import tariffs in the NENA region means the loss of tariff revenue. During 1994-1996, import tax revenue from the EU as a share of fiscal revenue was 19.2% in Algeria, 8% in Egypt, 12% in Jordan, 29% in Lebanon, 10% in Morocco and nearly 16% in Tunisia (McQueen 2002; Garcia-Alvarez-Coque 2002). At the same time, it must be recognized that eliminating distortions caused by import barriers produces efficiency gains for the liberalizing country. In other words, the losses to producers and the government are outweighed by the gains to consumers who face lower prices. Most observers agree, however, that the EMP would be even more beneficial to partner countries if it included agricultural trade liberalization.

One reason for the slow progress in agricultural trade liberalization is the influence of southern European producers, who tend to lose the most from agricultural liberalization. These are among the poorer farmers of Europe, and they fear they will be squeezed out of the markets if the EU opens its agricultural markets further to Mediterranean partner countries.

Still, there seems to exist seasonal market windows for Mediterranean partner countries that are not competitive with EU production. In a study for the Forum Euro-Méditerranéen des Instituts Economiques Research, Muaz (2004) identifies five horticultural crops (green beans, grapes, melons, strawberries and dates) that could be produced and exported by the Mediterranean partners without competing with EU production seasons and enjoy a comparative advantage. The author predicts that the partner countries could fulfill unsatisfied EU demand for the above crops during the winter months. The study estimates that gains to the five countries from expanded grape exports could be US\$227 million, while expanded strawberry exports could generate benefits of US\$167 million. The export of dates would have the most positive impact on employment, generating 98,000 jobs in five countries: Egypt, Jordan, Lebanon, Syria, and the West Bank and Gaza.

16/ Interim agreements generally cover non-political aspects of trade and cooperation between the parties.

In the long run, most benefits from trade liberalization are expected to result from the domestic economic reforms encouraged by the EMAAs. Free trade areas have the potential to stimulate modernization and efficiency in the region. With services accounting for around 60% of GDP, the nine NENA13 countries in the EMP stand to make substantial gains from the gradual opening of the services sector and by attracting new investment. They will benefit even more if the negotiations not only open up trade with the EU, but also foster regional integration among the Mediterranean countries themselves. Trade among south Mediterranean countries accounts for less than 15% of the region's total trade. This is the lowest such rate in the world for any region of this size (Europa 2005).

### 3.3.4 The Everything But Arms Initiative

The Generalized System of Preferences was born as a result of years of discussion within the United Nations Conference on Trade and Development. It allows industrialized countries to grant autonomous and non-reciprocal trade preferences to all developing countries (Malvarosa 2002).<sup>17</sup> In the case of LDCs, the EU has extended the Generalized System of Preferences arrangements under the Everything But Arms Initiative. Under the initiative, the EU allows all products from LDCs to enter duty free into the EU. The initiative essentially added agricultural products to the previous Generalized System of Preferences, with three important exceptions, bananas, rice and sugar, which are to be given unlimited duty free access in January 2006, July 2009 and September 2009, respectively.<sup>18</sup> Sugar is potentially important to the Sudan, one of four LDCs in the NENA13 region that are beneficiaries of these preferences.<sup>19</sup>

### 3.3.5 The US-Middle East Free Trade Initiative

The US-Middle East Free Trade Initiative was proposed in May 2003 by the United States to increase trade and investment between Middle Eastern nations and the United States and others in the world economy. For some countries, Algeria, Lebanon and Yemen, the US's efforts consist in expediting their accession to the WTO. As a second step, the US may enter in Trade and Investment Framework Agreements, as is the case of Algeria, Egypt, Tunisia and Yemen. Finally, the process may result in FTAs. To date, only Jordan and Morocco have signed FTAs with the United States. But these countries represent marginal US trade partners. US exports to the Middle East and North Africa (MENA) region amounts to less than 2% of US total exports, and two thirds are directed to Egypt and Saudi Arabia (Peridy 2005). Exports to the US account for 14% of total exports for Algeria, 18% for Egypt, and 29% for Jordan. But the exports of Tunisia and Morocco to the US are only 1 and 4% of their exports, respectively (IMF 2005). These agreements are too recent to assess their impact, but they suffer some of the same limitations on agriculture liberalization as the EMP.

### 3.3.6 Trade agreements among NENA countries

Intraregional integration is very limited in spite of several attempts towards that end in the past 50 years (Zarrouk 1998; Khasawneh 2000). Among the various attempts at regional integration, the revived GAFIA (1997), ratified by 15 members of the Arab League, seemed to offer some hope of success where others have failed.<sup>20</sup> The programme has more specific commitments and schedules than its earlier version. For example, Arab countries agreed to cut customs tariffs and tariff-like

17/ To implement this system, an authorization (the enabling clause) was required under GATT rules allowing for an exception to the principle of most favoured nation treatment and establishing that a member cannot discriminate between imports from different sources; all are equally most favoured. (This principle was established in Article 1 of the GATT.) Under this framework, developed countries are authorized to establish individual Generalized Schemes of Tariff Preferences (Europa 2003).

18/ The European Commission committed to end the tariff quota regime for bananas by 1 January 2006. All non preferential suppliers would be subject to a most favoured nation tariff, whereas bananas from the African, Caribbean and Pacific Group of States (as well as bananas originating in the LDCs under the Everything But Arms Initiative) would continue to enter duty free. On 1 January 2006, with the change of the import regime, a reform of the banana Common Market Organization was launched. Honouring the agreement concluded in 2001 with the United States, and taking into account the results of arbitrations within the WTO, the EU substituted a tariff-only regime for the previous system of import quotas by region of origin. A €176 per t customs duty now applies uniformly to banana imports, except for a volume of 0.77 million t from the African, Caribbean and Pacific Group of States that can enter the EU duty free (Europa 2006).

19/ For a detailed discussion of EU preferential trade policies and developing countries, see Panagariya (2002).

20/ At present, 14 members of the Arab League are effective members of the free trade area and comply with total or partial procedures of adhesion. These are Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, the Libyan Arab Jamahiriya, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia and United Arab Emirates. Five countries are in progress of adhesion (Mauritania, Palestine, Somalia, the Sudan and Yemen), and three countries, namely, Algeria, Comoros and Djibouti, have not yet adhered (Malvarosa 2002).

charges by 10% per annum, to be completed by 2007 (Zarrouk 1998). But Khasawneh (2000) sees many potential problems in the agreement that may impair its success, including the potential abuse by member countries in claiming exceptions in the application of the lower tariffs and the removal of non-tariff barriers. For instance, in agriculture, the programme offers members the opportunity to suspend tariff reductions on some produce during peak harvest seasons. So far, ten GAFTA countries have submitted a list of 30 fruits and vegetables exempted from the programme (ERF 2000). Likewise, Lebanese olive oil producers, who have been highly protected until now, fear they will not be able to compete with other Arab countries because they have higher labour costs and smaller government subsidies on irrigation, mechanization, or spraying pesticides than producers in other Arab countries (Rasmussen 2004).

This new attempt at regional cooperation among Arab countries has been viewed as a measure to counteract the potentially adverse effects of the European initiative on intraregional trade among the member states of the Arab League (Zarrouk and Zallio 2000). Moreover, Mediterranean Arab countries, building on their relationship with the EU, have concluded a new generation of bilateral FTAs with one another. Four countries in the EMP – Jordan, Egypt, Morocco and Tunisia – have set up the Mediterranean Arab Free Trade Area. Egypt has signed bilateral FTAs with a number of other Arab countries (Jordan, Lebanon, Morocco and Tunisia). Bilateral FTAs have also been established between Morocco and Tunisia, Jordan and Tunisia, Jordan and Morocco, and Lebanon and Syria. Still, these agreements are seen as ineffective and not fully implemented, and they have shown limited results in terms of fostering intraregional trade. Some of the reasons are economic: Arab countries lack the incentives to integrate because they have similar production structures and impose high levels of protection on agriculture (Galal and Hoekman 2003).

### 3.4 Summary

In describing the agricultural trade patterns of the NENA13 countries, one notices some common patterns. Agricultural exports represent a relatively small share of total exports, exceeding 10% only in the Sudan. Wheat is a staple food and important import for many of the NENA13 countries. It represents more than 20% of the agricultural imports of Algeria, Egypt, Morocco, the Sudan and Tunisia. Most of the NENA13 countries are net food importers, the main exception being Turkey. Some countries in the region show relatively high levels of protection for farmers: Egypt, Morocco and Tunisia are among the 15 most protected economies, according to Bouet (2006a). The commodities that are the most protected in the region are wheat, sugar, dairy and livestock products. And, finally, the EU is the most important trading partner for most of the countries in the region.

The NENA countries have signed a series of multilateral, regional and bilateral trade agreements. The URAA imposes some commitments on member countries, including the conversion of quantitative restrictions into tariffs or tariff rate quotas, the binding of tariff rates, reduction in bound tariff rates by an average of 36% and reduction in trade-distorting measures of support to agriculture by 20%, on average. Developing countries have been given more modest targets for tariff rate reductions and more time to comply, while the LDCs are effectively exempted from most commitments under the URAA. The direct impact of these commitments on the NENA13 countries has been modest. Somalia, Syria, and West Bank and Gaza are not WTO members. Djibouti, the Sudan and Yemen, as LDCs, are exempt from most URAA commitments. For the remaining seven countries, the bound rates are often far above the applied tariff rates, particularly for agricultural products. Thus, commitments to reduce the bound rate have had little effect on the actual level of agricultural protection.

The EU has signed EMAAs with five NENA countries as part of the EMP, and three others are in the process of ratification. These EMAAs commit both parties to phase out almost all tariffs on manufactured goods, though the NENA countries have a longer period during which to comply. Although there are plans to incorporate agriculture at a later date, there are no firm targets or schedules for agricultural liberalization.

In 2001, the EU launched the Everything But Arms Initiative, under which the LDCs have duty-free access to EU markets for almost all goods. Within the NENA region, Djibouti, Somalia, the Sudan and Yemen can take advantage of the initiative's provisions. Bananas, rice and sugar were temporarily exempted, and duty-free access was delayed until January 2006, July 2009 and September 2009, respectively.

As part of the US-Middle East Free Trade Initiative, the United States has signed bilateral FTAs with Jordan and Morocco and intermediate agreements with four other NENA countries. The effect of the US-Jordan FTA will be small because Jordan's level of protection is already low and because US-Jordan trade is small. The effect of the US-Morocco FTA will be larger because Moroccan trade barriers are higher. Of particular importance, Morocco's wheat tariffs will be phased out over ten years.

Under the US African Growth and Opportunity Act, sub-Saharan African countries that meet certain criteria in human rights, reducing corruption and combating terrorism will have free access to US markets. Djibouti qualifies, but its exports to the United States are negligible. The other sub-Saharan African countries in the NENA13 (Somalia, the Sudan and Yemen) do not qualify.

A number of bilateral and regional agreements within the NENA region have been signed, but their effectiveness has been limited by the structural similarities of the NENA economies and the granting of exceptions for sensitive products. Nonetheless, a number of NENA countries, most notably Egypt and Tunisia, have reduced tariff barriers unilaterally in recent years. In other words, trade liberalization does occur outside the context of global, regional and bilateral trade agreements.

# 4

## Impact of Trade Liberalization

In this chapter, we examine the evidence regarding the impact of trade liberalization on the NENA13 countries, with particular emphasis on small farmers in these countries. The effect of changes in trade policy on a given country can be divided into two components. First, the “terms-of-trade effect” refers to the gains or losses associated with changes in world prices as a result of the policy. Most countries are too small for their trade policy to have a noticeable effect on world prices, but global trade agreements can significantly influence world prices. Second, the “efficiency effect” refers to gains or losses associated with removing distortions in the country’s own market. Unless there are significant externalities, a reduction in market distortions generally has positive efficiency effects. In other words, domestic market liberalization, to the extent that it reduces distortions in the economy, will generate more benefits than costs on aggregate.

This view of trade liberalization differs considerably from the perspective of trade negotiators, for whom the goal is often to maximize access to the export markets in other countries, while minimizing access to markets in their own countries. Within this view, tariff reductions in one’s own country are unfortunate concessions that must be made to achieve tariff reduction in export markets. Because it attempts to maximize exports and minimize imports, the approach is essentially mercantilist. This perspective is often attributed to the greater political influence of producers who compete with imports relative to consumers who would gain from lower prices. However, it probably reflects the opinions of most people, for whom the negative effects of import competition are more visible than the benefits of lower prices to consumers.

This chapter is divided into two sections. The first section summarizes studies that assess the impact of global trade liberalization on agricultural markets. This information is important in understanding the direction and size of the terms-of-trade effect. We focus on a few commodities for which the markets are more distorted by import barriers and production subsidies. The second section provides a selective review of studies that evaluate the impact of trade liberalization on the NENA13 countries. These studies consider the impact of global trade liberalization in the context of WTO, regional trade liberalization, bilateral trade liberalization with the US and the EU and unilateral liberalization by NENA countries.

## **4.1 Effects of trade liberalization on world agricultural markets**

In this section, we review policies that distort the global markets for five agricultural commodities (wheat, rice, sugar, cotton, and dairy products), as well as estimates of the impact that global trade liberalization would have on the related prices. As mentioned above, this information sheds light on the direction and size of the terms-of-trade effects that global trade liberalization would have on the NENA13 countries.

### **4.1.1 Wheat**

Wheat provides nearly one fifth of the world’s calorie supply. More than 18% of the global demand for wheat is met through international trade, mostly as exports from the OECD countries to developing countries. Nearly 30% of wheat production is also stored as a buffer against production shortages (Mitchell and Mielke 2004).

The major exporters are the United States (24%), Canada, Australia, the EU25 and Argentina; these last together account for more than 75% of world wheat exports. The 11 largest importing countries account for half of the net imports. More than 60% of net wheat trade is destined for North Africa, the Middle East, or Eastern Asia (HGCA 2005). China’s imports nearly doubled in 2004-05 relative to previous years to almost 7 million t as the Chinese Government decided to import to limit stock reductions. Algeria and Egypt are among the world’s largest importers, at 5 million and 4 million t in 2004-05, respectively (FAO 2005b).

Since 2000, wheat exporters such as the EU and the US have largely eliminated export subsidies under the URAA, but continue to provide support to domestic production through programmes that include marketing assistance loan payments, direct and countercyclical payments, crop insurance and surplus disposal programmes for export assistance (Vocke, Allen and Ali 2005). The OECD countries support for wheat, as measured through producer support estimates, averaged 35% of the value of production (2002-04), amounting to nearly US\$17 billion of income transfers to producers (OECD 2005a).

Among importing countries, most favoured nation tariffs can be set high, and bound tariffs even higher, especially when these result from tariff rate quotas. Bound tariffs are especially high for Japan (414% out-of-quota and 249% in-quota), Morocco (198% out-of-quota and 144% in-quota) and Colombia (130% out-of-quota and 124% in-quota). However, regional trading agreements have resulted in preferential tariffs. The EU, for example, enjoys a preferential tariff on its wheat exports to Morocco of 2.5% compared to an average applied tariff of 29% (MAcMap-Hs6 database). Similarly, Canada and the United States receive preferential treatment from Mexico under the North American Free Trade Agreement, with tariffs of 4.5% instead of an average applied tariff of 28% (Mitchell and Mielke 2004). Japan is the highest protector of wheat; it shows an average applied tariff of 186% (MAcMap-HS6 database). Several kinds of non-tariff barriers have also been administered by governments, such as import licenses, quantity and quality restrictions, state trading and bureaucratic red-tape, to control wheat imports (Mitchell and Mielke 2004).

Among studies that have estimated the effects of trade and domestic reforms on the world price of wheat, a few have tried to isolate the impact of domestic support granted to producers in developed countries from full trade liberalization scenarios, including border measures. The removal of all distortions (full liberalization) leads to increases in wheat prices ranging from 4.8% (FAPRI 2002) to 18.1% (USDA 2001). But the studies show different outcomes when estimating the role of domestic support. The Food and Agricultural Policy Research Institute study (FAPRI 2002) shows that the increase in wheat prices would be 7.6% higher under a tariff-removal-only scenario than under a full liberalization scenario. The difference reflects the effect of domestic support policies such as set-aside programmes in the EU and the US, which, when removed, result in a substantial increase in production and exports (7.9% compared to 5% under the tariff-removal-only scenario), dampening the price effect. Conversely, in the US Department of Agriculture study (USDA 2001), the increase in wheat prices resulting from the elimination of OECD domestic policies (12%) is larger than the price effect from the elimination of tariffs (3.4%).

Poonyth and Sharma (2003) simulate three trade liberalization scenarios based on the Harbinson modalities and the EU and US proposals presented at the WTO negotiations during 1999-2002. All simulations lead to price increases in the world market price of wheat. The proposal of the United States, which differs from the other two in suggesting cuts on applied tariffs instead of bound tariffs, leads to the highest increase (12%).

#### 4.1.2 Rice

Rice is one of the most important food grains, accounting for 20% of caloric intake overall and 29% among low-income countries. However, only a small share of rice production (less than 7%) is traded internationally (Wailes 2004). Unlike wheat and other commodities for which most of the distortion in world markets is attributed to the policies of high-income countries, rice is protected in both developed and developing countries. Perhaps because it is an important source of income for many farmers in developing countries, rice is one of the most protected agricultural commodities. According to Bouet (2006a), the average level of protection on rice is over 70%, the highest of the nine commodities analysed.

The leading rice exporters are Thailand, India, Vietnam and the United States. Thailand has a loan programme that provided a 10% support price in 2002. India, the second largest producer and consumer of rice in the world, has a large government procurement and distribution system, as well as price supports and export subsidies. Vietnam has a largely market-driven rice sector, although state enterprises play an important role in processing and exporting rice. The United States provides price support to its rice farmers through a combination of fixed direct payments (decoupled from current production) and a countercyclical payment. According to OECD, these policies provide a producer subsidy equivalent of 50% of the value of production, while the nominal protection is 77%. China has a government procurement system that strongly supported the price of rice in the 1990s. After accumulating large stocks in the late 1990s, China has reduced the level of support and disposed of its stocks.

Most of the major rice importers use various measures to limit rice imports. Indonesia, the largest rice importer, uses a state trading enterprise, BULOG, to support the domestic price, assisted by import tariffs of around 36%. Nigeria maintains an import tariff of 50%. The EU recently

switched from a variable levy to an import tariff that varies between 46% and 146%, depending on the type of rice. To comply with the URAA, Japan and the Republic of Korea no longer ban the importation of rice, but Japan maintains a tariff rate quota with a prohibitively high out-of-quota tariff, while Korea has a quota of about 200,000 t, a small fraction of consumption (Wailes 2004).

What is the effect of these policies on the world price of rice? Some models project relatively small increases in rice prices. For example, Bouet (2006a) and Tokarick (2005) project that full trade liberalization would increase world rice prices by only 2-3%. On the other hand, the US Department of Agriculture (USDA 2001) estimates that rice prices would rise by about 10%. Wailes (2004) presents the results from two models. A static partial equilibrium model of rice markets that is highly disaggregated by type of rice projects that full trade liberalization would increase the price of long grain rice by 2%, on average, and that of medium- and short-grain rice by a full 90%. The weighted average price increase according to this model is 33%. The second model is less disaggregated by type of rice, but includes dynamic effects. According to this model, full trade liberalization would increase rice prices by 25-35%.

#### 4.1.3 Sugar

The market for sugar is one of the most distorted in the world. According to Bouet (2006a), the average level of protection for sugar is over 50%, the second highest level among nine major agricultural product categories after rice. The OECD countries provided about US\$5.3 billion in support to sugar farmers in their countries. Much of this support was provided by the EU, Japan and the United States. In 2002, the United States maintained a tariff rate quota of 1.3 million t, restricting imports enough to make domestic prices twice as high as the international price. Forty-two countries are given quotas to export sugar to the US, but US imports are only a fraction of what the US would import without import restrictions. The support given to US sugar cane producers was US\$1.2 billion in 2002.

The EU also maintains a tariff rate quota, with a large (€98 per t) in-quota tariff and a prohibitive (€339 per t) out-of-quota tariff. The quota of 1.3 million t is reserved for the African, Caribbean and Pacific Group of States, consisting mainly of former European colonies in sub-Saharan Africa, the Caribbean and the Pacific. Annual support for sugar producers (largely sugar beet growers) in the EU was estimated at US\$2.4 billion in 2002, reducing the difference between the in-quota tariffs and the out-of-quota tariffs, thus eroding the preferences of the African, Caribbean and Pacific Group of States (El-Obeid and Beghin 2005).

Japan uses a specific tariff to limit sugar imports and protect its farmers. The support given to Japanese farmers is roughly US\$400 million. Many developing countries also have high levels of protection for local farmers. China, India, Mexico, the Philippines, Thailand and Turkey all have high tariff barriers that protect domestic farmers from import competition. A few countries also maintain production quotas or consumer subsidies, but these measures are less common. Egypt and Morocco are two of the few countries that have programmes to subsidize sugar for consumers.

A number of studies have estimated the impact of trade liberalization on the world sugar market. The Food and Agricultural Policy Research Institute carried out a study of sugar liberalization using a non-spatial partial equilibrium econometric model of the world sugar market with 29 countries and regions (El-Obeid and Beghin 2005). According to this model, the removal of all trade restrictions (including tariffs, tariff rate quotas and state trading) would increase the world price of sugar by 27% at the end of the nine-year simulation period. When the removal of all production support is included, the world price rises 48% compared to the base scenario. The EU is changed from a net exporter to a net importer of sugar, while Brazil, Cuba and (to a lesser degree) Australia expand net exports.

These sugar price increases are fairly typical of the results from other partial equilibrium models. On the other hand, the results from CGE models tend to indicate that trade liberalization has smaller effects on world sugar prices. For example, Bouet (2006a) simulates the impact of full global trade liberalization by using the MIRAGE CGE model, which represents 20 countries and regions of the world, including 14 developing countries and regions. In this simulation, trade liberalization causes sugar prices to rise by only 2%.

#### 4.1.4 Cotton<sup>21</sup>

Cotton prices slid from a peak in 1995 until 2001, but they have partially rebounded since then. The long-term trend is affected by competition with synthetic fibres, which increased their share of the textile fibre market from 48% in 1995 to 55% in 1999. In addition, the global recession of 2001-02 depressed cotton prices further because textile demand is more income elastic than is the demand for grains.

In addition to stagnant demand, cotton prices have been pushed down by increased government support for cotton growers. The International Cotton Advisory Committee estimates that worldwide direct assistance to cotton growers was US\$4.9 billion in 2001/02. Of this amount, the United States accounted for US\$2.3 billion, equivalent to US\$0.24 per lb of cotton produced. Other sources, using a broader definition of assistance, estimate that the US Government provides US\$3.9 billion to the cotton sector (Oxfam 2002). US cotton policy consists of various programmes, including two (the marketing loan programme and loan deficiency payments) that ensure that farmers receive at least US\$0.52 per lb. This has the effect of insulating US farmers from falling world prices. In 2001, in spite of low world prices, the United States posted record cotton production and near-record export volumes.

The 2002 Farm Bill introduced target prices for the major commodities and programmes that effectively pay farmers most of the difference between market prices and the target price. For upland cotton, the target price is US\$0.72 per lb. In addition, by allowing farmers to update their “base acreage”, the new policy provides incentives for farmers to expand production.

China is the second largest provider of subsidies to local cotton growers. Until recently, it maintained a reference price about 20% above the international price at a cost of US\$1.2 billion, or US\$0.10 per lb. To reduce cotton stocks, which reached 120% of consumption in 1998, China began to subsidize exports and effectively banned imports.

The EU spends US\$700 million to provide generous support (over US\$0.50 per lb) to small numbers of cotton growers in Greece and Spain, while India spends US\$500 million on cotton subsidies. Other cotton producers, such as Benin, Brazil, Egypt, Mali and Turkey, also provide subsidies to farmers, totaling US\$211 million (4% of the world total), but the per-unit values are generally less than US\$0.10 per lb (ICAC 2002).

Several recent studies have attempted to assess the impact of these subsidies on world prices. The Centre for International Economics, in Canberra, uses a five-region world model of fibre, textile and garment markets in 2000-01 to simulate the impact of US and European subsidies on cotton production and exports. They find that removing US and European subsidies to cotton growers would raise the world cotton price by 11%. Removing import restrictions on textiles and clothing would independently raise cotton prices by 2% (CIE 2001). Another study, carried out by the International Cotton Advisory Committee (ICAC 2002), estimates that the impact of removing US cotton subsidies would have increased the world price by 20% in 2001/02. Removing all cotton subsidies worldwide would have raised the world price by over 50%. Finally, a study by Sumner (2003) carried out the most up-to-date and perhaps the most detailed simulation of the impact of US cotton subsidies. His model incorporates 11 commodities and 24 regions of the world, and it simulates the effects of six programmes that support US cotton producers. He estimates that, over the marketing years 1999-2002, US subsidies depressed the world cotton price by 12.6%.

#### 4.1.5 Dairy products

Dairy products are not, in general, widely traded: only 7% of global demand is met through international trade. Virtually all the trade in dairy products involves butter, cheese and dried milk. Australia, the EU and New Zealand are the dominant exporters of dairy products, while Canada, Japan and the United States are net importers of dairy products.

21/ This section borrows from Minot and Daniels (2005).

Dairy markets are highly protected through a combination of import restrictions (such as tariff and tariff rate quotas), consumer subsidies and, in the case of a few developed countries, income and price supports, export subsidies and milk production quotas to limit supply. Average bound tariffs for dairy remain among the highest for all agricultural commodities (Blayney and Gehlhar 2005). The OECD countries average support for the milk sector, as measured through producer support estimates, amounted to 42% of the value of production in 2002-04, representing US\$40 billion in income transfers to producers. The protection rates presented in Table 12 of the MACMap dataset shows estimates of applied average rates of 43% for the EU and 19% for the US. Support for dairy producers makes up a large share of the aggregate domestic support in some countries: 84% in Canada, 55% in the United States and 12% in the EU. Although export subsidies under the Agreement on Agriculture were reduced, a third to a half of cheese, butter and dry milk exports continue to be subsidized (Langley, Somwaru and Normile 2006).

The EU dairy programme consists of a production quota for milk, import protection, an intervention programme that supports the price of skim milk powder and butter, and export refunds that are used to market surplus dairy products. In addition to the intervention programme, the EU subsidizes consumption of the butter used in pastry and ice cream and of skim milk for calf feed (Bailey 2005). The combination of border and domestic policies has resulted in a producer support estimate of 51% (Turner 2005).

Japan maintains a complex network of policies that provide high protection for domestic milk production, including supply quotas, environmental subsidies, and a variety of programmes that support farm and market infrastructure, extension services, and milk consumption, that benefit producers of drinking milk, as well as manufacturing milk. The producer support estimate in 2003 for milk represented 77% of the value of production, an indication that more than two thirds of the value of Japanese milk production relies on government interventions either through barriers to imports or through subsidies to farmers (Obara, Dyck and Stout 2005).

The US created the Milk Income Loss Contract Programme to provide targeted countercyclical payments to small dairy farms. In addition, the United States uses foreign donation programmes and casein production subsidies to reduce excessive stocks of surplus skim milk powder (Bailey 2005). The producer support estimate for the US dairy sector is 45%, significantly lower than the estimate for Japan and somewhat lower than the estimate for the EU (Turner 2005).

Canada's dairy policy is a complex web of interrelated policies, programmes and people nested in a number of private and public institutions under the federal-provincial supply management marketing scheme; it results in a producer support estimate of around 60% (Stanbury 2002).

Results from global trade models have shown that trade liberalization causes shifts in production from more distorting countries such as the EU, Japan and the United States to more efficient countries such as Argentina, Australia, Brazil and New Zealand (Shaw and Love 2001; OECD 2005a). A recent study used a partial equilibrium, multiple-commodity, multiple-region model of agricultural trade to simulate the elimination of four policy instruments: (i) production quotas, tariffs and tariff rate quotas; (ii) domestic price support and producer payments; (iii) export subsidies; and (iv) consumer subsidies. According to this model, full trade liberalization in the dairy sector results in a lower volume of dairy products, but higher world prices. The price increases range from 13% for nonfat dry milk to 66% for butter. Australia and New Zealand gain the most from liberalization because of higher prices and larger exports (Langley, Somwaru and Normile 2006).

#### **4.1.6 Effect of higher agricultural prices on NENA countries**

The description of the effects of global trade liberalization on agricultural prices in the previous sections indicates that the agricultural prices of the most distorted commodities will rise between 2% and 20%, with a fair amount of variation across estimates depending on the commodity, the type of model (general equilibrium versus partial equilibrium), the type of liberalization simulated and the assumptions built into the model. In this section, we examine the possible effect of higher agricultural prices on the NENA countries. More specifically, we calculate the welfare cost of a 15% increase in agricultural prices on each NENA country for which data are

available. This is done by multiplying the value of net agricultural imports of each NENA country by 0.15 and expressing the result both in absolute value and as a percentage of GDP. This calculation yields the additional cost to the country to maintain its current pattern of production and consumption. These estimates should be considered an upper limit of the impact of higher agricultural prices for several reasons, as follows:

- The analysis does not take into consideration the fact that farmers and consumers would respond to the higher price by producing more and consuming less of these products, thus reducing the negative welfare impact (or increasing the positive welfare impact) of the higher price.
- The analysis assumes a 15% increase in agricultural prices, but most studies show smaller increases in the prices of the main commodities such as wheat, rice, cotton, sugar and dairy.
- The markets for the main agricultural commodities are more heavily protected than those for minor crops; so, the weighted average of the change in all agricultural prices as a result of trade liberalization is likely to be even lower.

Furthermore, the analysis examines the terms-of-trade costs associated with trade liberalization outside the NENA region without taking into account the efficiency gains that may occur from domestic trade liberalization.

The analysis, shown in Table 4-1, indicates that the Sudan and Turkey are the only NENA13 countries that are net exporters of agricultural goods in value terms (Somalia and the West Bank and Gaza are not included in the analysis because of a lack of data). Net imports by the other countries range from US\$199 million in Syria, which imposes high barriers to agricultural imports, to US\$3 billion in Algeria, which has little agricultural production and pays for imports with its oil revenue. Egypt and Lebanon also have net agricultural imports of more than US\$1 billion. As a percentage of GDP, net agricultural imports are highest in Djibouti, where net agricultural imports are worth more than one quarter of GDP, followed by Yemen, where net agricultural imports are 8% of GDP. For Algeria, Jordan and Lebanon, the ratio is between 4% and 6%, while the other countries have ratios below 3%.

The last two columns of Table 4-1 show the cost of a uniform 15% increase in agricultural prices. The dollar cost ranges from a US\$451 million cost for Algeria to a US\$98 million gain for Turkey. Relative to the size of the economy, Djibouti experiences the largest loss, 4% of GDP, followed by Yemen, 1.2% of GDP. Turkey and the Sudan, because they are net agricultural exporters, gain from the higher prices, but the benefits are less than 0.05% of GDP. The other countries lose between 0.1% (Syria) and 0.9% (Jordan).

**TABLE 4-1**  
Impact of higher agricultural prices on NENA countries

	GDP	Agricultural imports	Agricultural exports	Net agricultural imports	Net agricultural imports	Cost of a 15% increase in agricultural prices	
	(US\$ million)				(% of GDP)	(US\$ million)	(% of GDP)
Algeria	66 530	3 062	55	3 007	4.5%	451	0.7
Djibouti	625	180	11	169	27.0%	25	4.0
Egypt	82 427	2 741	938	1 803	2.2%	270	0.3
Jordan	9 860	1 020	440	579	5.9%	87	0.9
Lebanon	19 000	1 285	239	1 046	5.5%	157	0.8
Morocco	43 727	1 671	981	690	1.6%	104	0.2
Sudan	17 793	396	438	(42)	-0.2%	(6)	0.0
Syria	21 499	1 050	851	199	0.9%	30	0.1
Tunisia	25 037	976	470	506	2.0%	76	0.3
Turkey	240 376	4 179	4 831	(652)	-0.3%	(98)	0.0
Yemen	10 831	1 004	117	887	8.2%	133	1.2
<b>Total or average</b>	<b>537 705</b>	<b>17 563</b>	<b>9 370</b>	<b>8 192</b>	<b>1.5%</b>	<b>1 229</b>	<b>0.2</b>

Sources: World Bank (2005a) for GDP; FAO (2005b) for agricultural imports and exports.

## 4.2 Effects of trade liberalization on NENA13 countries

Numerous studies of the impact of trade liberalization have been carried out, usually using CGE models. CGE models have become a standard tool of empirical economic analysis, especially when measuring the economy-wide effects of policy changes. Some versions of these models are able to identify the winners and losers of policy reform (Devarajan and Robinson 2002). Although most CGE analyses show aggregate benefits from trade liberalization, the size and sectoral details of these results vary widely. These differences in results arise from differences in the models and the policies being simulated. As discussed by Bouet (2006a), a number of factors explain much of the variation, as follows:

- The geographic scope of the liberalization. The liberalization may be multilateral (global reforms in the context of WTO negotiations), regional, bilateral (between two countries), or unilateral (reforms carried out by a single country in isolation).
- The sectoral scope of the liberalization. The liberalization may be limited to the agricultural or industrial sector, or it may encompass all sectors.
- The type of liberalization. The study may simulate reductions in tariffs, cuts in export subsidies, lower domestic price supports, reduced input subsidies, or other reforms.
- The base year. Generally, the earlier the base year, the higher the base level of protection and domestic support, implying that the effects of full liberalization will be larger.
- The extent of reform. Some studies simulate partial liberalization that corresponds to the possible outcomes of trade negotiations, while others simulate full trade liberalization.
- Whether or not the model includes dynamic effects. Some models only count the one-time static impact, while other models attempt to capture the dynamic effects of trade liberalization on investment and economic growth. Models that include dynamic gains usually show much larger effects.
- The assumptions in the model. All trade models are based on a large number of assumptions about the economy, including the operation of labour markets, investment, the trade balance and the degree of factor mobility, all of which may affect the results.

As discussed earlier, global trade liberalization generally results in higher international prices for goods subject to protectionist policies and subsidies. This is because the elimination of import tariffs increases import demand, while the elimination of domestic subsidies reduces supply. Because agricultural products are subject to higher rates of protection and (in developed countries) large domestic support programmes, trade liberalization is expected to increase world agricultural prices. This is particularly true for the products for which the markets are more distorted, such as wheat, rice, sugar, cotton and dairy products. Higher agricultural prices may worsen the terms of trade of net importers of agricultural products (most NENA13 countries), while benefiting net exporters of agricultural products (Turkey).

The effect of trade liberalization on domestic producer prices depends on changes in international prices, as well as changes in the level of agricultural protection within a country. As countries dismantle agricultural trade barriers, imports of formerly protected commodities will expand, pushing down domestic agricultural prices. Thus, multilateral and unilateral trade liberalization generally has opposite effects on domestic agricultural prices.

How do changes in agricultural prices affect household income and poverty? The short-run effect on households will largely depend on the direction of change in agricultural prices and wages, on the structure of household incomes and on the composition of household spending. In the long run, factors of production are mobile; so, the effect on households depends on changes in factor prices (e.g., wages and returns on land) and household factor endowments. Economic theory suggests that removing large distortions in the economy will increase aggregate output, but it does not tell us how farm income or poverty will be affected. These issues can only be addressed through empirical research, including simulations using trade models.

In the following subsections, we provide a selective review of studies of the impact of trade liberalization on the NENA13 countries individually and on the region. No studies cover all 13 of the countries under consideration here, but some studies examine the impact of trade liberalization on the MENA region.<sup>22</sup>

#### 4.2.1 Global trade liberalization

Bouet (2006a) compares 17 studies of global trade liberalization, including studies produced by the US Department of Agriculture, the World Bank and individual researchers. They show that the estimates of the aggregate benefits of full global trade liberalization range from US\$80 billion to US\$1.2 trillion, representing between 0.3% and 3% of world GDP. In spite of these differences, there are some common findings across these studies, as follows:

- Full trade liberalization is beneficial in terms of global income, as well as for all or most of the regions.
- Most of the benefits of full trade liberalization come from liberalizing the agricultural sector precisely because it tends to be the most well protected.
- A large majority of the benefits of trade liberalization come from reducing tariffs and other import barriers rather than from reducing producer subsidies. This is not surprising given that import barriers are almost universal across countries, while producer subsidies are concentrated in a few (albeit large) economies: the EU, Japan and the United States.
- The benefits to developing countries are larger as a percentage of the incomes of these countries than are the corresponding benefits to developed countries.
- The benefits to each country or region derive largely from liberalization carried out within the country or region rather than from opening up the borders of trading partners. In other words, “what you get is what you do”.

Most of these studies are based on models that include 12 to 40 countries and regions; so, there are usually results for a region that corresponds roughly to the MENA region. In 16 of the 17 studies reviewed, the MENA region gains from global trade liberalization in spite of the terms-of-trade losses associated with status as net food importers.

Bouet, Mevel and Orden (2006) simulate the effects of global trade liberalization using the MIRAGE model, which covers 41 regions and 18 sectors. This model makes use of the MACMap database of import barriers, which is unusual in that it captures the effect of preferential agreements on bilateral tariffs rates. Three NENA13 countries (Morocco, Tunisia and Turkey) are included as separate countries; three NENA13 countries (Djibouti, Somalia and the Sudan) are grouped in the rest of sub-Saharan Africa; and the seven remaining NENA13 countries are included in the rest of MENA. The sectoral decomposition includes activities that are of particular importance to NENA13 countries because of their relation to staple foods or because they represent sources of foreign exchange earnings, namely, wheat, rice, sugar, meat, dairy products and cotton. Also, textiles and wearing apparel are specified as activities separate from the rest of manufacturing. These are also highly protected commodities. Although household decomposition is limited, the distinction between skilled and unskilled labour as factors of production can give some insight to the possible effects on poverty.

Using the MIRAGE CGE model of the global economy, the authors compare the ambitious and unambitious partial liberalization scenarios to a full trade liberalization scenario.<sup>23</sup> In the experiments, average tariffs are eliminated incrementally over a five-year period starting in 2006. The model is dynamic and is run over a 15-year period from 2005 to 2020, taking into account GDP expectations affecting factor productivity and capital reallocations resulting from depreciation and investment. The 2001 social accounting matrix (SAM) used as a database for the MIRAGE CGE model

22/ The MENA region, as defined by the World Bank, includes ten of the NENA13 countries: Algeria, Djibouti, Egypt, Jordan, Lebanon, Morocco, Syria, Tunisia, West Bank and Gaza, and Yemen. Three countries are in NENA13, but not in MENA: Somalia, the Sudan and Turkey. Ten countries are considered part of MENA, but not part of our NENA13 group: Bahrain, Iran, Israel, Kuwait, Libya, Malta, Oman, Qatar, Saudi Arabia and United Arab Emirates.

23/ Both partial liberalization scenarios call for the elimination of export subsidies; the ambitious scenario also includes a 20% cut in domestic supports, sharper reductions in agricultural tariffs, caps on agricultural tariffs and fewer exemptions (sensitive and special products). A detailed presentation of the model and the corresponding assumptions is included in Bouet, Mevel and Orden (2006).

has been updated to include the main trade reforms that affected the world economy from 2001 to 2005: the enlargement of the EU, the WTO accession of China, the end of the implementation of the Uruguay Round and the implementation of the Everything But Arms Initiative and the US African Growth and Opportunity Act schemes.

Full liberalization leads to improved terms of trade for net agricultural exporters such as Turkey, to worsened terms of trade for net food-importing countries due to higher agricultural prices, and to the erosion of preferences for some countries. Turkey experiences a 5.2% real income increase, mainly as a result of higher returns to labour (both skilled and unskilled) and capital at the expense of land and natural resources. Tunisia registers a real income gain of 1.6% in spite of losses in the agricultural sector borne by the poor (whose main source of income, unskilled labour, has been negatively affected) and landowners. Morocco experiences a decline in real income by 0.1% reflected across all productive factors, especially unskilled labour, implying a negative impact on poverty (Bouet, Mevel and Orden 2006, Tables 4 and 5).

Full trade liberalization implies larger increases in world agricultural prices and the complete erosion of preferences compared to ambitious partial liberalization. Current beneficiaries of trade preferences among developed countries, as is the case for NENA13 countries, and agricultural net importers may incur less gain in efficiency, but also smaller losses in the terms of trade under partial liberalization than under full trade liberalization. For a net agricultural exporter like Turkey, better market access will unambiguously generate more gains.

Tokarick (2005) uses a partial equilibrium model of ten agricultural commodities to simulate the effect of trade liberalization. In this model, full trade liberalization raises world agricultural prices by 2-23%. By applying these price increases to agricultural trade patterns, he estimates the increase in agricultural import costs for each developing country. The cost of agricultural imports increases US\$4 million-US\$10 million for most NENA13 countries. The exceptions are Djibouti and the Sudan, for which agricultural import costs decline because of higher prices for their exports.

Tokarick (2005) also presents the results of a separate analysis of trade liberalization using an 18-region global CGE model. He compares the effects of trade liberalization in developed countries, in developing countries and in all countries. The results suggest that MENA would lose US\$1.9 billion (0.3% of GDP) from *developed country* trade liberalization. The higher agricultural prices hurt the region because it is a net importer of agricultural goods, and there are no offsetting efficiency gains from domestic trade liberalization. If trade liberalization is limited to the *developing countries*, the MENA region gains US\$10.4 billion (1.4% of GDP), largely because it removes internal distortions. Global trade liberalization generates benefits of US\$9 billion for the region (1.2% of GDP).

A study by Anderson (2003) confirms some of these general findings. He uses an 18-region CGE model to simulate trade liberalization by developing and developed countries and in different sectors. According to this model, the global benefits of trade liberalization would be US\$254 billion, 65% of which comes from liberalizing the agricultural sector. The distribution of gains between developed and developing countries depends on which countries liberalize. If *developed countries* liberalize, they capture more than two thirds of the benefits, while if *developing countries* are the ones that liberalize, they earn about 60% of the global benefits. These results confirm the principle that the benefits a country or region derives from trade liberalization are largely determined by the degree to which it participates in the trade liberalization. Looking at the regional results, this study finds that Turkey gains US\$2 billion from global trade liberalization, while the MENA region loses US\$1.8 billion. As mentioned above, this finding is relatively uncommon; most studies find that the MENA region gains from trade liberalization. This is because the efficiency effect of reducing domestic distortions outweighs the terms-of-trade effect from higher world prices for agricultural commodities.

What is the impact of trade liberalization on small farmers and agricultural labourers? Trade theory suggests that, under certain conditions, trade liberalization should equalize the return to labour across countries because exports of labour-intensive goods from low-wage economies to high-wage economies increase wages in the former and reduce wages in the latter. In practice, the impact of liberalization is more complicated because of variations in protection across sectors, preferential agreements and the imperfect mobility of factors. In particular, if trade liberalization reduces protection on a labour-intensive sector such as agriculture, agricultural labour demand could decline.

Few of the global trade models are designed to simulate the impact of liberalization on different types of households, but some of them disaggregate the labour market into skilled and unskilled categories or rural and urban labour. Bouet (2006a) uses the MIRAGE model, which distinguishes three categories of labour. Among the 20 regions it represents are Tunisia and the rest of MENA. In Tunisia, full trade liberalization causes agricultural unskilled wages and industrial unskilled wages to rise 1.0%, while skilled labour wages rise only 0.3%. In the rest of MENA, unskilled agricultural wages fall 2.3%, while industrial unskilled wages and skilled wages rise about 1%.

Anderson, Martin and Van der Mensbrugge (2005) simulate the impact of global merchandise trade liberalization using a dynamic recursive CGE model with labour types and 28 regions, including Turkey and MENA. In Turkey, unskilled wages rise 1.3%, while, in MENA, unskilled wages increase 4.1%.

Bayar et al. (2000) simulates global trade liberalization using a CGE model with eight regions (including MENA) and two types of labour. Trade liberalization in manufactured goods induces a 1.3% increase in wages for unskilled labour in MENA, while a broader all-sector trade liberalization increases unskilled wage rates by 1.4%. Thus, while there is some variation in the estimates, most studies suggest that global trade liberalization would increase unskilled wage rates in MENA by 1.4%.

#### 4.2.2 Regional trade liberalization

Bouet (2006b) uses the same MIRAGE CGE model to examine the macroeconomic impact that would result from a South-South regional agreement that eliminates all tariff barriers among Morocco, Tunisia, Turkey and a fourth zone comprising six other MENA countries (Algeria, Egypt, Jordan, Lebanon, Libya and Syria). Each country retains its trade policy with regard to other zones or countries.

The main beneficiary from a South-South liberalization scenario is Turkey, where welfare rises 3.8%. The sectoral results suggest that Turkey gains from the expanding production of grain, animal products and clothing, including exports to the rest of the region. Tunisia and the other southern Mediterranean zone also gain, but to a lesser degree (1-2%). Morocco experiences a small (0.3%) welfare decline. In the case of Morocco, 77% of exports are directed to OECD countries, and only 4.9% are directed towards southern Mediterranean countries (compared to 10% for Tunisia and 11% for Turkey); so, a South-South agreement would leave Moroccan exports practically untouched. But the agreement implies trade diversion for Morocco: imports of rice, wheat, fruit and vegetables, and meat from Europe are partially replaced by imports from countries in the region.

Bouet (2006b) compares the impact of this South-South agreement with that of global trade liberalization. In this simulation, welfare increases 2.4% in Turkey and more than 5% in Morocco, Tunisia and the other southern Mediterranean zone. These results reveal that multilateral full trade liberalization is a more efficient outcome for south Mediterranean countries. It allows for a large reduction in domestic distortions and stimulates GDP growth, especially in Morocco, Tunisia and the other southern Mediterranean zone. The efficiency gains offset the deterioration in the terms of trade linked to an augmentation of world agricultural prices, which is detrimental to most of these countries.

Some argue that a regional trade agreement is a desirable step towards multilateral liberalization, preparing the countries for international competition, but in a less "brutal" manner than multilateral trade liberalization. Bouet (2006b) tests the validity of this argument using an index of structural congruence that measures the similarity of sectoral changes between two simulations. Numbers close to 1.0 indicate that two policies change production patterns in similar ways, while an index of zero implies no similarity. Results show that the South-South agreement does not move the economies towards the multilateral trade liberalization structure. For some sectors, it changes the economies in the opposite direction. The index is much higher (closer to 1) in a comparison of an EU FTA and multilateral trade liberalization. The implication is that integration with the EU is a better "first step" towards integration into the global economy.

Dennis (2006a) uses a CGE model with 13 regions and 16 commodities to compare regional integration, based on GAFTA, with a combination of GAFTA and EU liberalization. The MENA region includes Morocco, Tunisia, the rest of North Africa and the rest of the Middle East. In the GAFTA simulation, all tariffs between the four MENA zones are set to zero. In the GAFTA-EU

simulation, all tariffs between MENA zones are set to zero; all industrial tariffs between MENA zones and the EU are set to zero; and all agricultural tariffs between MENA zones and the EU are reduced by 50%. The results indicate that GAFTA would produce static welfare gains to MENA of US\$913 million, or 0.1% of regional GDP. The gains to MENA under GAFTA-EU are roughly twice as large, at US\$1.8 billion, or 0.2% of regional GDP.

Dennis (2006a) also argues that intra-MENA trade is hampered by burdensome customs procedures, poor infrastructure and regulations that impede efficient transportation services. Examples include regulations favouring national airlines, restrictions on private transportation companies, restrictions on foreign truck drivers, regulations prohibiting backhaul freight, and various fees and taxes. He cites studies that have shown that the removal of non-trade barriers imposing frictional costs on international trade can greatly enhance the welfare gains from trade liberalization. For example, Hoekman and Konan (2005) estimate that the removal of non-tariff barriers leads to an increase in welfare that is more than twice as large as that resulting from tariff liberalization. In an earlier study on Egypt, Konan and Maskus (1997) found that the elimination of regulatory barriers and red-tape measures would result in larger welfare gains from an FTA. Dennis (2006a) simulates the effect of trade facilitation on the GAFTA and EU-GAFTA agreements, finding that the welfare benefits increase four- or fivefold when trade facilitation is included.

The effect of regional trade liberalization on the wage rates of unskilled labour is examined in a few studies. As mentioned above, Bouet (2006b) simulates the effect of trade liberalization among Morocco, Tunisia, Turkey and another region, including Algeria, Egypt, Jordan, Libya, Lebanon and Syria. In this South-South liberalization scenario, unskilled wage rates increase by 2% in Turkey, but decrease slightly (by less than 1%) in the other three zones. In another study, Hoekman and Konan (2005) find that GAFTA increases wage rates in Egypt by 0.7%, considerably less than the wage rate increase associated with an EU partnership agreement (1.3%) and from global liberalization (1.98%).

#### **4.2.3 Bilateral trade liberalization with the EU and the US**

Augier and Gasiorek (2001) review studies that have used CGE models to estimate the welfare effects of trade liberalization in the context of EMAs. Studies on Turkey show very small welfare effects, ranging from 0.15% of GDP with a reduction in tariffs alone to between 1-1.5% of GDP when allowing for improved access to EU markets, exchange rate changes and the harmonization of standards (Harrison, Rutherford and Tarr 1993, 1997). Mercenier and Yeldan (1997) find that forming a custom union with the EU results in welfare gains of only 1% of GDP for the Turkish economy.

Similar results are found for Egypt by Konan and Maskus (1997, 2000), with welfare gains ranging from 0.2 and 0.89% of GDP, and for Morocco and Tunisia by Cockburn, Decaluwé and Costi (1998). But, as in the case of Turkey, when tariff reduction in Egypt is extended to agriculture and services and accompanied by changes such as market access and improved harmonization of standards, the welfare gains increase to 13 to 21% of GDP (Hoekman and Konan 1998). These large effects are due to the inclusion of dynamic effects, in which trade liberalization increases investment or productivity growth.

From their review, Augier and Gasiorek (2001) conclude that, in most of these studies, static welfare gains from FTAs between southern Mediterranean countries and the EU are usually very small. One reason is that these agreements result in a large asymmetric reduction in tariffs on the part of the southern Mediterranean countries that grant the EU better access to their markets, while the southern Mediterranean countries already have access to the EU. In contrast, Augier and Gasiorek (2001) generate much larger results using a CGE model to simulate a full elimination of tariffs by southern Mediterranean economies on imports from the EU (leaving external tariffs on imports from the rest of the world unchanged, with the exception of Turkey, which adopts the EU's common external tariffs). They find that Egypt, Morocco and Tunisia experience welfare gains of 6%, 13% and 18%, respectively. In all three countries, the trade creation effects are much larger than the trade diversion effects. The cheaper and more abundant imports generate these gains, though all sectors in the economies experience a decline in production.

If other changes are realized, such as improved productivity through the pro-competitive effect of trade and greater integration with the EU markets resulting from a harmonization of standards

and regulations, the welfare effects reach 18%, 24% and 33% for Egypt, Morocco and Tunisia, respectively. Allowing changes in the exchange rate seems to reduce the welfare gains for Morocco and Tunisia, but to improve the gains for Egypt. Finally, multilateral trade liberalization generates the largest results, while regional (intra-southern Mediterranean) trade liberalization generates positive, but small welfare gains.

Chemingui and Dessus (2001) examine the impact of trade liberalization on Tunisia and the EU using a model of the Tunisian economy with 57 sectors and five types of labour. They find that liberalization yields a 1% increase in real GDP, but family agricultural remuneration falls by 1%, and unskilled agricultural wages fall by 3%. On the other hand, access to EU markets without any reduction in Tunisian import barriers results in higher returns to farm families and agricultural workers.

Chaherli (2002) conducted an extensive review of 17 studies of trade liberalization in the MENA region that were carried out between 1997 and 2001. The size of the impact (measured by welfare gains as a share of GDP) tends to be higher from multilateral trade liberalization scenarios than from bilateral scenarios (mostly illustrated by the implementation of FTAs between MENA countries and the EU). Consistent with the results found in Augier and Gasiorek (2001), other studies emphasize the superiority of multilateral trade liberalization over bilateral or regional liberalization. Thus, Egypt registers welfare gains of 4% of GDP from multilateral trade liberalization, while the implementation of the FTA with the EU only adds less than 0.5% (Bayar 2001). Similar results are found for Jordan (Hosoe 2001) and Morocco (Rutherford, Rutström and Tarr 1997).

Only a few studies reviewed by Chaherli (2002) focus on specific commodity changes in production. As a result of lower tariffs in agriculture, the production of import-substituting products such as field crops and livestock will tend to suffer, while export-oriented sectors like fruits and vegetables will gain from the increase in market access. For example, Lorca and Vicens (2000) estimates that expanding the FTAs with the EU to agricultural products may stimulate an increase in exports of 53% in fruits and 20% in vegetables in Morocco, a 28% increase in fruits and vegetables in Egypt and an 80% increase in olive oil exports in Tunisia. In Egypt and Morocco, sugar is another winner in that production increases by 16 and 13%, respectively, under the same liberalization scenario.

These findings are supported by Bunte (2005), who simulates the effect of the elimination by the EU of import tariffs on fruits and vegetables from the MENA region. This model projects a substantial increase in exports of fruits and vegetables from MENA to the EU, along with lower consumer prices in the EU. Morocco and Turkey gain the most, while European horticultural producers such as France and Spain lose.

Finally, Radwan and Reiffers (2003) present results from agricultural trade liberalization scenarios in the context of the EMAAs. The simulations focus on five MENA countries: Algeria, Egypt, Morocco, Tunisia and Turkey. Within a CGE framework, the authors consider three alternative scenarios simulated over a five year period, as follows:

- unilateral liberalization by the EU;
- a reciprocal bilateral liberalization between the EU and partner countries (with or without progress in multilateral liberalization in agriculture); and
- an asymmetrical bilateral liberalization, whereby the EU liberalizes, but the Mediterranean partner countries do not liberalize on all products and liberalize at a slower pace.

Results from the first scenario (unilateral liberalization by the EU) show positive, but modest growth in production, exports and employment, though this is inferior to the growth obtained through multilateral liberalization. Only exportable products (essentially fruits and vegetables) gain from this scenario, but, for poor farmers and traditional agriculture, the situation does not change and may even become worse now that they have to compete for resources and subsidies (such as water) with favoured exports.

The second scenario tests the effects of a reciprocal bilateral liberalization between the EU and Mediterranean partner countries with and without agriculture liberalization in a multilateral context. Domestic trade liberalization reduces the local prices for formerly protected agricultural commodities. On the other hand, the multilateral liberalization of agricultural either under the

European Commission or the US proposal<sup>24</sup> would result in higher international prices: for example, a 10.5% increase for wheat, 19.7% for maize and nearly 7% for sugar.<sup>25</sup> The net effect is a decrease in domestic prices, but by a smaller magnitude than would occur without the multilateral liberalization of agriculture. The results are particularly large for processed food preparations containing fruits; these sustain a price decrease of more than 40%, while the prices of sugar fall by 14% and of wheat by nearly 7% (Radwan and Reiffers 2003, p. 20). The net effect of this scenario suggests that tariff dismantling by Mediterranean partner countries has a larger effect than the removal of protection by OECD countries. The negative effects from a net price decrease on rural producers and therefore rural income will be greater than the positive effects on urban consumers and exporters, making the distribution of gains from liberalization bias against the more vulnerable population group. Radwan and Reiffers (2003) conclude that the liberalization should be reciprocal but gradual, starting with the reduction of domestic support by the EU, followed by tariff reduction by Mediterranean partner countries.

The third scenario reproduces the second scenario, but, by taking into account the varying capacities to bear the changes among countries in the region, it introduces an asymmetrical implementation process, whereby the EU liberalizes, while Mediterranean partner countries liberalize partially and at a slower rate. It also provides for structural instruments similar to the *Fonds Européens d'Orientation et de Garantie Agricole*,<sup>26</sup> a programme that removes price supports, includes support for agricultural modernization, upgrades infrastructure and institutions and supports diversification in rural activities. If the implementation of these structural tools is successful, it could reduce (if not eliminate) the list of losers in Mediterranean partner countries. The main difficulties will be to avoid rent-seeking behaviour among farmers in Mediterranean partner countries and to target the support towards the sectors in rural areas that have been the most affected by the liberalization process.

#### 4.2.4 Unilateral trade liberalization

Other studies focus on the impact of unilateral trade liberalization, whereby a NENA country reduces import tariffs or non-tariff barriers without liberalization in other countries. Because they focus on one country, many of these studies provide more information on the distributional effects of liberalization. Some of the studies have found that, contrary to the positive effects registered at the national level, the agriculture sector tends to be affected negatively. For example, Chemingui and Thabet (2001) find that rural households in Tunisia lose more than 3% of their income under unilateral liberalization covering agriculture. In contrast, Hosoe (2001) estimates that agricultural output will go up by 1.5% under multilateral trade liberalization and 6% within an EU FTA, while agricultural exports increase by 11 and 37% under the two scenarios, respectively.

Another study on Tunisia finds that unilateral liberalization would reduce the unskilled agricultural wage by 4%. In contrast, as mentioned in the previous section, improved access to the EU market or a reduction in EU support for its agriculture would raise the wage of unskilled agricultural labour in Tunisia (see Chemingui and Dessus 2001).

Feraboli (2004) uses a dynamic CGE model of Jordan with ten sectors to examine the effect of alternative types of liberalization. He finds that the tariff reduction under an association agreement with the EU would increase wages by 1.1%, while a broader trade liberalization that lowers import barriers in a non-discriminatory way would increase wages 1.2%.

Several studies have examined unilateral trade liberalization in Morocco. Lofgren (1999) analyses the short-run equilibrium effects of alternative scenarios of reduced protection for agriculture and industry in Morocco. Because the agriculture sector represents the major income source among the poor rural population, it is also the most strongly protected. The results show

24/ These proposals are older than the ones referenced in Bouet, Mevel and Orden (2006): The EU proposed to decrease import tariffs by 36%, exports subsidies by 45% and trade distorting domestic support by 55%; the US proposed to reduce, in five years, the protection affecting trade to 5% of the total value of domestic production.

25/ The US proposal gives slightly higher results.

26/ The *Fonds Européens d'Orientation et de Garantie Agricole* (European Agricultural Guidance and Guarantee Funds) have been established within the overall EU budget for financing the common agricultural policy.

that lowering agricultural protection generates aggregate welfare gains, though a significant part of the disadvantaged rural population would lose out substantially. The tariff cut boosts agricultural imports and reduces the demand, prices and factor returns in domestic agriculture. The welfare changes for any household group primarily depend on the combined effects of changes in the prices of factors the group controls and the commodities it consumes. The incomes and resources of agricultural labour decline significantly, especially in rainfed areas since these depend most heavily on livestock production, which is the most well protected sector initially. Agricultural wages decline 14% if agricultural labour cannot switch to non-agricultural activities. If we assume that labour can move among sectors, then agricultural wages decline only 6%. Upgrading the skill level of the rural labour force – assuming some productivity increase – results in higher unskilled wage rates, thus benefiting the poor.

Lofgren, El-Said and Robinson (1999) use a dynamically recursive general equilibrium model for Morocco to examine options for unilateral trade liberalization that would go beyond the terms of the EMAA. Results from unilateral trade liberalization scenarios beyond the implementation of the EMAA indicate that tariff unification (tariffs ranging between 3 and 98% are set at 29% across sectors) has small aggregate effects, while the removal of non-tariff barriers has positive aggregate effects, but favours skilled labour and capital. On average, real household income per capita expands, but in favour of urban households and non-poor households in rural areas. Combining trade liberalization with at least one complementary domestic policy<sup>27</sup> results in a win-win outcome, whereby the welfare of all household groups increases much more rapidly than if status quo policies are followed.

A third study of Morocco combines a CGE model with household survey data to obtain a detailed picture of the distributional effect of unilateral trade liberalization. Ravallion and Lokshin (2004) measure the short-term welfare impacts of the price changes attributed to removing the country's protection on cereals (they estimate cereal protection at 100% during 1997-98).<sup>28</sup> The price changes are estimated from a CGE model simulating various levels of tariff reduction (10, 30, 50 and 100%) for cereals and the removal of the government intervention in subsidizing cereal prices among consumers. Prices in cereals decrease by nearly 27% for consumers and by around 24% for producers. Producer prices for fresh vegetables also decrease, by less than 10%, while the prices of other agricultural products (fruits, dairy products and eggs, meat and sugar) decrease at the lower levels of tariff reductions on imported cereals, but increase at the higher levels. In aggregate, the results show a small, but negative impact on mean household consumption and a small increase in inequality. Heterogeneity in consumption behaviour and in income sources leads to a diverse impact on households. For example, rural households have twice the budget share for cereals as urban households; also the share of income from production accounts for one quarter of consumption in urban areas (the rest is labour earnings, transfers and savings), while the share is 87% in rural areas, and about one third of this is from cereals.

The household survey also shows that, at the national level, 16% of households are net producers of cereals, while, in rural areas, the proportion is 36%. The majority of the rural poor produce cereals for home consumption, and over one third of the poorest quintile tend to produce more than they consume. These households will be worse off from the fall in cereal prices. At the national level, production losses outweigh consumption gains, and the poverty rate increases overall, but the impact is felt entirely in rural areas, where losses to net producers of cereals outweigh the gains to net consumers among the poor (Ravallion and Lokshin 2004).

In a recent study of labour markets in Morocco and Tunisia, Dennis (2006b) argues that the ability of MENA countries to respond to trade liberalization is impeded by regulations that make factor markets inflexible. He cites the legal constraints on dismissing workers, the high level of legally mandated severance pay, the restrictions on the use of temporary labour, the high minimum-capital requirements for starting a new business and lengthy bankruptcy procedures. He

27/ Complementary policies include (i) transfers to owners of rainfed agricultural resources (land and pasture), in each period fully compensating for losses from trade liberalization, and (ii) in each period, the stock of rural skilled labour is augmented by 5%, with additional labour coming from the unskilled labour of rural households.

28/ The most favoured nation tariff on cereals reported in WTO (2003b) is 20.6% (simple average) with a range of 2.5 to 53.5%.

finds that Morocco and Tunisia have the least flexible labour markets among the 11 developing countries studied. To examine this issue, Dennis uses a CGE model to simulate the impact of a unilateral 50% reduction in import barriers in Morocco and Tunisia with high and low factor market flexibility. Factor market flexibility is simulated by making capital mobile and by doubling the elasticity of substitution between factors of production. Dennis finds that flexible factor markets increase the welfare gains from unilateral trade liberalization by a factor of three in Morocco and by a factor of six in Tunisia.

### 4.3 Summary

Most studies of global trade liberalization indicate that reducing agricultural subsidies and removing import barriers will increase world agricultural prices. The prices of agricultural commodities for which the markets are distorted (including wheat, rice, sugar and dairy) would rise 515% according to most studies.

Almost all the NENA13 countries are net agricultural importers; so, there is clearly some basis for concern that these countries will lose as a result of global trade liberalization. Our analysis confirms that the terms-of-trade effect of a 15% increase in all world agricultural prices on the NENA13 countries would be approximately US\$1.2 billion, or 0.2% of the regional GDP. The actual impact of trade liberalization, however, is likely to be more positive for three reasons. First, this analysis does not take into account the response by producers and consumers. Second, it assumes that the price increase is the same for all commodities. For example, Egypt could gain from global liberalization if the price of cotton (which it exports) increases more than the price of wheat (which it imports). And, third, the analysis estimates the terms-of-trade effect of trade liberalization, but it does not include the efficiency gains associated with reducing distortions in domestic agricultural markets. Most studies of trade liberalization suggest that the efficiency effects are larger than the terms-of-trade effects.

Several dozen studies have been undertaken to examine the macroeconomic impact of various types of trade liberalization in NENA. Most of these studies use CGE models to simulate the effect of alternative trade policies. The results of these studies are summarized as follows:

- Multilateral trade liberalization generally results in net gains to countries in the region; real GDP expands 1-3%.
- The benefits of trade liberalization to a given country depend largely on the degree of domestic liberalization carried out by the country. Most of the gains from agricultural trade liberalization are associated with domestic reform rather than changes in trade policy in other countries. This confirms the well-known concept in studies of trade liberalization: what you do determines what you get.
- The benefits of multilateral trade liberalization are generally greater than the benefits of bilateral trade liberalization with the EU or the US and greater than the benefits of regional trade agreements within NENA.
- Trade liberalization usually results in lower production and more imports of wheat, but higher production and more exports of fruits and vegetables.

Only a few studies have examined the distributional impact of trade liberalization, such as the effect on farmers or other poor groups in the NENA13 countries. One of the most thorough studies, by Ravallion and Lokshin (2004), suggests that the lower agricultural prices associated with removing agricultural protection in Morocco have a negative effect on poverty.

# 5

## Agriculture, Trade and Poverty in Egypt

## 5.1 Background

With 67 million people, Egypt is the most populous country in the Arab world and second in the NENA13 region after Turkey. Based on Egypt's per capita GDP (US\$1,622 in 2003), the World Bank classifies Egypt as a lower-middle-income country. Real per capita GDP growth averaged 2.9% in the 1980s, 2.3% in the 1990s and 1.4% in 2000-03 (World Bank 2005a). Regional instability, mainly due to the Israeli-Palestinian conflict, the war in Iraq and terrorist attacks, has contributed to slower growth since 1998.

Although the contribution from the agriculture sector has declined in recent decades, the sector still plays an important role in the Egyptian economy. It accounts for about 16% of GDP, down from around 20% in the early 1980s. Agriculture also accounts for about 34% of total employment and 5% of exports. Domestic agriculture contributes to the overall food needs of the country and provides domestic industry with raw materials.

In the 1970s, agricultural policy was characterized by heavy government intervention in production, trade and prices. Most crops were subject to compulsory sales to state enterprises at fixed prices. The agricultural sector was highly taxed relative to other sectors of the economy. This had several negative impacts on agricultural development and food security. Starting in 1987, the Government of President Mubarak launched a series of agricultural policy reforms to liberalize markets (Ender 2000).

As a result of broader economic reforms in the 1990s, the private sector emerged with a more important role in terms of output and jobs. At the same time, the economy remained inward looking, as high tariff rates and an overvalued currency made the domestic market more attractive for Egyptian business (El-Laithy, Lokshin and Banerji 2003). Egypt's merchandise imports are almost three times as large as its merchandise exports. The large trade deficit is sustained by foreign aid, revenue from tourism and remittances from Egyptians working overseas, particularly in Europe and the Gulf countries.

## 5.2 Agricultural sector

### 5.2.1 Agricultural production

The Nile River Valley has been cultivated for at least 8,000 years, and it continues to be the focus of almost all agriculture in Egypt. About 90% of the agricultural area is concentrated in the Nile Delta, and most of the remainder falls within a few kilometres of the Nile and along the Mediterranean. Egypt is unique in the NENA region in that 100% of crop production is irrigated. No other country in the region has more than 40% of irrigated cropland. As a result, crop yields in Egypt are relatively stable and are not subject to weather-related shocks as in most countries in the region. About 97% of the area of Egypt is uncultivated due to the extremely limited rainfall (World Bank 2004).

Per capita arable land is just 0.04 ha, one of the lowest rates in the world. However, the combination of warm weather, fertile soil and irrigation allows Egyptian farmers to achieve high yields and practice multiple cropping. Also, Egypt has a relatively large number of tractors (3.9 per 100 ha of cropland), most of which are used on a rental basis. Fertilizer use is the highest among the NENA countries, at over 400 kg per ha of arable land.

In 1960, Egypt was self-sufficient in all basic food commodities, with the exception of wheat, for which the country supplied 70% of its own needs. The self-sufficiency ratio declined dramatically for most products during the 1970s and 1980s due to a combination of rapid population growth and rising foreign currency inflows from exports (including cotton and textile products), remittances and foreign aid. The rising dependence on imported food is a major concern among policymakers and has resulted in various attempts to restrict food imports and stimulate domestic production.

Because of irrigation, farmers can produce two or three harvests per year. The main summer crops are maize, rice and cotton; in winter, wheat, berseem (Egyptian clover) and broad beans are grown. The *nili* (autumn) season is used for growing potatoes and vegetables. Grains account for almost half (47%) of the cultivated area, and wheat is the most important, followed by maize and rice. Berseem, used for animal fodder, accounts for 17% of the planted area, while vegetables represent 12% and fruit 8% (Siam 2005).

Domestic resource cost analysis indicates that Egypt has a strong comparative advantage in the production of cotton, wheat and fruits and vegetables, is moderately competitive in several less-water-intensive crops such as maize, beans and potatoes and has a disadvantage in producing water-intensive crops such as rice and sugar cane (Madcour and Abou Zeid 1996).

### 5.2.2 Agricultural trade patterns

In 2000-02, Egypt's total export revenue was about US\$15 billion per year,<sup>29</sup> about US\$1 billion of which was earned from oil and fuel exports. As described in section 3.1.2, agricultural exports were US\$800 million, about 5% of the total and 20% of the merchandise exports. Cotton is the most important agricultural export (Table 3-5). Egyptian cotton has long fibres and is considered one of the best in the world, fetching high prices on international markets. The average annual value of cotton exports over 2000-02 was US\$205 million, but, more recently, cotton exports have surpassed US\$500 million thanks to expanded output and higher world prices. Cotton is also used in Egypt's textile sector, which produces cloth and garments for domestic use and for export. Egypt exports rice and fruits and vegetables, including potatoes, oranges, onions and tomatoes.

Total imports were US\$20 billion in 2002, of which agricultural imports represented US\$4 billion, or one fifth of the total. As in many countries in the region, wheat is the most important agricultural import (Table 3-5). Over 2000-02, Egypt imported an average of US\$732 million in wheat per year, making it the largest wheat importer in the world. Wheat is a politically sensitive commodity because bread is the main staple food. Wheat production and marketing were strictly controlled until market reforms in the 1980s and 1990s. Agricultural input and output markets have been liberalized to some degree, but the Government maintains subsidies on some types of bread and attempts to boost domestic production by restricting imports of wheat and flour. Egyptian wheat production is able to cover about 55-60% of domestic requirements. The second largest agricultural import is maize. Maize demand is rising due to its use as animal feed.

## 5.3 Agricultural and trade policy

### 5.3.1 Agricultural policy

Agricultural policy in Egypt has been characterized by heavy intervention by the Government in setting prices, granting marketing monopolies to state enterprises, subsidizing agricultural inputs and restricting imports. Before 1987, most field crops were subject to compulsory purchase by state enterprises at fixed prices. The state restricted the allocation of land among crops through crop area controls. Likewise, input distribution was largely controlled by the Government. The exchange rate was overvalued, and imports were tightly controlled.

Under pressure because of the growing fiscal burden and rising debt, Egypt began a process of structural adjustment in the 1980s. In 1987, the compulsory purchase of all crops was eliminated except in rice, cotton and sugar cane. For wheat, maize and other crops, the Government switched from compulsory purchase to voluntary purchase at Government-set floor prices. In 1990, there was a massive devaluation of the exchange rate, moving it towards a market rate. In 1991, rice marketing was liberalized, and input subsidies were reduced significantly. Input subsidies were phased out over 1991-93. Crop area controls were largely eliminated in this period as well. In 1994-95, cotton marketing and ginning were liberalized, allowing private enterprises to compete with state enterprises (Siam 2005).

Although significant progress has been made in liberalizing agricultural markets, particularly between 1987 and 1996, the Government continues to intervene in a few areas. First, electricity and irrigation water are still heavily subsidized. Second, the General Authority for Supply Commodities continues to play an important role in the importation of food. For example, in 2004, it imported 5.4 million t of wheat and 277,000 t of cooking oil, as well as significant quantities of tea, lentils and beans. Although it does not have a monopoly on imports, it accounts for a large share of all wheat imports. Third, the Government maintains a large and complex system to subsidize bread,

29/ This figure refers to exports of goods and services. Excluding services (including tourism and revenue from the Suez Canal), merchandise exports were only US\$4 billion (World Bank 2004).

sugar and cooking oil. The cost of these subsidies was brought down to around LE 2 billion in 2002, but expansion of the programme raised the cost to LE 8 billion in 2004.<sup>30</sup> Wheat imports by the General Authority for Supply Commodities are sold to millers to make baladi bread, which is price controlled, while private sector imports are used to make unsubsidized bread and other wheat products (WTO 2005b).

### 5.3.2 Trade policy

Like many of its neighbours, Egypt followed a policy of import-substitution industrialization in the 1960s and 1970s. In response to a debt crisis in 1982, it became one of the first NENA countries to begin to follow a more outward-oriented trade policy. The trade reforms of 1986 simplified a range of import taxes and reduced non-tariff barriers. Generally, manufacturing benefits from the highest protection, except for cotton ginning, which has negative protection. Agriculture has relatively low protection, with some important exceptions. In 1998, the Government replaced import bans by high tariffs on clothing, poultry parts, meats, fruits, vegetables and consumer appliances.

The multiple exchange rates of the 1980s were unified into one exchange rate in 1991 (Reefat 1999). In 2003, the Egyptian pound was allowed to float. In 2004, Egypt reduced the number of tariff bands, eliminated some import fees and cut tariff rates, resulting in a decline in the average tariffs from 21% in 2000 to 9%. The tariff rates applied in 2005 are shown in Table 5-1. Although the average tariff for beverages and spirits is very high and some of the tariff rates for traditional export commodities are high, the average rate on grains, oilseeds, fats and oils (which account for two thirds of agricultural imports) is under 10%.

According to the World Bank, the simple average tariff rate is low by world standards, lower than the rates in 60% of the countries in the world. Furthermore, progress in trade liberalization over 2000-04 was among the strongest in the world (World Bank 2005d). Egypt is currently enjoying a windfall as a result of high world prices for its oil exports and increased revenue from the Suez Canal, since the high cost of fuel has made circumnavigating Africa more costly.

### 5.3.3 Trade agreements

Part of Egypt's liberalization has been unilateral, and part has been related to various trade agreements. Egypt signed an EMAA with the EU in 2001. Egypt is a member of the Common Market for Eastern and Southern Africa and GAFTA. Egypt also signed the Agadir Declaration, which established a free trade area among Egypt, Jordan, Morocco and Tunisia.

**TABLE 5-1**  
Tariff rates in 2005 and value of imports

Category	Simple average tariff rate (%)	Range of tariff rates (%)	Value of imports in 2003 (US\$ million)
Agriculture	66.4	0-3 000	2 679.9
Grains	3.3	2-5	1 136.7
Oil seeds, fats, oils, etc.	6.4	0-32	421.9
Fruit and vegetables	15.9	2-40	212.7
Coffee, tea, cocoa, sugar, etc.	35.4	2-3 000	212.0
Live animals and animal products	18.4	5-32	218.4
Dairy products	11.5	2-32	123.8
Cut flowers and plants	4.0	2-32	9.4
Beverages and spirits	1 028.8	12-3 000	1.9
Tobacco	22.0	22	188.6
Other agricultural products	4.1	0-32	154.3

Source: WTO (2005b).

30/ In June 2004, the exchange rate was LE 6.20 per US\$1.00, so LE 8 billion was equivalent to US\$1.3 billion.

**GATT/WTO**

Based on the Uruguay Round, Egypt presented base tariff rates for over 600 agricultural tariff lines and offered to bind all agricultural tariffs. For most products, the bindings were in the range of 5 to 80%, and there was a commitment to reduce them progressively. Egypt did not declare any agricultural support measures; so, it is bound by the 10% *de minimus* restriction under which product-specific support may not exceed 10% of the value of that commodity and non-product-specific support may not exceed 10% of the value of agricultural production.

**EMAA-Egypt**

Egypt signed an EMEA with the EU in 2001, and this came into force in 2004. The agreement seeks to establish a free trade area for industrial products over a 12-year period. The restricted access to the EU agricultural market has been the most important barrier for the expansion of Egypt's agricultural exports. The last version of the agreement includes an enlargement of quotas and longer seasonal windows for some Egyptian exports.

**Common Market for Eastern and Southern Africa**

Egypt became a member of the Common Market for Eastern and Southern Africa in 1998. The organization includes 20 countries in eastern and southern Africa that are working to reduce trade barriers. A subgroup of nine countries formed a free trade area and were planning to phase out internal tariffs between 1992 and 2000. Two more countries joined the FTA in 2004, but Egypt is not a member of the FTA. A customs union, with common external tariffs, was to be established by 2003 (Siam 2002), but disagreements over the levels of external tariffs prevented this from occurring.

**GAFTA**

Egypt became a member of GAFTA in 1998. According to this agreement, tariffs will be gradually phased out over a ten-year period from the signing of the agreement. Some topics are still subject to negotiation among the 14 Arab countries, including an agricultural agenda and rules of origin.

**Other bilateral FTAs**

There are several bilateral FTAs between Egypt and other NENA countries. The Egypt-Tunisia Free Trade Agreement was initiated in 1998. It gives an exemption on customs duties for specific products from both countries. A 20% reduction in customs duties was granted for some other groups of commodities for five years. The Egypt-Turkey Free Trade Agreement was also signed in 1998. It was intended to boost trade, investment ties and cooperation by using Turkey as a gateway for Egyptian products into the EU market. In turn, Egypt will serve as a gateway for Turkish commodities in the Middle East and Africa. An FTA has been created on a bilateral basis between Egypt and Jordan.

Although one might think that the large number of FTAs implies relatively open trade policies, some have expressed concern about the proliferation of regional and bilateral agreements. UNDP (2005b) notes that "there are difficulties in administering different rules of origin and diverse customs treatments related to various agreements. Adapting to different standards, laws and regulations may lead to delays in implementation." The report proposes pursuing multilateral trade liberalization through WTO and simultaneously working on trade facilitation, such as through streamlining customs procedures.

**5.4 Poverty and household budget patterns**

This section describes the living conditions and sources of income of Egyptian households, with particular emphasis on small-scale farmers. The main source of data is the Egypt Integrated Household Survey carried out by the International Food Policy Research Institute in 1997-98. Analysis of the survey suggests that 62.3% of the households are in Lower Egypt, while the remainder are in Upper Egypt (Table 5-2). Lower Egypt's landscape is dominated by the Nile Delta at Alexandria. The delta region is well watered and crisscrossed by channels and canals. Upper Egypt is a narrow strip of land that extends from the cataract boundaries of Aswan to the area south of Cairo. Historically, the land in Upper Egypt was more isolated from activities in the north.

Nationally, 53.8% and 46.2% of the population reside in urban and rural areas, respectively. Lower Egypt is more urbanized, while Upper Egypt is more rural.

We define a farm household as a household relying on crop or livestock production. Only about one third of the households in Lower Egypt are engaged in farming, compared to more than half in Upper Egypt. More than three fourths of farmers reside in rural areas; the remainder are in urban areas. Farm households represent about 70% of rural households and 18% of urban households. In terms of welfare, more than 60% of the poorest households are rural, and two thirds of the poorest households are classified as farm households.

#### 5.4.1 Poverty

This study uses per capita consumption expenditure to measure family well-being and poverty. As shown in Table 5-3, the national average consumption expenditure per capita in 1997/98 was LE 1,782 (US\$517 at the 1998 exchange rate of LE 3.45 per US\$1.00). The figures at the regional level show that per capita expenditures are essentially equal in the Lower Nile and Upper Nile. This is consistent with calculations of the Human Development Index that show the gap between Upper and Lower Egypt narrowing over time (UNDP 2005b). Between urban and rural areas, the contrast is much sharper. The average per capita expenditure is only LE 1,368 annually among rural households, but almost 60% higher (LE 2,137) among urban households. The results also suggest that woman-headed households show per capita consumption at 12% higher than man-headed households.

Among farm households, those producing only livestock tend to be more well off than those producing crops. Within crop-producing households, those producing sugar cane are the poorest group, with per capita expenditures averaging LE 1,042. Farm households growing rice are the wealthiest, followed by households producing wheat and fruit and vegetables.

**TABLE 5-2**  
Distribution of Egyptian households based on occupation and location

	National	Location	
		Urban	Rural
(percentage of all Egyptian households)			
Total Population	100.0	53.8	46.2
Non-farmers	57.8	44.2	13.6
Farmers	42.2	9.6	32.6
Lower Egypt	62.3	37.3	25.0
Non-farmers	40.0	32.0	8.0
Farmers	22.3	5.3	17.0
Upper Egypt	37.7	16.5	21.2
Non-farmers	17.8	12.2	5.6
Farmers	19.9	4.3	15.6
Poorest tercile	33.4	12.1	21.4
Non-farmers	16.1	9.3	6.8
Farmers	17.3	2.8	14.6
Middle tercile	33.3	17.7	15.7
Non-farmers	18.6	14.4	4.2
Farmers	14.7	3.3	11.5
Richest tercile	33.3	24.0	9.2
Non-farmers	23.1	20.5	2.6
Farmers	10.2	3.6	6.5

Source: 1997-98 Egypt Integrated Household Survey.

Note: Lower Egypt includes the following northern governorates: Cairo, Alexandria, Suez, Damietta, Dakhalia, Sharbia, Kalyubia, Kuer, Gharbia, El Menufi, Behera and Ismailia. Upper Egypt includes the following southern governorates: Menya, Giza, Fayoum, BeniSuef, Assiut, Souhag, Qena and Aswan.

**TABLE 5-3**  
Expenditure and household size for different types of households in Egypt

	Household expenditure (LE/year)	Per capita expenditure (LE/year)	Household size (number)
National	8 874	1 782	5.7
Region			
Lower Nile	8 607	1 794	5.4
Upper Nile	9 318	1 764	6.2
Location			
Urban	9 409	2 137	4.9
Rural	8 249	1 368	6.6
Household status			
Farmer	9 368	1 485	6.9
Non-Farmer	8 515	1 998	4.8
Gender of heads of households			
Man	9 264	1 751	6.0
Woman	6 664	1 962	4.2
Farm type			
Producing livestock only	8 210	1 541	5.9
Producing crops			
Cotton	11 653	1 419	8.9
Wheat	11 425	1 480	8.4
Rice	11 861	1 517	8.8
Fruit and vegetable	12 743	1 465	9.5
Sugar cane	7 533	1 042	7.4
Other crops	10 746	1 419	8.1

Source: 1997-98 Egypt Integrated Household Survey.

**TABLE 5-4**  
Incidence of poverty and number of poor people in Egypt

Year	Share of population that is poor (%)	Number of poor people (millions)
Poverty Line		
1981/82	30.2	12.9
1990/91	39.1	20.7
1995/96	48.2	28.3
1999/2000	42.0	26.9

Source: World Bank (2002a).

Note: These poverty figures correspond to the upper poverty line in the World Bank report. The lower poverty line is the expenditure that typically allows a household to meet basic caloric needs, but does not include any allowance for non-food expenditure.

In the cost-of-basic-needs approach, the poverty line represents the level of per capita expenditure at which the members of a household may be expected to meet their basic caloric needs, as well as their minimum non-food requirements. About 27 million people in Egypt, representing 42% of the population, were living below the poverty line in 1999-2000. Although poverty statistics are difficult to compare over time, it appears that poverty increased in the 1980s and early 1990s, but declined in the second half of the 1990s (Table 5-4).

Based on the 1997-98 Egypt Integrated Household Survey, we calculate the poverty rate using the poverty line calculated by Datt, Jolliffe and Sharma (1998) according to a method similar to the approach in World Bank (2002). This analysis finds that the poverty rate in Egypt was 38% in 1997/98, as shown in Table 5-5. This is comparable to, but slightly below the 42% reported for 1999/2000 using the upper poverty line. The poverty rate is higher in rural areas than it is in urban areas (40.9% compared to 35.8%). The poverty rate is highest in rural areas in Upper Egypt, followed by the rates in metropolitan areas; it is lowest in urban areas in Upper Egypt.

**TABLE 5-5**  
Incidence of poverty for different types of households in Egypt

	National (%)	Urban (%)	Rural (%)
National	38.1	35.8	40.9
Strata			
Metropolitan	41.5	41.5	-
Lower-urban	38.1	38.1	-
Lower-rural	38.8	-	38.8
Upper-urban	25.9	25.9	-
Upper-rural	43.3	-	43.2
Household status			
Farmer	39.4	39.5	39.4
Non-farmer	37.2	35.0	44.4
Gender of heads-of-household			
Male	38.0	35.9	40.5
Female	38.9	35.4	42.8
Farm type			
Producing livestock only	43.2	39.7	44.9
Producing crops			
Cotton	31.7	38.1	31.1
Wheat	29.8	31.0	29.7
Rice	33.5	27.4	33.9
Fruit and vegetables	27.4	33.3	26.5
Sugar cane	62.5	-	62.5
Other crops	35.0	38.6	34.6

Source: 1997-98 Egypt Integrated Household Survey.

Farm households show a slightly higher incidence of poverty than non-farm households, although, in rural areas, where most farmers are located, the proportion in poverty is higher among non-farmers. In rural areas, non-farmers probably include landless agricultural labourers. Among different types of farmers, sugar cane growers show the highest incidence of poverty (62.5%), while fruit and vegetable growers show the lowest (27%). Farmers producing livestock show the second highest poverty rate, despite the relatively high average consumption expenditures by this group. This suggests a highly skewed distribution, with many poor small-scale livestock producers and a few large-scale commercial livestock producers.

In rural areas, woman-headed households tend to be slightly poorer than man-headed households, while, in urban areas, the difference in poverty rates is negligible. Overall, the proportion of woman-headed households is about 15% according to the Egypt Integrated Household Survey.

#### 5.4.2 Sources of income

While household consumption expenditures are considered the most accurate basis for assessing well-being and poverty, the Egypt Integrated Household Survey also provides information on household income and its sources. The total income of each household is divided into six sources: crop production, livestock production, wages, non-farm business income, transfers and other income. We include the value of home-consumed agricultural production in our calculation of income.

According to the Egypt Integrated Household Survey, almost three quarters of Egyptian households earn wages as one source of income, implying that wages are the most widespread single source.<sup>31</sup> The proportion of all households with livestock income is 37%. About one fifth of the population participates in crop production, and 29% receive transfers. As expected, the percentage of rural households with crop and livestock income is much higher than the percentage of urban households with income from these sources. Surprisingly, though, the share of rural households

31/ Often, the levels of reported household incomes in household surveys are less than the reported consumption expenditures. This is the case in the Egypt Integrated Household Survey, as shown in Table 5-4 and Table 5-8. Income estimates are generally considered less accurate due to hesitance among households to reveal this information and income fluctuations over time.

**TABLE 5-6**  
Percentage of households involved in income activities by region

	Nationwide	Urban	Rural
Crop production	19.3	3.4	37.7
Wheat	11.9	1.9	23.5
Rice	5.4	0.7	10.9
Cotton	4.2	0.6	8.4
Fruit and vegetables	0.3	0.1	0.6
Other cereals	3.4	0.6	6.7
Pulses	0.2	0.1	0.4
Tubers	0.2	0	0.5
Oilseed	0.3	0.1	0.6
Spices	0.1	0	0.1
Sugar cane	1.3	0	2.7
Other cash crops	1.2	0.2	2.5
Clover	14.1	2.3	28.0
Livestock production	36.6	15.5	61.2
Cattle	13.9	1.0	12.9
Goats, sheep	7.7	1.2	6.5
Chickens	32.9	7.6	25.3
Wage income	73.9	75.7	71.8
Non-farm business income	14.8	16.8	12.6
Transfers	29.4	30.2	28.4
Other income	39.0	42.2	35.2

Source: 1997-98 Egypt Integrated Household Survey.

**TABLE 5-7**  
Sources of income for different types of households

Income category	National average	Urban households	Rural households	Non-farm households	Farm households	Wheat farmers	Rice farmers	Cotton farmers	Fruit and vegetable farmers	Sugar cane farmers
<b>Total (LE/household/year)</b>	<b>6 111</b>	<b>6 866</b>	<b>5 230</b>	<b>5 805</b>	<b>6 531</b>	<b>9 583</b>	<b>11 213</b>	<b>11 716</b>	<b>11 164</b>	<b>7 898</b>
Composition (% of total)										
Crops	11.5	2.7	25.0	-	25.6	45.8	54.9	60.9	40.5	64.3
Wheat	1.4	0.4	2.8	-	3.0	7.0	7.3	7.1	3.7	11.2
Rice	2.2	0.4	4.9	-	4.9	9.4	21.9	8.4	3.0	-
Cotton	1.6	0.5	3.4	-	3.6	7.0	8.3	21.9	5.9	0.4
Fruit & vegetables	0.7	0.2	1.4	-	1.5	1.4	2.0	1.6	10.5	-0.1
Sugar cane	0.6	-	1.4	-	1.3	1.9	-	0	-	31.8
Other crops	5.1	1.2	11.1	-	11.3	19.1	15.3	21.8	17.4	21.1
Livestock	5.7	1.4	12.3	-	12.6	16.7	19.0	13.2	9.1	3.0
Wages	49.5	55.6	40.1	61.2	35.2	19.3	15.8	16.1	26.5	11.5
Non-farm business	14.7	18.5	8.8	16.1	12.9	6.8	3.6	1.8	16.0	1.1
Transfers	3.6	3.6	3.6	3.9	3.2	1.3	-0.5	-	-0.1	6.5
Other	15.0	18.1	10.2	18.8	10.5	10.2	7.2	8.1	7.9	13.5

Source: 1997-98 Egypt Integrated Household Survey.

with wage income and non-farm business income is almost as high as the corresponding share in urban areas (Table 5-6).

Table 5-7 shows the composition of income for different types of households in Egypt. At the national level, crop production contributes 11% of household income on average. Although livestock production is carried out by nearly 40% of households, a large number of these households only raise poultry; so, livestock production's contribution to average household income is relatively small, less than 6%. Non-farm business income represents 15% of the total. Almost half of these non-farm businesses are in the retail, hotel and restaurant sectors, followed by manufactures and services. Transfers contribute less than 4% of income, although they are received by nearly 20% of households.

Although rural areas in developing countries are generally dependent on agriculture, the data for Egypt indicate that the rural non-farm economy is quite important. Wages account for 40% of the income of rural households, compared to 56% among urban households. Crop and livestock income provide 25% and 12% of rural household incomes, respectively. Even among *farm* households, farm income (crops and livestock) account for less than 40% of income. Thus, overall, the non-farm sector contributes almost two thirds of rural household income. These findings are comparable with those recorded in other studies in the region. For example, non-farm income represents the single most important source of income in rural areas of Jordan, accounting for about 51% of total household income (Adams 2001).

Table 5-7 also shows the composition of income for farm households growing different types of crops, especially wheat, rice, cotton, fruits and vegetables, and sugar cane. It is important to recall that these are not exclusive categories: many farmers will fall into more than one category. Furthermore, it is not necessary that farmers growing a particular crop receive a large share of their income from that crop. Cotton and sugar cane farmers are the most specialized in crop production, earning more than 60% of their income from crops. Sugar cane farmers are fairly dependent on that crop (32% of income), while wheat accounts for only 7% of the income of wheat farmers. Fruit and vegetable farmers have a higher share of their income from wages and from non-farm businesses than do growers of other crops. Perhaps the risk and expense of horticultural production exclude households that do not have significant non-farm income sources.

Table 5-8 shows the sources of income from *rural* households based on expenditure tercile and farm size. Wages play a significant role as a source of income in all terciles, but their contribution is greater among the poor (47%) than among the middle and upper terciles (less than 39%). Similarly, wheat is much more important to poor and middle-tercile households (13%) than to upper-tercile households (3%). This is not surprising given the position of wheat as the main staple food. In contrast, rice, cotton, livestock and "other income" are more important sources of income for households in the upper terciles. Fruit and vegetable income is more important to the poorest and richest terciles compared to the middle tercile. This may reflect differences between commercial production and backyard horticultural production for households' own consumption.

Looking at the right-hand side of Table 5-8, we see that landless households are the poorest; the annual household income of LE 3,450 is more than 30% lower than the average rural income. Not surprisingly, large-scale farms benefit from the land they own, earning an income that is more than double the rural average income. However, it is interesting to note that medium-sized farms have incomes that are slightly lower than the incomes of small-scale farms.

As expected, households with no land or small farms earn the highest share of income from wages and non-farm businesses. Small farms also earn a relatively large share of their incomes from rice production (28% compared to 21% and 17% in the other categories) and from "other crops". Large-scale farms earn a relatively large share of their incomes from wheat and cotton and from crops in general. Livestock and fruit and vegetable income seem to be more important among medium-sized farms. These results highlight the fact that small farmers should not be considered a synonym for poor rural households, particularly in a country where agroecological potential and cropping intensity vary widely.

### 5.4.3 Household consumption patterns

Table 5-9 reports average household consumption expenditure and patterns for different types of households. At the national level, the consumption expenditure among households is LE8,837 annually. Household decisions on the allocation of resources to food spending and other needs have widespread implications for well-being. The food share in total household budgets at the national level is 57%. Urban and non-farm households spend lower proportions of their total expenditures on food consumption (about 53%), while rural and farm households spend a larger share on food (62-64%). The results are consistent with the international patterns, whereby low-income households spend a larger share of their budgets on food, while richer households spend a larger portion on non-food items. Food, clothing and footwear appear to be necessities in the sense that their budget shares decline as income rises, while education, health, recreation and other groups are luxuries in the sense that their budget shares rise with income.

**TABLE 5-8**  
Sources of income for rural households by expenditure tercile and farm size

Income category	Per capita expenditure category			Farm size category				Average
	Poor	Middle	Rich	No land	Small	Medium	Large	
<b>Total (LE/household/year)</b>	<b>4 144</b>	<b>5 743</b>	<b>6 074</b>	<b>3 450</b>	<b>5 690</b>	<b>5 523</b>	<b>12 055</b>	<b>5 230</b>
Per capita (LE/person/year)	569	928	1 160	700	825	754	1 378	808
<b>Composition (% of total)</b>								
Crops	24.4	30.2	20.8	-	33.7	31.4	56.2	25.0
Wheat	13.0	13.3	3.2	-	7.7	1.8	14.6	11.3
Rice	12.9	22.5	24.9	-	27.6	20.9	17.1	19.6
Cotton	11.5	13.7	17.1	-	3.0	15.8	15.9	13.6
Sugar cane	8.5	3.0	7.0	-	2.9	9.2	5.6	5.7
Fruit and vegetables	8.0	3.0	6.4	-	4.3	12.6	4.0	5.4
Other	46.2	44.5	41.4	-	54.6	39.6	42.7	44.3
Livestock	6.4	11.6	11.4	1.0	12.8	20.0	15.7	12.3
Wages	46.9	37.5	38.6	63.4	36.9	34.2	15.2	40.1
Non-farm business	9.5	8.3	9.9	15.7	6.3	2.6	3.9	8.8
Transfers	4.9	2.1	4.2	6.3	2.5	1.3	1.5	3.6
Other	7.9	10.4	14.9	13.5	7.9	10.9	7.5	10.2

Source: 1997-98 Egypt Integrated Household Survey.

Note: Per capita expenditure categories and farm-size categories are defined by terciles among rural households. Small farms have less than 0.28 ha; medium-sized farms have 0.28 to 0.63 ha, and large farms have more than 0.63 ha.

It is interesting to note that the food consumption patterns are not closely related to the crops grown. For example, wheat farmers do not consume more wheat products, and rice farmers consume no more rice than other farmers. This is a sign of the relatively commercial orientation of Egyptian farmers and relatively low transaction costs, presumably due to the high population density in settled areas. This is further supported by the fact that almost all farmers are either net buyers or net sellers and few produce only for their own consumption without buying or selling.

### 5.5 Impact of commodity price changes on poverty

To understand the effects on household incomes and poverty of agricultural price changes, we simulate the effect for several crops that are important in Egypt. We focus on wheat, rice, cotton, fruits and vegetables, and sugar cane. First, we compute the consumption expenditure of each household and the percentage of these households in poverty. Next, we simulate the effect on their incomes resulting from an increase in producer prices and consumer prices, taking the household's production and consumption of each crop into account. Adding the change in income to initial consumption expenditures (under the assumption that all the change is spent on consumption), we compute a new per capita consumption expenditure level for each household and recompute the average income and poverty measures for different types of households. The Foster-Greer-Thorbecke poverty measures are used as follows:

- the headcount index (incidence), which is the proportion of people below the poverty line;
- the poverty gap index (intensity), which is the average shortfall of the income of the poor from the poverty line, averaged over the whole population; and
- the severity index, which addresses the inequality of incomes among the poor.

The short-run simulation holds production and consumption quantities fixed at their initial levels, while the long-run simulation allows producers and consumers to respond to price changes based on plausible price elasticities. The simulation method is described in more detail in the Annex to this chapter.

### 5.5.1 Wheat

Egypt's wheat sector has been partially liberalized since 1987. Devaluation has brought local prices closer to international wheat prices. Under the Agricultural Reform Programme wheat area restrictions, quotas and fixed procurement prices have been removed. Egypt continues to encourage the expansion of acreage and the use of newly developed, high-yielding wheat varieties. Within the last two decades, wheat production has tripled. Despite these efforts to increase local wheat production, Egypt continues to import. International wheat prices are volatile and are affected by changes in the cost of ocean freight, while domestic prices are subject to stabilization measures. Household characteristics with respect to wheat production, consumption and net sales are shown in Table 5-10. Almost all Egyptian households (97%) consume wheat products, and 12% grow wheat. Even among rural households, less than one quarter of the households grow wheat. Nationally, 89% are net buyers, while only 8% are net sellers, but about two thirds of wheat farmers are net sellers.

Nationally, the annual expenditure of wheat-producing households averages LE 11,104 per household.<sup>32</sup> In the simulation results, a price increase of 10% will raise the average net earnings of

**TABLE 5-9**  
Expenditures patterns for different types of households

Expenditure category	National average	Urban households	Rural households	Non-farm households	Farm households	Wheat farmers	Rice farmers	Cotton farmers	Sugar cane farmers	Fruit and vegetable farmers
Per capita expenditure (LE/person/year)	1 783	2 134	1 374	1 998	1 485	1 483	1 515	1 483	1 042	1 445
Poverty rate (%)	38.1	35.7	40.9	37.1	39.4	29.8	33.5	31.7	62.5	27.4
Household expenditure (LE/household/year)	8 837	9 373	8 212	8 515	9 359	11 417	11 800	11 653	7 533	13 000
Food	57.4	52.5	64.0	53.3	62.0	63.0	63.4	65.1	68.1	66.1
Wheat	6.3	4.6	8.6	4.9	8.0	8.5	8.7	6.1	9.2	10.9
Rice	3.0	2.4	3.7	2.5	3.4	4.2	3.7	6.2	4.2	1.2
Sugar	2.2	1.6	2.9	1.7	2.7	2.9	2.8	2.4	2.3	4.8
Fruit & vegetables	6.0	5.9	6.1	6.0	5.8	5.3	5.4	5.9	5.9	5.8
Other	39.9	38.0	42.7	38.2	42.1	42.1	42.8	44.5	46.5	43.4
Clothing	6.3	7.0	5.5	6.9	5.7	5.6	5.4	5.0	5.2	7.8
Health	4.0	4.3	3.6	4.5	3.4	4.0	3.5	3.4	2.0	2.9
Education	4.9	6.1	3.4	6.0	3.6	3.3	3.2	3.0	3.2	2.5
Household equipment	4.6	6.0	2.8	5.7	3.3	2.7	2.3	1.9	2.6	2.7
Other	22.8	24.3	20.8	23.5	22.1	21.5	22.3	21.6	19.0	17.9

Source: 1997-98 Egypt Integrated Household Survey.

**TABLE 5-10**  
Percentage of households that are producers and consumers of wheat

	National average	Urban households	Rural households
Percent of households that:			
Produce wheat	12.0	2.0	23.5
Consume wheat products	97.2	97.9	96.4
Are net buyers of wheat	88.6	96.3	79.7
Are net sellers of wheat	8.2	1.6	15.9
Are self-sufficient	3.2	2.1	4.4
Percent of wheat farmers who:			
Are net buyers of wheat	31.3	19.5	32.5
Are net sellers of wheat	68.7	80.5	67.5

Source: 1997-98 Egypt Integrated Household Survey.

32/ Average household consumption expenditures may differ slightly from those shown in Table 5-9 due to sample selection (the removal of incomplete cases) during the simulations.

wheat-producing households by LE 66 in the short run and LE 68 in the long run. The reason these figures are so small is that, on average, wheat accounts for only 7% of the income of wheat farmers (Table 5-7). Furthermore, many wheat farmers buy wheat products; so, the net gain from higher prices is reduced. One third of the wheat farmers are actually net buyers of wheat; these deficit wheat farmers lose when rice prices go up.

As shown in Table 5-11, the poverty rate among wheat growers is 30%. A 40% increase in the wheat price has negligible effects on the poverty rate among wheat farmers in the short run because wheat does not represent a major source of income for many of them and because some of them purchase wheat products. In the long run, wheat farmers expand output and substitute away from wheat consumption; so, their gains are greater. A 40% price increase brings down the poverty rate from 30% to 27% in the long run. Increases in wheat prices have small and non-linear effects on the depth and severity of poverty among wheat farmers.

### 5.5.2 Rice

Rice is a preferred food grain among many Egyptians, and a large segment of the population in Egypt consumes rice. Rice production occurs mostly in the Lower Nile, in about 10% of the agricultural area of Egypt. Egypt has recently been a net rice exporter. In 2005, rice production was 6.3 million t, while domestic consumption was only 3.5 million t. According to the Egypt Integrated Household Survey, more than 90% of households consume rice nationally, but only 5% grow rice (Table 5-12). Among rice farmers, almost 90% are net sellers.

The percentage of rural households growing rice that are poor is somewhat higher than the corresponding figure among wheat growers, as shown in Table 5-13. A 10% increase in rice prices leads to an average income increase of LE 272 in the short run and LE 277 in the long run. The gains among rice growers of a 10% price increase are much greater than the gains among wheat growers because rice accounts for a larger share of rice grower income and because a smaller share of rice growers are net buyers (only 10%).

A 40% price increase reduces the poverty rate among rice-producing households from 34% to 28% in the short run and to 27% in the long run. Higher rice prices also reduce the depth and severity of poverty among rice growers.

**TABLE 5-11**  
Effects of increased wheat prices on poverty among wheat growers in Egypt

	Short run	Long run
Base expenditures (LE/household/year)	11 104	11 104
Change in income following a 10% wheat price rise (LE/household/year)	66	82
Incidence of poverty ( $P_0$ )		
Base	0.30	0.30
10% increase in wheat price	0.30	0.30
20% increase in wheat price	0.30	0.29
30% increase in wheat price	0.30	0.28
40% increase in wheat price	0.30	0.27
Depth of poverty ( $P_1$ )		
Base	0.075	0.075
10% increase in wheat price	0.073	0.072
20% increase in wheat price	0.074	0.069
30% increase in wheat price	0.075	0.066
40% increase in wheat price	0.076	0.074
Severity of poverty ( $P_2$ )		
Base	0.028	0.028
10% increase in wheat price	0.027	0.026
20% increase in wheat price	0.027	0.025
30% increase in wheat price	0.028	0.024
40% increase in wheat price	0.028	0.023

Source: Calculated from the 1997-98 Egypt Integrated Household Survey.

**TABLE 5-12**  
Percentage of households that are producers and consumers of rice

	National average	Urban households	Rural households
Percent of households that:			
Produce rice	5.4	0.7	10.9
Consume rice products	90.8	93.6	87.6
Are net buyers of rice	84.9	92.2	76.5
Are net sellers of rice	4.9	0.4	13.5
Are self-sufficient	10.2	7.4	10.0
Percent of rice farmers who:			
Are net buyers of rice	10.2	37.7	8.2
Are net sellers of rice	89.8	62.3	91.8

Source: 1997-98 Egypt Integrated Household Survey.

**TABLE 5-13**  
Effects of increased rice prices on poverty among rice growers in Egypt

	Short run	Long run
Base expenditures (LE/household/year)	11 861	11 861
Change in income following a 10% rice price increase (LE/household/year)	272	277
Incidence of poverty ( $P_0$ )		
Base	0.34	0.34
10% increase in rice price	0.32	0.32
20% increase in rice price	0.30	0.30
30% increase in rice price	0.29	0.29
40% increase in rice price	0.28	0.27
Depth of poverty ( $P_1$ )		
Base	0.078	0.078
10% increase in rice price	0.072	0.072
20% increase in rice price	0.067	0.067
30% increase in rice price	0.062	0.061
40% increase in rice price	0.058	0.056
Severity of poverty ( $P_2$ )		
Base	0.029	0.029
10% increase in rice price	0.026	0.026
20% increase in rice price	0.024	0.023
30% increase in rice price	0.021	0.021
40% increase in rice price	0.019	0.018

Source: Calculated from the 1997-98 Egypt Integrated Household Survey.

### 5.5.3 Cotton

Cotton is one of the main agricultural exports of Egypt (along with fruits and vegetables). The crop is also important in terms of employment; among farmers, 9.9% produce cotton, and it is estimated that cotton production employs up to 1 million farm workers. Moreover, Egypt's exports of textiles and clothing products amounted to US\$516 million in 2003, while imports were US\$279 million.

Table 5-14 shows the effect of cotton price increases of 10% to 40% on different measures of poverty among cotton growers. In the base scenario, 32% of cotton farmers are living below the poverty line, slightly higher than the rate among wheat farmers and slightly below the rate among rice farmers. In the simulation analysis, a 10% increase in the cotton price raises the average household income among cotton growers by LE 306 in the short run and LE 310 in the long run.

A 40% increase in cotton prices brings the poverty rates down to 26% in the short run and 25% in the long run. This represents about a 16% reduction in the poverty level among cotton farmers. There are even larger relative falls in the depth and intensity of poverty among cotton growers.

**TABLE 5-14**  
Effects of increased cotton prices on poverty among cotton growers in Egypt

	Short run	Long run
Base expenditures (LE/household/year)	11 653	11 653
Change in income caused by a 10% cotton price rise (LE/household/year)	306	310
Incidence of poverty ( $P_0$ )		
Base	0.32	0.32
10% increase in cotton price	0.30	0.30
20% increase in cotton price	0.27	0.27
30% increase in cotton price	0.26	0.26
40% increase in cotton price	0.26	0.25
Depth of poverty ( $P_1$ )		
Base	0.091	0.091
10% increase in cotton price	0.085	0.084
20% increase in cotton price	0.079	0.079
30% increase in cotton price	0.074	0.073
40% increase in cotton price	0.069	0.068
Severity of poverty ( $P_2$ )		
Base	0.039	0.039
10% increase in cotton price	0.036	0.036
20% increase in cotton price	0.034	0.033
30% increase in cotton price	0.031	0.031
40% increase in cotton price	0.029	0.028

Source: Calculated from the 1997-98 Egypt Integrated Household Survey.

**TABLE 5-15**  
Percentage of households that are producers and consumers of fruit and vegetables

	National average	Urban households	Rural households
Percent of households that:			
Produce fruits and vegetables	3.0	0.7	5.8
Consume fruits and vegetables	96.8	97.6	95.9
Are net buyers of fruits and vegetables	94.9	96.9	92.5
Are net sellers of fruits and vegetables	1.9	0.6	3.5
Are self-sufficient	3.2	2.5	4.0
Percent of fruit and vegetable farmers who:			
Are net buyers of fruits and vegetables	35.2	10.6	38.5
Are net sellers of fruits and vegetables	63.6	89.4	60.1

Source: 1997/98 Egypt Integrated Household Survey.

#### 5.5.4 Fruit and vegetables

During two decades (1982-2002), the total production of vegetables increased from 8.6 million to 16.2 million t, an annual growth rate of 3.9%. The growth rate for fruits was almost 5% annually. In term of area shares, fruit and vegetable production represented about 20% of the cropped area in 2000/01, while cereals occupied 47% of the area.

Table 5-15 indicates that more than 95% of households consume fruits and vegetables. Expenditures on fruits and vegetables account for 6% of total consumption and over 10% of food consumption expenditures nationally, according to the Egypt Integrated Household Survey. About 3% of all Egyptian households grow fruits and vegetables, while the figure is 6% among rural households. Almost two thirds of horticultural growers are net sellers of fruits and vegetables, while more than one third are net buyers.

According to Table 5-16, the annual average household consumption expenditures of these households are LE 12,743. The incidence of poverty among fruit and vegetable growers is 29%, somewhat lower than the figure related to other crops considered here. In the simulation analysis,

**TABLE 5-16**  
**Effects of increased fruit and vegetable prices on poverty among**  
**fruit and vegetable growers in Egypt**

	Short run	Long run
Base expenditures (LE/household/year)	12 743	12 743
Change in income caused by a 10% price rise for fruits and vegetables (LE/household/yr)	164	167
Incidence of poverty (P <sub>0</sub> )		
Base	0.29	0.29
10% increase in prices	0.26	0.26
20% increase in prices	0.25	0.25
30% increase in prices	0.24	0.24
40% increase in prices	0.24	0.24
Depth of poverty (P <sub>1</sub> )		
Base	0.085	0.085
10% increase in prices	0.081	0.081
20% increase in prices	0.076	0.076
30% increase in prices	0.073	0.072
40% increase in prices	0.069	0.068
Severity of poverty (P <sub>2</sub> )		
Base	0.038	0.038
10% increase in prices	0.035	0.035
20% increase in prices	0.032	0.032
30% increase in prices	0.029	0.029
40% increase in prices	0.027	0.026

Source: Calculated from the 1997-98 Egypt Integrated Household Survey.

**TABLE 5-17**  
**Percentage of households that are producers of sugar cane and consumers of sugar**

	National average	Urban households	Rural households
Percent of households that:			
Produce a sugar crop	1.3	0.0	2.7
Consume sugar	91.7	91.7	96.4
Are net buyers of sugar	90.0	91.1	88.7
Are net sellers of sugar	1.3	0.0	2.7
Are self-sufficient	8.7	8.9	8.6
Percent of sugar crop farmers who:			
Are net buyers of sugar	0	-	0
Are net sellers of sugar	100	-	100

Source: 1997/98 Egypt Integrated Household Survey.

a 10% increase in fruit and vegetable prices increases the net income of growers by LE 164 in the short run and LE 167 in the long run. A price increase of 40% reduces the poverty rate among fruit and vegetable producers from 29% to 24% in both the short- and the long-run scenarios. This price increase reduces the depth and intensity of poverty by 20-30% of the original values.

### 5.5.5 Sugar cane

The total production of sugar increased from 649,000 t in 1982 to 1.4 million t in 2000, reflecting an annual growth of 4.4%. The Government continues to promote both cane and beet sugar production. However, given the extreme competition for Egypt's limited land and water resources, the area under sugar cane cultivation is not expected to increase. The new sugar policy is aimed at promoting beet sugar production by establishing three new sugar beet milling facilities.

Egypt is a major importer of sugar. Roughly one third of consumption needs are imported; the remainder comes from domestic production. Egypt continues to subsidize sugar consumption

under the rationing system, albeit at a decreasing rate. As a long-term plan, the Government is making efforts to cut the cost of the sugar programme by reducing the amount of sugar available through the ration system.

Although the proportion of households that grow sugar cane is barely 1%, all households that produce a sugar crop are net sellers (Table 5-17). The local effect could be larger, however, because sugar cane growers are concentrated in the rural part of Upper Egypt. Furthermore, as mentioned elsewhere above, sugar cane farmers tend to be more specialized than growers of other crops, earning almost one third of their incomes from sugar cane. Sugar cane producing households have per capita incomes significantly below the national average, and their poverty rate is 63%, far above the rural average of 41%.

As shown in Table 5-18, the incidence of poverty among sugar cane growers is 63%, far higher than the rate among growers of other major crops. A 10% increase in the producer price of sugar cane raises the net average incomes of sugar cane growers by LE 461 in the short run and LE 468 in the long run. A 40% increase in sugar cane prices results in a marked drop in the poverty among sugar cane growers from 63% to 43%. Overall, the long-run simulation results indicate a slightly greater poverty reduction than the results of the short-run simulation. The depth and severity of poverty among sugar cane producing households also decline with higher prices. The reason for the strong relationship between sugar cane prices and the poverty rate among sugar cane growers is that these households derive a large share of their incomes from this crop.

**TABLE 5-18**  
Effects of increased sugar cane prices on poverty among sugar cane growers in Egypt

	Short run	Long run
Base expenditures (LE/household/year)	7 533	7 533
Change in income caused by a 10% sugar cane price rise (LE/household/year)	461	468
Incidence of poverty ( $P_0$ )		
Base	0.63	0.63
10% increase in sugar cane price	0.55	0.53
20% increase in sugar cane price	0.53	0.53
30% increase in sugar cane price	0.48	0.45
40% increase in sugar cane price	0.43	0.43
Depth of poverty ( $P_1$ )		
Base	0.145	0.145
10% increase in sugar cane price	0.119	0.118
20% increase in sugar cane price	0.095	0.093
30% increase in sugar cane price	0.073	0.070
40% increase in sugar cane price	0.055	0.051
Severity of poverty ( $P_2$ )		
Base	0.044	0.044
10% increase in sugar cane price	0.031	0.031
20% increase in sugar cane price	0.022	0.021
30% increase in sugar cane price	0.015	0.014
40% increase in sugar cane price	0.010	0.009

Source: Calculated from the 1997-98 Egypt Integrated Household Survey.

### 5.5.6 Impact of crop price increases on overall poverty

In sections 5.5.1 to 5.5.5, we have simulated the impact of raising the prices of an individual crop on the growers of that crop. In this section, we simulate the impact of raising the prices of an individual crop on the rural, urban and overall population, including growers and non-growers. In the interest of brevity and because the overall effects are small, we limit the simulations to 40% increases in each crop price. The results of these simulations are shown in Table 5-19.

Wheat price increases have a very small negative effect, on average, in the short run and a very slight positive effect in the long run, as supply and demand respond to the higher prices. Similar patterns hold in both rural and urban areas.

The effects of rice price increases on the whole population are quite small. Even a 40% increase in rice prices raises the poverty rate at the national level by only 1 percentage point.

While the incidence and depth of poverty among cotton growers are strongly affected by cotton prices (particularly in rural areas), the broader effect on poverty level reductions at the regional level is negligible. This is explained by the fact that cotton growers represent only 4.2% of all households nationally.

A 40% price increase in fruit and vegetable prices causes poverty to rise, but by only a small amount. In both urban and rural areas, as well as at the national level, the poverty rate increases about 1 percentage point. This suggests that horticultural consumers are poorer or more numerous than horticultural growers.

And a 40% increase in sugar cane prices has a small positive effect on rural poverty (reducing it by 1 percentage point), but no measurable effect on urban poverty. Because sugar producing households are such a small part of the national population, the effect of higher sugar prices on overall poverty is quite small.

**TABLE 5-19**  
Effects of increased commodities prices on poverty among all households in Egypt

		Effect on regional populations					
		Urban		Rural		National	
		Short run	Long run	Short run	Long run	Short run	Long run
<b>Base scenario</b>	Expenditures (LE/household/year)	9 401	9 401	8 236	8 236	8 863	8 863
	Poverty incidence ( $P_0$ )	0.36	0.36	0.41	0.41	0.38	0.38
	Depth of poverty ( $P_1$ )	0.105	0.105	0.118	0.118	0.111	0.111
	Severity of poverty ( $P_2$ )	0.043	0.043	0.050	0.050	0.046	0.046
<b>40% increase in wheat price</b>	Average income increase	-64	69	-135	24	-97	48
	Poverty incidence ( $P_0$ )	0.37	0.35	0.43	0.40	0.39	0.37
	Depth of poverty ( $P_1$ )	0.109	0.102	0.125	0.119	0.116	0.110
	Severity of poverty ( $P_2$ )	0.045	0.041	0.053	0.050	0.049	0.045
<b>40% increase in rice price</b>	Average income increase	-45	-42	53	64	0	7
	Poverty incidence ( $P_0$ )	0.37	0.37	0.41	0.41	0.39	0.39
	Depth of poverty ( $P_1$ )	0.108	0.108	0.119	0.119	0.113	0.113
	Severity of poverty ( $P_2$ )	0.044	0.044	0.050	0.050	0.047	0.047
<b>40% increase in cotton price</b>	Average income increase	15	16	95	101	52	54
	Poverty incidence ( $P_0$ )	0.36	0.36	0.40	0.40	0.38	0.38
	Depth of poverty ( $P_1$ )	0.105	0.105	0.117	0.117	0.110	0.110
	Severity of poverty ( $P_2$ )	0.043	0.043	0.049	0.049	0.046	0.046
<b>40% increase in fruit and vegetable price</b>	Average income increase	-140	-134	-84	-76	-114	-107
	Poverty incidence ( $P_0$ )	0.37	0.37	0.42	0.42	0.39	0.39
	Depth of poverty ( $P_1$ )	0.110	0.110	0.123	0.123	0.116	0.116
	Severity of poverty ( $P_2$ )	0.045	0.045	0.052	0.052	0.048	0.048
<b>40% increase in sugar cane price</b>	Average income increase	-3	-3	46	50	20	21
	Poverty incidence ( $P_0$ )	0.36	0.36	0.40	0.40	0.38	0.38
	Depth of poverty ( $P_1$ )	0.105	0.105	0.116	0.116	0.110	0.110
	Severity of poverty ( $P_2$ )	0.043	0.043	0.049	0.049	0.046	0.046

Source: Calculated from the 1997-98 Egypt Integrated Household Survey.

Note: Average income increase refers to the average change in household income associated with a 40% increase in the crop price, expressed in LE per household per year. The three poverty measures are expressed as fractions.

## 5.6 Summary

In the 1970s and 1980s, agricultural policy in Egypt intervened heavily in production, marketing and trade. A policy of import-substitution industrialization meant that the agricultural sector was heavily taxed through low official prices and compulsory sales. At the same time, some commodities were protected by import restrictions. In the late 1980s and the 1990s, Egypt gradually liberalized agricultural markets and reduced the level of import protection. Wheat markets remained distorted by a combination of import controls, fixed producer prices, consumer subsidies on certain types of bread and government control over the channels leading to subsidized bread. In 2004, a series of significant tariff reductions was implemented, leading the World Bank to declare that Egypt had made more progress in trade liberalization than almost any other country. Even so, the degree of protection is higher than in 40% of the countries of the world.

Full global trade liberalization would increase the prices of agricultural commodities by 5-15%. This would probably negatively affect the Egyptian economy because it is a net agricultural importer, though the exact effect depends on the price changes for each commodity. Egypt would gain from higher rice and cotton prices, but lose from higher wheat and maize prices. Domestic trade reform would reduce the domestic prices of imported commodities such as wheat, thus offsetting the effect of global trade liberalization, as well as providing efficiency gains.

In this chapter, we review the income and consumption patterns of Egyptian households based on the 1997-98 Egypt Integrated Household Survey and simulate the effects of changes in the prices of five agricultural commodities on incomes and poverty rates among Egyptian households. Such price changes might arise from changes in world market prices or from changes in border or subsidy policies within Egypt.

Overall, our results show that price changes can have a significant effect on poverty among the producers of specific crops. However, individual price changes do not have a large impact on overall rates of poverty. One implication of this analysis is that agricultural trade policy is a relatively ineffective policy instrument for assisting poor rural households. Although agricultural protection does affect the poverty among growers of the particular crop at issue, the effect on overall poverty (or even rural poverty) is negligible because: (i) the percentage of households growing a particular crop is generally small, (ii) the share of household income from a particular crop is small, and (iii) many households (including poor rural households) purchase the crop or products made from the crop and are thus harmed by higher prices. This suggests that anti-poverty programmes would do better by assisting the poor directly than by influencing the market for goods that (some) poor people produce.

Another interesting result is that wheat is the most politically sensitive agricultural commodity; yet, the effect of wheat protection on poverty is negligible even among wheat farmers themselves. This is because wheat farmers are not particularly poor (they are somewhat more well off than the average rural household), because their incomes are fairly diversified (wheat accounts for only 8.5% of their incomes) and because many other households in urban and rural areas are net buyers (80% of rural households are net buyers). While policy decisions take into account a wide range of factors not considered here, this analysis should at least weaken the poverty argument for a wheat protection policy.

Finally, the analysis suggests that some of the poorest households in Egypt are those that are involved in farming, but that do not own land. These households include agricultural labourers and tenants who farm land owned by others. Agricultural trade policy can only indirectly influence the well-being of these households (through the labour market). More effective in addressing the needs of these farmers would be policies to make the labour market for informal work more efficient and policies to facilitate the purchase of farmland by landless farmers.

## Annex to Chapter 5

### Methods for estimating the impact of trade liberalization

#### Data

This analysis uses the Egypt Integrated Household Survey carried out by the International Food Policy Research Institute, in coordination with the Ministry of Agriculture and Land Reclamation and the Ministry of Trade and Supply. The nationally representative survey provides information on income and expenditures, as well as on many household characteristics, including housing, landownership, education, employment, health and nutrition, access to facilities, migration, and credit and savings. The sample consists of 2,500 households in 20 urban and rural governorates; the fieldwork took place during the first half of 1997. For this particular analysis, a subsample of 2,452 households has been used because the data on the rest of the households in the full sample are incomplete or missing. With this representative sample, it is possible to examine the average characteristics of the poor at the national level and also through several dichotomous breakdowns, such as by urban-rural residence or residence in Upper or Lower Egypt.

#### Questionnaire and sample design

The questionnaire was divided into male and female components to reduce the time required to fill in the questionnaire. In the typical case, the male questionnaire was administered by a male interviewer to the male head of household (who, it is assumed, knows the most about non-food household expenses), and, similarly, the female questionnaire was administered by a female interviewer to (most typically) the wife of the head of the household (who, it is assumed, knows more about household eating habits and food expenses). The male questionnaire contains most of the sections that deal with sources of income and large expenses, while the female questionnaire contains the sections focusing on tending to the house, including eating patterns, health care, and smaller, more frequent expenses.

The questionnaire was administered to 2,500 households from 20 governorates using a two-stage, stratified selection process. The sample frame used for the selection process was supplied by the Central Agency for Public Mobilization and Statistics (CAPMAS) and is based on the 1986 Egypt census and a 1993 listing of households in selected primary sampling units. This sample frame is used by CAPMAS as a master sample for most of their survey work. It consists of 492 sampling units, 296 of which are urban, while 196 are rural.

#### Income calculation

Income is calculated as the sum of net revenues from the following sources: crop production, livestock production, wages, non-farm enterprises, transfers and other income. Net income from each crop is calculated as the value of production, minus the cost of production. It covers all commodities, including by-products and home consumption. Crop production expenses (seeds, fertilizer, chemical insecticides, labour, utilities, storage, transportation, equipment rental and others) are deducted to derive net crop income. Payments to landlords are also excluded from income. Livestock income includes all types of animals and by-products. Livestock production expenses (feeds, veterinary and labour) are deducted to derive net livestock income. Meat home consumption is also included as part of income. Because of uncertainty about how to calculate wage rates accurately among family members, no value was imputed for the family labour involved in crop and livestock production.

Net revenues from non-farm enterprises is based on gross revenues, minus the operating costs over the past 12 months. Wage income is calculated as the sum of annual earnings in wages for the main job; cash and in-kind wages are also examined for each household member. Transfers are derived as the net value of cash and in-kind transfers received and sent. Other income covers rents (cash and in-kind) received through ownership of assets such as housing, land and equipment; interest, dividends, and pensions.

## Methods

We use the data from the Egypt Integrated Household Survey to estimate the short- and long-run impact of changes in agricultural prices. In the absence of reliable estimates of the impact of multilateral and unilateral trade liberalization on agricultural prices in Egypt, we simulate the impact of four price increases (10%, 20%, 30% and 40%) for each commodity of interest. Most analyses of the impact of multilateral trade liberalization suggest that agricultural prices would rise 5-20%, well within the range of price increases considered here. We simulate the impact of changes in the price of wheat, rice, sugar, cotton, and fruits and vegetables. The global markets for wheat, rice, sugar and cotton are among the most distorted; so, we would expect trade liberalization to have the largest effect on the world prices of these commodities. In addition, these four commodities are important in the agricultural economy of Egypt as sources of income (wheat, rice and cotton) and as components of the diet (wheat, rice and sugar). The global markets for fruits and vegetables are not highly distorted, but fruit and vegetable exports from Egypt (and other countries in the region) to the EU are constrained by strict quality and food safety standards, as well as by seasonal restrictions to prevent competition with European growers. For this reason, we also simulate the impact on Egyptian households of improved market access to European fruit and vegetable markets, represented by increases in the prices for fruits and vegetables in Egypt.

In this analysis, we simulate both the short-run and the long-run impacts of higher agricultural prices on each household in the Egypt Integrated Household Survey. The short-run impact refers to the effect on household welfare before households have had an opportunity to respond to the higher prices by producing more or consuming less. The change in per capita income of household  $i$  after the price change in one commodity, say, wheat, can be calculated as follows:

$$\Delta y_i = \frac{1}{H_i} [(Q_{pi} \Delta P) - (Q_{ci} \Delta P)], \quad (1)$$

where  $\Delta y_i$  is the change in per capita income of household  $i$  after the price increase,  $H_i$  is the number of members in household  $i$ ,  $Q_{pi}$  is the production of the commodity by household  $i$ ,  $\Delta P_i$  is the increase in the price of the commodity and  $Q_{ci}$  is the quantity of wheat consumed by household  $i$ . In graphic terms, this expression is the rectangular approximation of producer surplus, plus consumer surplus. If a household does not grow wheat, then  $Q_{pi} = 0$ , and the direct effect of higher wheat prices will be negative; the magnitude will depend on the importance of wheat products in the household budget. If a household does grow wheat, then the welfare impact depends on the value of wheat production compared to the value of wheat consumption.

In the long run, farmers and consumers will respond to the higher prices by growing more and consuming less of the commodity, say, wheat. The long-run effect can be estimated as follows:

$$\Delta y_i = \frac{1}{H_i} \left[ (Q_{pi} \Delta P) + \left( \frac{1}{2} (\Delta P)^2 \varepsilon_s \frac{Q_{pi}}{P} \right) - (Q_{ci} \Delta P) - \left( \frac{1}{2} (\Delta P)^2 \varepsilon_D \frac{Q_{ci}}{P} \right) \right], \quad (2)$$

where  $\varepsilon_s$  is the supply elasticity of the commodity and  $\varepsilon_D$  is the price elasticity of demand for the commodity. In graphic terms, this expression is the trapezoidal approximation of the producer surplus, plus the consumer surplus. The two terms with elasticities are positive regardless of whether the price change is positive or negative, implying that the long-term welfare effect of a price change is more positive (or less negative) than the short-term effect. In the absence of estimated supply and demand elasticities for the four commodities, we use 0.3 for the supply elasticities and -0.3 for the price elasticities of demand.

Because the welfare impact is calculated for each household in the Egypt Integrated Household Survey sample based on the income and consumption patterns of each household, we can estimate the change in the poverty measures caused by the change in prices. This microsimulation approach also allows us to estimate the change in income for any subgroup of households that is defined by income, farm size, or other variable. In this analysis, we use the class of poverty measures identified by Foster, Greer and Thorbecke (1984), defined as follows:

$$P_{\alpha} = \frac{1}{N} \sum_i \left[ \frac{\mu - y_i}{\mu} \right]^{\alpha}, \quad (3)$$

where  $P_{\alpha}$  is the poverty measure,  $N$  is the number of households,  $\mu$  is the poverty line and  $y_i$  is the income or expenditure of poor household  $i$  (the summation occurs only on poor households). When  $\alpha = 0$ , the poverty measure,  $P_0$ , is the incidence of poverty, that is, the proportion of households for which the incomes are below the poverty line. When  $\alpha = 1$ , the poverty measure,  $P_1$ , indicates the depth of poverty, taking into account the degree of poverty, as well as the percentage of households that are poor. If  $\alpha = 2$ , the measure  $P_2$  indicates the severity of poverty, incorporating information on the degree of inequality among poor households, as well as the depth of poverty and the number of poor households.

# 6

## Agriculture, Trade and Poverty in Tunisia

## 6.1 Introduction

Tunisia is a small country (10 million inhabitants) endowed with few natural resources. In spite of these constraints, the country has diversified the economy through important agricultural, mining, energy, tourism and manufacturing sectors. Growth in tourism and increased trade have been key elements in the steady growth, although tourism has slowed since the 11 September 2001 attack.

Per capita GDP grew at a healthy rate (2.9%) over the 1990s, reaching over US\$2,500 in 2002. This gives Tunisia the third highest income in the NENA region, behind Turkey and Lebanon. About two thirds of the population lives in urban areas.

Tunisia maintains relatively high tariff barriers. According to the World Bank (2005d), Tunisia's simple average tariff rate puts it among the top 1% of countries in trade restrictions. There has been some trade liberalization; however, the average tariff rate came down from 29% in 2000 to about 25% in 2004. This progress is about average compared to other countries over the same period.

Meanwhile, Tunisia has a relatively favourable investment climate. The World Bank (2005d) rates the investment climate in Tunisia as better than 79% of the countries in the world. Furthermore, reforms since 2000 indicate a degree of progress in the investment climate that is better than that in almost three quarters of the world's countries. In particular, Tunisia has streamlined the procedures for opening and registering new businesses and for closing businesses. Tunisia, along with Morocco, has the highest ratio of foreign direct investment to GDP, over 3%.

## 6.2 Agriculture and Food

The Tunisian economy has undergone significant structural changes, including industrialization, the growth of the service sector and the development of tourism. Nonetheless, the agricultural sector remains economically and socially important for its contribution to food security, employment, regional balance and social cohesion. The contribution of agriculture and the fisheries sector has remained in the range of 11-14% of GDP since the mid-1990s. The value added in the food processing sector has remained at around 3% of GDP. Together, they account for about 15% of GDP (Table 6-1).

**TABLE 6-1**  
Contribution of agriculture and food processing to GDP

		1995	1996	1997	1998	1999	2000	2001
		(TND million)						
<b>GDP</b>	Nominal prices	17 052	19 066	20 898	22 561	24 672	26 685	28 757
	1990 prices	13 074	14 009	14 771	15 477	16 415	17 181	18 028
<b>Agriculture</b>	Nominal prices	1 938	2 615	2 760	2 866	3 211	3 298	3 347
	1990 prices	1 573	2 038	2 098	2 077	2 306	2 283	2 249
	Contribution to GDP	11.4%	13.7%	13.2%	12.7%	13.0%	12.4%	11.6%
<b>Food processing</b>	Nominal prices	556	586	701	708	817	863	903
	1990 prices	426	434	517	501	566	608	593
	Contribution to GDP	3.3%	3.1%	3.4%	3.1%	3.3%	3.2%	3.1%

Sources: Tunisian Ministry of Agriculture and Central Bank of Tunisia.

Note: The exchange rate was TND 1.10 per US\$1.00 in 1997, TND 1.16 per US\$1.00 in 1998, TND 1.21 per US\$1.00 in 1999, TND 1.34 per US\$1.00 in 2000 and TND 1.50 per US\$1.00 in 2001, according to the 30 June rates in [www.oanda.com](http://www.oanda.com).

**TABLE 6-2**  
Composition of the Tunisian agriculture sector

	1995	1996	1997	1998	1999	2000	2001	2001
	(TND million at nominal prices)							(share)
Value of agricultural production	2 291	2 986	3 167	3 285	3 684	3 761	3 862	100.0%
Grains	162	650	275	429	460	285	364	9.4%
Fruit	593	647	1 116	810	951	1 119	804	20.8%
Vegetables	389	444	442	515	599	600	462	12.0%
Livestock	898	964	1 091	1 182	1 317	1 379	1 390	36.0%
Fisheries	184	202	241	248	249	273	278	7.2%

Sources: Tunisian Ministry of Agriculture and Central Bank of Tunisia.

**TABLE 6-3**  
Share of crop area allocated to different crop categories by farm size

	Farm size (ha)						Overall
	0-5 ha	5-10 ha	10-20 ha	20-50 ha	50-100 ha	More than 100 ha	
Grains	31.8	32.8	33.7	37.1	41.3	45.1	36.5
Hard wheat	16.9	18.0	18.5	19.3	23.5	22.6	19.3
Soft wheat	0.6	1.0	1.0	2.2	3.7	11.3	3.7
Barley	14.0	13.4	13.8	15.2	14.0	10.4	13.1
Other grains	0.0	0.3	0.3	0.4	0.0	0.9	0.4
Pulses	1.8	1.9	1.8	1.4	1.6	2.1	1.8
Forages	7.2	6.8	7	7.6	9.6	13.5	8.7
Vegetables	5.5	5.6	3.5	2.4	2.2	1.2	3.7
Industrial crops	0.5	0.5	0.3	0.4	0.8	0.6	0.5
Tree crops	53.2	52.4	53.6	51.2	44.4	37.5	48.9
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: MARH (2006).

Based on the gross value of output, livestock is the largest component of the agricultural sector in Tunisia, representing 36% of the total (Table 6-2). This is followed by fruit and vegetables, which together account for about 33% of the total. Agricultural production in Tunisia remains vulnerable to drought, however, as indicated by the annual variation in the value of output. The value of grain and fruit output has been particularly volatile.

According to the 2004/05 agricultural survey, wheat accounts for 23% of the planted area, barley 13%, olive trees 32%, fruit and nut trees 17%, forage crops 9%, and vegetables 4%. Agriculture in the north region is dominated by grains and horticulture, the centre by olive production and the south by fruit, nuts and olives. Table 6-3 shows the cropping pattern by farm size. The share of cultivated area allocated to grains ranges from 32% among farms with less than 5 ha to 45% among farms with more than 100 ha, reflecting the fact that grains are less labour intensive than other crops. Hard wheat (used for couscous and pasta) represents roughly half the grain area across farm size categories, while soft wheat is more important on large farms, and barley is more important on small farms. Large farms devote a larger share of their cropland to hard wheat, soft wheat and forage crops, while small farmers allocate a larger share to barley, vegetables and tree crops, most of which are olive trees (MARH 2006).

Tunisian exports were US\$9.4 billion in 2002. One source of growth in exports has been textiles and apparel, which earned US\$2.9 billion in 2002. Tunisia enjoyed preferential access to European markets as a result of the quota system under the Multi-Fibre Arrangement. However, the Multi-Fibre Arrangement expired in January 2005; so, Tunisian exporters will now compete more directly with exporters from Asia, particularly China, India and Pakistan.

As discussed in section 3.1.5, Tunisian agricultural exports in 2002 were about US\$500 million, or about 5% of total exports. The largest agricultural export over 2000-02 was olive oil, although the value of olive oil exports has fluctuated considerably over this period. Other important agricultural exports include dates, wheat flour, tomato paste and pasta, reflecting the importance of the food processing sector (Table 3-8).

Tunisian imports were worth about US\$10 billion in 2002, while agricultural imports were at US\$1.2 billion, or 12% of the total. As in many other NENA countries, wheat is the most important agricultural import. Wheat imports account for 60-80% of domestic consumption, depending on the weather and the size of the wheat harvest. Other major agricultural imports are maize, barley, soybean cake, cooking oil and sugar (Table 3-8). Like most other NENA countries, the value of agricultural imports exceeds the value of agricultural exports.

### 6.3 Agricultural and trade policy

The implementation of a structural adjustment programme for the agricultural sector between 1986 and 1996 began the liberalization of Tunisian agriculture, the improvement in the competitiveness of agro-food industries and their adaptation to the qualitative and sanitary requirements of international markets. With the exception of wheat, agricultural production activities have been substantially liberalized. Agricultural input subsidies and interest rate subsidies have been practically eliminated. Although irrigation water is still subsidized, fees continue to be adjusted. Agricultural marketing boards have lost some of their monopoly powers.

#### 6.3.1 Agricultural and food policy

Concerning domestic support, Tunisia declared to the WTO, a zero current total aggregate measurement of support for the year 2002 relative to a maximum commitment of TND 61 million (US\$5.5 million) on the following products: durum and soft wheat, barley, milk, olive oil and sugar beets. The support declared for 2002 was *de minimis*. It consisted of fixed producer buying prices for wheat and intervention prices for other products. Tunisia reported a similar amount spent on green box measures exempt from the reduction commitment; these mostly go towards water and soil conservation and forestation programmes.

In addition, Tunisia has declared an additional TND 8.3 million (US\$750,000) as an irrigation subsidy. In fact, farmers in publicly irrigated areas still pay for water at below the real cost. Additionally, farmers and agro-food enterprises are entitled to special electricity and diesel tariffs. Tunisia also subsidizes exports of agricultural products. These subsidies consist of payments intended to reduce the cost of processing and air freight.

#### Agricultural pricing policy

The agricultural and fisheries sector has been subjected to two forms of price control: controls on producer prices and controls on prices for agricultural inputs. Since 1986, Tunisia has been conducting a programme of structural adjustment aimed at reforming the agricultural sector by shifting prices closer to those on world markets and reducing producer subsidies. While subsidies on inputs have been removed totally (except for water), support for agricultural production through investment subsidies remain at a high level for some activities (see next subsection).

Concerning the control of producer prices, prices for all products are freely determined except for grain and milk, which continue to benefit from guaranteed public prices. Instead of supporting farm prices, Tunisian agricultural pricing policy has had the effect of holding farm prices down. When domestic production is limited for a given product, mainly for vegetables and meats, prices tend to rise. Public authorities implement a set of maximum prices on wholesale or retail markets, without any compensation to farmers. However, when prices are at low levels due to the abundance of local production, no instrument of support for farmers is applied. This policy, intended to control inflation, has heavily affected farm incomes during the last few years. Small farmers producing vegetables are the most affected by this policy.

#### Taxation

In addition to tariffs, supplementary taxes are levied on the consumption of a whole range of food products, in particular, maize and soybean cake, preserved food, fruit and vegetables, and fish. The taxes are earmarked for the Fund for the Development of Competitiveness in the Agriculture and Fishing Sectors. These taxes are applied to locally produced goods, as well as to imports.

The tax code is used to encourage agricultural development. More specifically, the investment incentives code includes the following provisions:

- deduction of amounts invested from taxable profits;
- exemption from customs duties and the suspension of the value added tax and consumption tax due on imports of capital goods for which there are no locally manufactured equivalents;
- the suspension of the value added tax on locally manufactured capital goods; and
- the exemption of investments from income tax for ten years.

Financial benefits include an (investment) subsidy of 7% of the cost of the investment (maximum TND 300,000 or US\$33,500); another subsidy of 1% of the total cost of investment, with a ceiling of TND 5,000 as the state's contribution to project design costs. In 2002, through its development programmes, Tunisia spent TND 91 million (US\$8.2 million) to encourage investment in agriculture by subsidizing the cost of private investment in selected activities.

### Consumer food subsidies

The consumer price for each product for which the producer price is subject to administrative control is also controlled. This is particularly true for grains and milk. By means of the General Compensation Fund (*Caisse Generale de Compensation*), the Government has subsidized the consumption of basic foodstuffs since 1970. The subsidies have been applied uniformly to whoever chooses to buy subsidized products at whatever quantity. The subsidies of the fund have been introduced to satisfy a somewhat contradictory host of objectives: (i) stabilization of fluctuating prices for basic products; (ii) preservation of the purchasing power of underprivileged households; and (iii) the redistribution of incomes in favour of low-income groups.

Since 2000, the products covered by the subsidies of the Fund are grains and their derived products, vegetable oil and milk. Although the size of the food subsidies has been gradually reduced since 1996, the subsidies still represent about 2% of government expenditure (Table 6-4).

The grain subsector accounts for the most politically sensitive, complex and costly part of the system of subsidies. Subsidies are injected at three levels in the marketing channel: the collection of local production, importation and flour milling. The Grain Board (*Office des Céréales*) manages the payment of subsidies in the cereal subsector for the General Compensation Fund. The Grain Board has a monopoly on the importation of grains and on the collection of locally produced cereals by farmers. Together with the Grain Board, two technically private, well-regulated cooperatives work in the name of the Grain Board according to the same mechanism. For the subsidies for vegetable oil, the National Edible Oils Board (*Office Nationale de Huiles*) controls the importation and the refining of vegetable oil. The consumption price of vegetable oil is set below cost, and the board is refunded the difference through the General Compensation Fund. Presently, the milk subsector represents only a small share of the consumption subsidies. This has been the result of the development of local production and improvements in the productivity of private industry.

### 6.3.2 Trade policy

Tunisian authorities use tariffs and non-tariff barriers to protect domestic production from outside competition. These began to be modified in 1995 with the implementation of the URAA, but the two instruments are still widely used in Tunisia.

Tunisian customs duties are still among the highest in the world. In fact, non-discriminatory duties rose to 34.5%, on average, in 2002, against an average rate of 12.8% among middle-income countries in the same year. The agricultural and food processing sectors continue to be highly

**TABLE 6-4**  
Structure and importance of food subsidies

	1999	2000	2001	2002	2003	2004
Composition of food subsidies (%)						
Grains	64.2	73.9	80.5	72.5	64.4	70.7
Oil	29.3	20.4	15.1	23.7	32.6	26.7
Milk	5.5	5.7	4.4	3.8	3.0	2.5
Sugar	1.0	0.0	0.0	0.0	0.0	0.0
Food subsidies/ government expenditure (%)	2.1	2.0	2.1	1.8	1.7	1.9
Food subsidies/GDP (%)	0.8	0.8	0.8	0.7	0.6	0.7
Subsidies/person (TND/year)	21.1	19.5	21.0	18.1	17.3	19.4

Source: Author calculations using data from the Central Bank of Tunisia (2005) and the INS (2005).

Note: The exchange rate was TND 1.21 per US\$1.00 in 1999, TND 1.34 per US\$1.00 in 2000, TND 1.50 per US\$1.00 in 2001, TND 1.38 per US\$1.00 in 2002, TND 1.36 per US\$1.00 in 2003 and TND 1.25 per US\$1.00 in 2004 according to the 30 June rates on [www.oanda.com](http://www.oanda.com).

protected. Since the partnership agreement with the EU has bearing only on non-agricultural and manufactured food products, agricultural trade continues to be governed by the commitments that Tunisia has taken within the multilateral framework of the WTO. Quantitative restrictions have been converted to customs duties, but, as in many member states, bound tariff rates have been fixed at very high levels. While nominal protection rose on the eve of the GATT agreement signed in Marrakech in 1994 to an average rate of 39% and 46%, respectively, for the agriculture and food processing sectors, the respective rates rose to 136% and 88% in 1997. They have been reduced through the years in conformity with the agreement on agriculture, but still remain at very high levels, 89% on average for agricultural products and 72% for agro-industry products (Table 6-5).

For agricultural and food processing products, the tariffs vary greatly. Customs duties and other import taxes are generally high for fruit, forest cultivation products, tobacco, meat, dairy products, products derived from the processing of cereals, canned foods and beverages. They are not so high for cereals, livestock, oils and sugar, four categories that, together, account for 60% of agricultural imports. Nevertheless, Tunisia has preserved preferential customs duties as part of its proposals for the GATT agreements in 1994, which are applied for certain products within the limits of quotas set by public authorities. Preferential rates are much lower than the bound tariffs (Table 6-6).

Import operations at preferential tariffs are generally granted to state enterprises. Accordingly, wheat, maize and barley are imported under tariff quotas exclusively by the Grain Board, vegetable oil by the National Edible Oils Board and tea and coffee by the Tunisian Trade Board. Special authorization is required to import products subject to tariff quotas. This license is issued

**TABLE 6-5**  
Nominal protection by major economic activity (1995-2003)

	1995	2000 EU	2001 EU	2002 EU	2002 Rest of world	2003 EU	2003 Rest of world
Agriculture and fishing	39	126	100	98	98	89	89
Manufacturing	43	39	36	33	45	29	42
Other sectors	11	11	3	3	9	1	3
<b>Total</b>	<b>34</b>	<b>42</b>	<b>36</b>	<b>35</b>	<b>43</b>	<b>31</b>	<b>39</b>
<b>Total, except agriculture and food processing</b>	<b>30</b>	<b>21</b>	<b>16</b>	<b>15</b>	<b>24</b>	<b>12</b>	<b>22</b>

Sources: Chemingui and Lahouel (2006).

**TABLE 6-6**  
Tariff rates in and out of quotas and utilization of tariff quotas

Product	2005			Quota utilization rate (%)			
	Average in-quota tariff rate (%)	Average out-of-quota tariff rate (%)	Tariff quota commitments (t)	2001	2002	2003	2004
Durum wheat	17	73	300 000	100	100	0	0
Soft wheat	17	73	600 000	100	100	85	100
Barley	17	73	200 000	100	100	100	100
Beans	25	60	1 300	0	0	0	0
Sugar	15	42	100 000	100	100	100	228
Shelled almonds	43	60	1 335	70	100	0	0
Tomato concentrate	43	100	155	0	0	0	100
Milk powder	17	76	20 000	10	19	35	43
Butter	35	100	4 000	60	88	48	49
Cheese	27	139	1 500	100	100	100	100
Calves and bullocks	27	82	3 000	0	0	0	97
Bovine meat	27	88	8 000	0	0	0	100
Sheep and goat meat	27	125	380	0	0	0	100

Source: WTO (2005b).

Note: The quota utilization rate refers to the level of imports as a percentage of the quota.

by the Ministry of Trade. Private operators are rarely able to import within the framework of the preferential quotas.

Effective protection has decreased over time, but remains high. It increased during the first years of the dismantling of tariffs on European manufactured products because of the dismantling sequence, which began with inputs and finished products that do not compete with local production. This situation has been redressed with the entry of the fourth list of competing products in the dismantling phase of customs duties (Table 6-7). Concerning agricultural and agro-industrial products, effective protection has followed a declining tendency, albeit very limited. In fact, effective protection in this sector decreased from 162% in 2000 to 108% in 2003. This is the direct result of cost reductions in imported intermediate materials and equipment.

The monopolies on the importation of certain food and agricultural products by state enterprises (the Grain Board, the Tunisian Trade Board and the National Edible Oils Board) continue to represent the main tool of protection of the agricultural and food sector in Tunisia. These monopolies cover an important share of Tunisian imports. The Tunisian Trade Board maintains the monopoly on importing products considered basic, such as sugar, coffee, tea, black pepper, cocoa beans, rice, kidney beans and dry yeast, as well as some fresh and dry fruit and vegetables and tinned food. For other agro-alimentary products that might otherwise be freely imported, obtaining the authorization (rather than simply a license) makes importation almost impossible. Without offering any justification, the Tunisian administration often rejects import requests.

Technical barriers also represent an indirect tool for the protection of domestic production. In general, technical barriers aim at verifying the conformity of imported products with sanitary and food safety norms. Technical control has been consolidated since the accession of Tunisia to WTO in 1995. Although it was only applied to around a quarter of the customs categories in 1994 (37% of the value of imports), the percentage of customs categories subject to this control rose to more than 30% in 2001 (43% of the import value). Most of this increase involved the control of consumption goods through certification, but systematic control remains very important, applying to almost 14% of the imports in terms of customs value. It is this kind of control that mostly causes deadline and efficiency problems. The sanitary, phytosanitary and technical standards are legitimate under WTO rules and are practiced in most countries, but, very often, technical control is used for protectionist ends in Tunisia.

Customs clearance is another obstacle to importation, particularly for imports destined for the local market. Imports of agro-food products that are exclusively destined for the domestic market still suffer from very long clearance delays, estimated at three weeks on average, compared to only a few days in other countries.

The tariff equivalent of non-tariff barriers provides an indicator of the scale of this type of protection. In order to assess this for the main agricultural products imported into Tunisia in 1992, Chemingui and Dessus (2001) used the price-gap approach which involves comparing local prices and border prices. Of 19 agricultural and food products studied, six were subjected to significant levels of nontariff barriers. Sugar had the highest non-tariff protection, with a tariff equivalent of 28%, followed by hard wheat (20%). The other protected products were barley, soft wheat, vegetable produce and canned goods.

**TABLE 6-7**  
Effective protection by major economic activity (1995-2002)

	1995	2000 EU	2001 EU	2002 EU	2002 Rest of world	2003 EU	2003 Rest of world
Agriculture and fishing	45	162	123	120	118	110	108
Manufacturing	85	68	60	57	92	49	87
Other sectors	12	15	3	4	11	1	1
<b>Total</b>	<b>41</b>	<b>63</b>	<b>50</b>	<b>49</b>	<b>60</b>	<b>44</b>	<b>54</b>
<b>Total, except agriculture and food processing</b>	<b>34</b>	<b>30</b>	<b>20</b>	<b>19</b>	<b>34</b>	<b>16</b>	<b>29</b>

Sources: Institute of Quantitative Studies (2003).

### 6.3.3 Trade agreements

Tunisia is currently involved in many regional trade agreements, in addition to its commitments under the WTO. Overall, Tunisia has concluded trade agreements with about 60 countries; some of these agreements provide for preferential arrangements. Since its last trade policy reform implemented in 1994, Tunisia has signed the WTO agreement, the bilateral agreement with the EU, bilateral agreements with the members of the Arab League and agreements with Turkey and the European Free Trade Association. All of these agreements are classified as FTAs. In what follows, we describe the content of these trade agreements regarding agricultural products.

#### WTO

Tunisia acceded to the GATT in 1990 and has been a member of the WTO since March 1995. The commitments of Tunisia emerging from the Uruguay Round involve binding 4005 tariff lines in the agricultural and industrial sectors or 66% tariff lines under the Harmonized System. In the agricultural sector, the commitments made by Tunisia involve binding 1503 tariff lines (25% of the total) at rates that vary between 25% and 250%, along with a commitment to reduce these rates by 24% over ten years (1995-2004). The commitments of Tunisia also involve insuring opening up tariffs quotas for the importation of agricultural and food processing products at lower customs duty rates. Furthermore, Tunisia is also committed to reducing the level of its domestic support for agriculture by 13.3% over 1995-2005.

#### Euro-Mediterranean Partnership Agreement

The EU is Tunisia's main trading partner: 76% of Tunisia's trade goes to or comes from the EU. Imports of European agricultural and food products account for a little under half of all imports of products in these two categories. The European market takes up about 70% of Tunisia's agricultural trade and food exports.

Tunisia is one of the most important exporters of several products, including olive oil, dates, citrus fruit, seafood and various organic fruits and vegetables. These are slowly being supplanted by increases in exports of melons, table grapes, table olives and, potentially, tomatoes and strawberries. At the same time, Tunisia is a net importer of other agricultural products, mainly wheat, sugar and vegetable oils. For these products, the EU is a leading exporter country. Both the imports and exports of agricultural products by Tunisia are sensitive to the common agricultural policy of the EU. In fact, import prices for agricultural products are significantly determined by the level of European subsidies on exports under the common agricultural policy, and, likewise, exports of Tunisian agricultural products are subject to the protection instruments implemented through this policy.

Trade relations between Tunisia and the EU in agricultural and food products are governed by the partnership agreement signed in 1995. This provides for the establishment of a free trade area following a 12-year transitional period. The foundation of the partnership agreement is the principle of reciprocity. It provides for the removal of tariffs on all products, with the exception of agricultural products. Agricultural products are excluded from the agreement and are subject to specific arrangements. In fact, trade in agricultural and food products remains affected by barriers to entry in both markets. In the case of the EU market, the Common Agricultural Policy introduces many barriers to the importation of Tunisian agricultural and food products.

Although agriculture was excluded from the 1995 agreement, the agreement provided that the EU and Tunisia would review the trade regime for agriculture in 2000. In December 2000, the EU and Tunisia agreed on measures to liberalize trade in agricultural products beginning in January 2001. As an illustration, Tunisia has obtained better access to the EU market for olive oil (an increase in the annual quota and a duty set to zero), cut flowers, tomato concentrate, new potatoes and oranges, for which an increase in the free duty quota has been agreed. The EU has obtained improved access for vegetable oils and wheat with the application of the preferential tariffs.

In accordance with Protocol 3 of the association agreement, Tunisia applies preferential tariff quotas to several agro-food products originating in the EU. With respect to meat, dairy products,

cereals and sugar, which are also covered by WTO tariff quotas, exports from the EU may draw either on the WTO quota or on the preferential quota. However, EU exports under preferential tariff quotas are zero-rated; moreover, these quotas also cover other agricultural products such as eggs, poultry, potatoes, hazelnuts, maize (corn), meal, malt, starch, certain flours, fats, oils, glucose and dog and cat food.

For Tunisian agricultural exports to the European market, a new regime of trade implemented on 8 March 2001 ratified the association agreement between the parties through the modification of the agricultural protocols annexed to the 1995 association agreement. In this respect, export quotas, tariff reductions and schedules for products exported by Tunisia to the EU are indicated in the first draft (protocol) of the agreement. For olive oil, the agreement clauses specify: (i) the institutionalization of the quota regime and permanent integration of these products in the association agreement, and (ii) increasing the quota from 50,000 t as of 1 January 2001 to 56,000 t on 1 January 2005, with a complete exemption from custom duties.

Protocol 2, which concerns fishing products, stipulates that fishing products from Tunisia may be admitted to the EU with no quantitative limit and totally exempt from custom duties. Furthermore, the two parties agreed to examine in 2005 the possibility of granting each other mutual concessions in order to liberalize their trade in agricultural and fishing products. These negotiations are still in progress, and no agreement has been reached to date.

It is important to note that the agricultural sector in Tunisia is affected by the general scarcity of water and arable land, occasional drought and natural resource degradation, all of which limit the ability of Tunisian farmers to take advantage of further concessions by the EU. (Olive oil, however, is one product for which EU concessions could generate immediate benefits for Tunisian farmers.) Furthermore, the integration of agricultural products into the FTA cannot be separated from the issue of the support paid by the EU to its farmers. Without a substantial reform of the common agricultural policy, most agricultural activities in Tunisia will not be able to confront the European competition, particularly in products that are highly subsidized in Europe.

#### **GAFTA**

The executive programme of the Convention on the Facilitation and Development of Inter-Arab Trade entered into force in January 1998; it is currently being applied by 17 of the 22 members of the League of Arab States. The GAFTA is a new Arab League initiative that aims to revive previously unsuccessful attempts at regional integration. According to the agreement, all Arab products moving among the members will be afforded the status of national goods in accordance with the principle of gradual liberalization through an annual reduction of 10% of customs duties and taxes that have equivalent tariff effects. Initially, goods are scheduled to be traded duty free among the members by 2007, but the Economic and Social Council decided, at its 69th meeting, in Cairo, to accelerate the establishment of GAFTA, setting 2005 instead of 2007 as the deadline for the launch. In 2004, it was planned that all the Arab countries that had joined GAFTA would reduce their customs duties on bilateral trade by 80% and completely eliminate all tariffs by 2005.

Trade provisions for agricultural trade under the agreement offer members the opportunity to suspend tariff reductions on some products during peak harvest seasons. In this regard, each member is allowed to submit a list of ten products for suspension, with a total exemption for all these products for 45 months.

#### **FTA with the European Free Trade Association**

The member states of the European Free Trade Association – Iceland, Lichtenstein, Norway and Switzerland – signed an FTA with Tunisia in Geneva on 17 December 2004. Negotiations on the European Free Trade Association-Tunisia Free Trade Agreement were launched in Tunis in October 1996 and were concluded in 2004 after six rounds of negotiations. The agreement covers trade in industrial goods, as well as processed agricultural products.

The agreement takes into consideration the different levels of economic development of the members of the European Free Trade Association on the one hand, and Tunisia on the other, by providing for asymmetric tariff reduction. The states of the association will eliminate duties and other restrictions for covered products upon entry into force of the agreement, while Tunisia will

gradually abolish its duties during a transition period. The agreement contains rules of origin on the model of the Euro-Mediterranean accumulation system. Trade in basic agricultural products is covered by arrangements concluded bilaterally between each association state and Tunisia.

#### **FTA with Turkey**

The association agreement establishing a free trade area between Tunisia and Turkey was signed on 25 November 2004. The agreement covers provisions on preferential trade, state monopolies, competition and state aid, intellectual property rights, public procurement and economic and technical cooperation. With this agreement, Tunisia and Turkey aim at strengthening cooperation, removing trade barriers, including agricultural trade, establishing appropriate conditions for competition and promoting bilateral investments. A free trade area will be created within nine years following the entry into force of the agreement.

Protocol II of the agreement establishes a preferential trade regime that will be applied to agricultural trade. Concessions are exchanged for a given number of agricultural, fishing and processed agricultural products on the basis of tariff quotas. This agreement entered into effect in June 2005.

### **6.4 Poverty**

Tunisia has made significant progress in reducing poverty. It cut the incidence of poverty (defined using the national poverty line) from 40% in 1960 to 11% in 1985 and to 7.4% in 1990. The poverty rate stagnated between 1990 and 1995 (8.1%),<sup>33</sup> but resumed its decline between 1995 and 2000, when incidence reached the lowest level (4.1%). At the same time, the population growth rate declined, and life expectancy increased markedly, regional disparities were reduced and improvements were achieved in education, access to health care and basic infrastructure. The distribution of income improved until 1990, as the Gini coefficient fell from 0.434 in 1985 to 0.401 in 1990, but increased to 0.417 in 1995 and fell again to 0.409 in 2000. Average per capita expenditures for the lowest deciles of the population moved closer to mean expenditures for the country as a whole. In absolute terms, the number of the poor increased from 600,000 in 1990 to 690,000 in 1995 and fell to 400,000 in 2000 (World Bank 2003a). Given that the distribution of consumption is quite steep near the poverty line, many households are vulnerable to sliding back into low incomes.

As is well known, changes in poverty depend upon income growth and changes in income distribution. The elasticity of poverty to growth was found to be negative in Tunisia, as in most countries. Therefore, the positive growth in per capita income over 1990-95 should have resulted in declining poverty, all else being equal (Van Eeghen 1995). However, due to the increase of inequality in income distribution, poverty may have risen between 1990 and 1995. This deterioration was mainly due to the drop in agricultural incomes, which reduced the incomes of poor households more significantly than it did those of other households. During 1995-2000, the acceleration in growth and the decrease in income inequality may explain why poverty incidence fell so significantly.

Regarding the characteristics of the poor in Tunisia, poverty remains primarily a rural phenomenon. In 2000, the incidence of rural poverty was 8.3% compared to 0.8% in metropolitan areas and 2.3% in other urban areas (Table 6-8). With less than 40% of the total population, rural areas accounted for 74% of the poor in 2000 compared to 76% in 1990 (World Bank 2003a).

There is a strong association between the lack of schooling and poverty in both rural and urban areas. Over 60% of poor household heads have no formal education, compared to about 40% of non-poor household heads. Poor rural households engaged in production activities typically have access to land, but their land holdings are small (averaging 2 ha), rarely irrigated and often exhibit low productivity, especially in rainfed areas.

The urban poor are mostly wage-earners in low-skill occupations. According to data from the Institut National de la Statistique (INS 2002), between 1990 and 1995, the incidence of poverty increased in the agricultural, fishing and construction sectors and fell in tourism and commercial activities. In 2000, the poorest households were still concentrated in the construction and agricultural sectors.

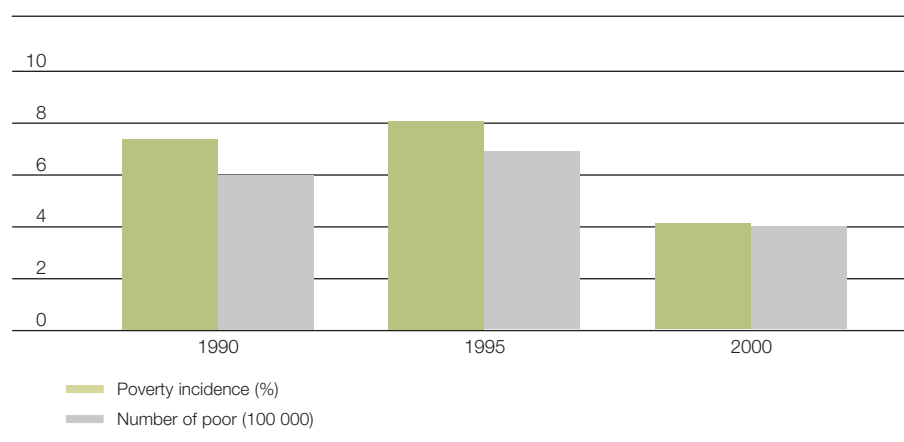
33/ Using a new World Bank and Institut National de la Statistique poverty line (World Bank 2003a).

**TABLE 6-8**  
Poverty lines and poverty incidence, 1990, 1995 and 2000

	Year	Lower poverty lines (core poverty) (TND)	Poverty incidence (%)
Metropolitan	1990	236	2.8
	1995	306	1.8
	2000	357	0.8
Other urban	1990	210	3.5
	1995	272	4.2
	2000	318	2.3
Rural	1990	194	14.8
	1995	252	15.8
	2000	294	8.3

Source: World Bank (2003a).

**FIGURE 6-1**  
Evolution of poverty in Tunisia (1990-2000)



Source: World Bank (2003a).

The five-year censuses on household budgets and consumption conducted by the Institut National de la Statistique during 2000 show that the average annual expenditures per capita amounted to TND 1,329, recording an improvement of 6.5% at current prices and 3.6% at constant prices compared to the same census conducted in 1995. The results show also that the increase in the level of expenditures per capita was larger in rural areas (10%) than in urban areas (5.9%), which means there was a reduction in the gap between the two areas. The expenditures per capita in rural areas represented 58% of the expenditures per capita in urban areas in 2000. This share has been estimated at 48% in 1995.

Table 6-9 gives the annual expenditures per household and per capita in 2000 according to the socioprofessional category of the head of household. The table shows that the lowest level of expenditures concerns households in which the heads are unemployed, followed by those in which the heads are working in the agricultural sector as wage-workers. Poverty is closely linked to unemployment in Tunisia. Households with an unemployed head have a very high probability of being poor (World Bank 2003a).

**TABLE 6-9**  
Household expenditures by occupation of the head of household

Socio-professional category of the household head	Expenditure (TND/month/household)	Expenditure (TND/month/person)
Senior managers and liberal professions	13 227	2 846
Middle managers and liberal professions	10 151	2 110
Other employers	8 182	1 597
Small businessmen	8 064	1 537
Artisans and independents	6 175	1 176
Non-agricultural workers	5 365	1 036
Farmers	5 732	1 024
Agricultural workers	3 986	731
Active labour force participants without jobs	3 329	656
Retirees	7 590	1 744
Other inactive workers	3 992	1 387
Income coming from outside the household residence	4 320	1 064
Average	6 450	1 329

Source: INS (2002).

Note: In 2000, the average exchange rate was TND 10.64 per US\$1.00.

## 6.5 Impact of trade liberalization on the poor

This section presents the results of a microsimulation analysis of the impact of trade liberalization on Tunisian households.<sup>34</sup> First, we briefly describe the methods used to generate the estimates. (A more detailed description is found in the annex to this chapter.) Then, we describe the results of the simulations of four different types of trade liberalization. The impact is assessed in terms of macroeconomic variables, sectoral production, import and export values and the incidence of poverty among different socio-economic groups.

### 6.5.1 Methods

This analysis involves using a CGE model to simulate the effect of four types of trade liberalization on the Tunisian economy and households. The CGE model is built on a SAM calibrated to describe the Tunisian economy in 1996. It is a standard neoclassical CGE model, with imperfect substitution in consumption between imported and domestic goods and imperfect substitution in production between exports and production for the domestic market. Production combines raw materials and factors of production in fixed proportions, while the use of different factors varies according to relative factor prices. There are five categories of labour:

- farmers;
- unskilled agricultural wage-earners;
- skilled agricultural wage-earners;
- unskilled non-agricultural workers; and
- skilled non-agricultural workers.

Other factors are land, physical capital and natural resources. The model covers eleven agricultural and processed food commodities and three non-agricultural products. It uses an infinite elasticity of substitution of capital between sectors, which means there is perfect mobility of physical capital among the different sectors.

In order to estimate the distributional impact of trade policy, data from 400 households are integrated into the CGE model. These 400 households are a representative sample from the 1995 Tunisian household expenditure survey. The survey contains detailed expenditure data, but not income data. Thus, it was necessary to generate estimated income data based on survey information on the main economic activity of each member of the household.

34/ The model used here has been developed through a study funded by the Poverty and Economic Policy Research Network (see Chemingui and Thabet 2006).

While this tool does not take into account many dynamic effects that will intervene during the liberalization process, it nevertheless allows measurement of the total gain related to the reallocation of production factors as a result of tariff reductions or tariff dismantling. The static analysis allows us to determine the loss in customs income linked to the trade liberalization. This analysis depends equally on the income available to households after the reform. If one thinks that consumers and businesses cannot substitute one product for another, this loss will be equal to the share of tariff income coming from importing European products in the sum of all tariff income (Dessus and Suwa Eisenmann 2000). The household survey data, the SAM and the CGE model are described in more detail in the annex to this chapter.

It is important to note that this is a static model that does not take into account the effect of trade liberalization on investment or on the rate of adoption of new technology. To the extent that trade liberalization encourages investment or accelerates the adoption of technology, as some studies suggest, the model will understate the welfare benefits of liberalization.

### 6.5.2 Results

We analyse the impact of four alternative types of trade liberalization. Each scenario provides empirical estimations of the potential trade liberalization of agricultural products either with a single partner or with various partners at the same time. These scenarios are:

- 1) elimination of tariffs on imports of industrial products from the EU as specified in the partnership agreement signed between the two partners;
- 2) elimination of tariffs on imports of industrial *and agricultural* products from the EU;
- 3) elimination of tariffs on imports of industrial and agricultural products from the EU *and the rest of the world*; and
- 4) elimination of tariffs on imports of industrial and agricultural products from the EU and the rest of the world, together with *multilateral trade liberalization*, which is assumed to increase international prices for all agricultural products by 15%.

#### Scenario 1

In this scenario, Tunisia eliminates tariffs on industrial products from the EU, according to the provisions of the FTA. According to Table 6-10, this trade policy change has a relatively weak macroeconomic impact. Economic activity improves somewhat; there is an increase of 0.2% in GDP relative to the base year (1996). The total production of goods and services shows a more important improvement, at a rate of 3.7%, whereas the value of final consumption falls by 1.9% relative to the base year.

Agricultural production does not appear to be stimulated by the increase in the openness of the Tunisian economy to trade and partnership with Europe since it remains largely outside the liberalization process in this scenario. Moreover, mobile production factors (physical capital and casual labour) are drawn to industry, which causes a drop in domestic production in most agricultural activities. Agricultural production is either stable or declines somewhat, with the exception of grains and "other agricultural activities" (Table 6-11).

Although total exports increase significantly (by 23%) relative to the base scenario, the increase is due largely to the industrial sector. Agricultural export performance is mixed: exports of grain, vegetables and dairy products expand, while fishing and meat exports decline. These gains are due to the reduction in prices of imported input products and a lessening of the distortion in non-agricultural trade (Table 6-12).

Overall, poverty declines slightly, from 6.8% to 6.7%. The gains in poverty reduction occur among farmers, agricultural wage-earners and non-agricultural wage-earners. There is a slight increase in poverty among two categories: (i) managers, professionals and self-employed people, and (ii) retirees, the unemployed and "other". Since poverty declines among the poorer categories and rises slightly among the two more well-off groups, it appears that the liberalization of imports of industrial products from the EU reduces income inequality somewhat (Table 6-14).

**TABLE 6-10**  
Impact of trade liberalization on macroeconomic variables

	Base scenario	Simulation			
		1	2	3	4
(% change relative to the base scenario)					
Real GDP (TND million)	19 210	0.2	0.3	0.2	0.2
Total output (TND million)	37 416	3.7	4.1	5.6	5.2
Total final consumption (TND million)	14 586	-1.9	-1.7	-1.6	-1.9
Total exports (TND million)	8 029	23.2	26.1	31.9	30.8
Total imports (TND million)	8 326	15.9	17.9	22.0	20.6
Absorption (TND million)	37 713	0.8	0.9	1.5	1.2
GDP deflator (index)	1.00	3.4	3.1	4.2	5.1
Consumer price index (index)	100.0	-2.3	-3.5	-4.1	-3.0
Tariff revenue (TND million)	1 327	-71.0	-79.7	-92.9	-92.6

Source: Author calculations.

Note: Simulation 1 is the removal of tariffs on industrial goods from the EU. Simulation 2 is the removal of tariffs on all goods from the EU. Simulation 3 is the removal of tariffs on all goods from all countries. Simulation 4 is the removal of tariffs on all goods from all countries, plus multilateral trade liberalization.

**TABLE 6-11**  
Impact of trade liberalization on food and agricultural production by sector

	Base value (TND million)	Simulation			
		1	2	3	4
(% change relative to the base scenario)					
Grains	811	4.6	0.9	-6.7	-0.6
Pulses	32	-1.8	-0.8	-0.1	-1.8
Fruits	840	-2.4	-1.8	-1.9	3.1
Vegetables	526	-0.9	0.0	0.0	-1.6
Other agricultural activities	29	7.5	4.1	6.7	-1.4
Fishing	276	-6.4	-6.5	-8.5	-8.7
Meat	633	-4.1	-8.2	-8.7	-8.0
Dairy products	191	0.1	-14.7	-20.4	-13.5
Olive oil	160	-0.6	-0.7	-0.6	2.6
Sugar	141	-1.3	-2.9	-6.6	3.2
Other food processing	2 247	-2.3	1.0	2.4	-0.8
Beverages and tobacco	228	-4.0	-7.6	-7.7	-6.7
<b>Total</b>	<b>6 116</b>	<b>-1.5</b>	<b>-1.7</b>	<b>-2.6</b>	<b>-1.9</b>

Source: Author calculations.

Note: Simulation 1 is the removal of tariffs on industrial goods from the EU. Simulation 2 is the removal of tariffs on all goods from the EU. Simulation 3 is the removal of tariffs on all goods from all countries. Simulation 4 is the removal of tariffs on all goods from all countries, plus multilateral trade liberalization.

## Scenario 2

In this scenario, the model is used to simulate the elimination of all tariffs on imports from the EU, including tariffs on industrial and agricultural products. This scenario can be seen as a reinforcement of the FTA between the two partners. As shown in Table 6-10, this simulation also has a weak macroeconomic impact. Real GDP expands by an additional 0.1 percentage points compared to Scenario 1 (the liberalization of industrial imports from the EU). The cumulative effect of this reform is relatively modest; there is only a 0.3% improvement in GDP compared to the base year. The loss in customs income represents almost 80% of total government customs income in 1996. Only 8.6% of these losses are attributed to the liberalization of trade in agricultural products.

Overall output increases by 4.1% relative to the base (0.4% compared to Scenario 1). This increase in production shows the extent to which lowering tariffs might improve the efficiency of factor allocation through a movement towards more profitable and more competitive activities. However, the production of fish, meat, dairy, and beverages and tobacco declines as a result of the reduced protection from imports from the EU. There is little change in the output of grains, pulses, fruits, vegetables and olive oil (Table 6-11).

**TABLE 6-12**  
Impact of trade liberalization on food and agricultural exports by sector

	Base year (TND million)	Simulation			
		1	2	3	4
		(% change relative to the base scenario)			
Grains	2.5	23.3	49.6	84.3	159.6
Pulses	1.9	5.7	18.6	28.6	95.7
Fruits	57.1	0.1	5.7	6.8	30.9
Vegetables	5.8	11.2	22.2	24.9	8.4
Other agricultural activities	9.2	18.2	28.0	38.4	5.1
Fishing	21.3	-19.8	-20.1	-27.4	-26.3
Meat	1.6	-8.5	-4.2	-2.8	74.6
Dairy products	1.8	12.5	17.5	21.3	132.5
Olive oil	117.1	-2.9	2.5	4.7	18.8
Sugar	3.6	3.2	14.5	14.0	128.5
Other food processing	153.8	0.1	25.0	37.0	12.1
Beverages and tobacco	16.9	1.6	3.2	4.5	9.5
<b>Total</b>	<b>392.6</b>	<b>-1.0</b>	<b>12.0</b>	<b>17.8</b>	<b>17.6</b>

Source: Author calculations.

Note: Simulation 1 is the removal of tariffs on industrial goods from the EU. Simulation 2 is the removal of tariffs on all goods from the EU. Simulation 3 is the removal of tariffs on all goods from all countries. Simulation 4 is the removal of tariffs on all goods from all countries, plus multilateral trade liberalization.

**TABLE 6-13**  
Impact of trade liberalization on food and agricultural imports by sector

	Base year (TND million)	Simulation			
		1	2	3	4
		(% change relative to the base scenario)			
Grains	249	-6.9	-1.3	4.7	-4.9
Pulses	70.6	-4.5	-4.5	13.6	-9.1
Fruits	8	-7.0	63.0	203.3	215.5
Vegetables	13	-5.8	14.1	13.2	17.9
Other agricultural activities	20	0.8	24.2	37.5	46.2
Fishing	1.6	2.4	1.6	4.0	2.4
Meat	9.9	-2.3	163.5	165.2	106.6
Dairy products	27.9	-4.8	59.7	76.4	46.8
Vegetable oil	0	4.1	21.2	36.7	25.0
Sugar	87.4	-3.4	-1.6	11.5	-6.1
Other food processing	258.3	-2.0	-9.9	-12.3	-7.4
Beverages and tobacco	7.2	4.2	103.6	105.3	103.8
<b>Total</b>	<b>752.9</b>	<b>-4.1</b>	<b>2.5</b>	<b>9.3</b>	<b>2.2</b>

Source: Author calculations.

Note: Simulation 1 is the removal of tariffs on industrial goods from the EU. Simulation 2 is the removal of tariffs on all goods from the EU. Simulation 3 is the removal of tariffs on all goods from all countries. Simulation 4 is the removal of tariffs on all goods from all countries, plus multilateral trade liberalization.

Imports of fruit, vegetables, meat, dairy products, vegetable oil, beverages and tobacco increase substantially due to the reduction of import barriers on agricultural products (Table 6-13). Most agricultural exports, except fishery products, also expand (Table 6-12). This illustrates the concept in international trade economics that a tax on imports is an implicit tax on exports. In this case, removing import tariffs increases the demand for foreign currency, causing a depreciation of the exchange rate and stimulating exports.

In general, the effect of this reform on poverty is quite similar to that of Scenario 1: farmers and wage-earners gain, while managers, professionals and self-employed workers lose. The net effect is a small reduction in overall poverty, a direct consequence of the decline in the prices of imported agricultural and industrial products. This decline affects final household consumption as much as it does equipment and intermediary consumption linked to production operations.

**TABLE 6-14**  
Impact of trade liberalization on the incidence of poverty by occupation

Type of household	Poverty in base year	Simulation			
		1	2	3	4
		(incidence of poverty, %)			
Managers, professionals and the self-employed	3.9	4.0	4.0	4.0	4.1
Wage-earners in non-agricultural sectors	9.7	9.6	9.6	9.5	9.2
Retirees, the unemployed and "others"	3.9	4.2	4.3	4.3	4.9
Farmers	9.5	9.3	9.3	9.2	9.0
Wage-earners in the agricultural sector	7.4	7.2	7.1	7.0	6.3
<b>Average</b>	<b>6.8</b>	<b>6.7</b>	<b>6.7</b>	<b>6.5</b>	<b>6.0</b>

Source: Institut National de la Statistique and author calculations.

Note: Simulation 1 is the removal of tariffs on industrial goods from the EU. Simulation 2 is the removal of tariffs on all goods from the EU. Simulation 3 is the removal of tariffs on all goods from all countries. Simulation 4 is the removal of tariffs on all goods from all countries, plus multilateral trade liberalization

### Scenario 3

In this scenario, we extend the elimination of Tunisian tariffs on EU imports to all imports. This causes an improvement in the global activity of the country by 0.2% relative to the base year. Furthermore, the total production of goods and services increases by 5.6% relative to the base year, which indicates an additional gain of 1.5 percentage points compared to the previous simulation. Total exports increase 32%, while imports grow by 22%, a significant increase relative to the previous simulation. Lower tariffs on imports from the rest of the world increase the demand for imports and, hence, foreign exchange. The resulting depreciation makes exports more competitive. This reform induces a loss in customs income by around 93% relative to the base year.

At the sectoral level, this reform entails a drop in domestic production in most agricultural activities. This decrease is explained by the weak capacity of the Tunisian agricultural sector in resource reallocation. In other words, the agricultural land suitable for cultivation in Tunisia is characterized by an almost fixed distribution of productive capacity. Thus, if, for example, the producer price of cereal products rises relative to that of vegetables, the reassignment of available land from the cultivation of vegetables towards cereal production is limited, even impossible. Accordingly, adjustments in Tunisian agriculture in reaction to changes in relative prices are more the result of changes in consumption levels rather than changes in production levels. The effect of this reform on poverty is to consolidate the observed tendencies in the preceding scenario. Thus, farmers' incomes are improved due to higher prices for exports and lower costs for imported inputs. This mostly affects the prices of seeds and cattle feed.

### Scenario 4

Along with the import liberalization in Scenario 3, this last scenario simulates an increase in the prices of the main basic agricultural products as a result of a multilateral liberalization of trade in agricultural products. The analysis of the implications of agricultural trade liberalization for a country must not be limited to the mere removal of tariffs and non-tariffs barriers imposed on imported products. Through trade, the trade balance situation in agricultural products for a small country such as Tunisia is largely determined by world prices. The significant agricultural protectionism in rich exporting countries on basic agricultural products has depressed world agricultural prices, which penalizes all farmers by shrinking the world market. Protection has also produced much greater instability in world prices, which contributes to a vicious circle of protection. We simulate, here, an increase in the world prices of basic agricultural products resulting from free world agricultural trade and the removal of all distortions that affect the products. The recorded average increase of 15% in the world prices of basic agricultural products at the end of the multilateral reform in this simulation is a moderate increase given the extent of the distortions currently affecting world trade in agricultural products.

Total production in goods and services rises by 5.2% relative to the base year, a net reduction of 0.4% compared to Scenario 3. Imports rise by 20.6% and exports increase by 30.8% relative to the

base year. This reform enhances the competitiveness of domestic agricultural production, relative to the base year, in relation to imports of three categories of agricultural products: fruits, olive oil and sugar, which witness a net increase in production. This also entails a rise in the consumption prices of the main agricultural products, which, consequently, implies a reduction in the internal demand for these products, such as cereals. Thus, the reduction in production on the one hand, and the relatively significant decrease in the consumption of the main food products on the other hand, lead to an increase in export levels as a net result of the rise in export prices. This situation was actually observed for olive oil in Tunisia during the 2005 agricultural year, when the high level of export prices led to a rise in consumption prices, which curbed local demand and, consequently, increased exports. This scenario thus results in a favourable income gain for agricultural households because of the rise in world prices, while urban households witness a deterioration in their purchasing power following the rise in the consumer prices of most agricultural products.

Therefore, this scenario shows a reduction in poverty among farmers due to higher agricultural prices and a reduction in poverty among agricultural and non-agricultural wage-earners due to increased demand for labour and the increase in wages. The overall poverty rate declines from 6.8% to 6.0%.

## 6.6 Summary

Tunisia has carried out a number of reforms as a result of its structural adjustment programme, but the level of agricultural protection remains one of the highest in the world. At the same time, Tunisia has a relatively good investment climate, which contributed to significant inflows of foreign direct investment and a healthy growth rate through the 1990s.

Like many NENA13 countries, Tunisia is a net agricultural importer. Its main exports are olives and dates, and the principle imports are wheat and maize. Multilateral liberalization is expected to raise agricultural prices. If all agricultural commodity prices rise proportionately, Tunisia will face declining terms of trade because it is a net agricultural importer. On the other hand, it would benefit from domestic liberalization due to efficiency gains. The combined effect is likely to be positive for Tunisia as a whole because most estimates show that efficiency gains are larger than terms-of-trade effects.

However, the combination of global and domestic liberalization would probably reduce agricultural prices because the effect of the loss in high levels of protection (89% on average) would be greater than the modest increase in world prices (5-20%) due to global liberalization.

Simulations using a CGE model linked to household survey data suggest that the removal of industrial tariffs on imports from the EU (which approximates the effect of the EMP agreement) would cause both imports and exports to expand significantly, although almost all the change would be in non-agricultural trade. Real GDP would increase slightly (0.2%) because of the efficiency gains associated with the removal of distortions. Poverty would decline from 6.8% to 6.7%; the largest improvements would occur among farmers and agricultural wage-earners.

The removal of *all* tariffs on imports from the EU (approximating an extended EMP agreement) would cause large increases in imports of meat, beverages and tobacco, fruit, dairy products and vegetable oil as import barriers on these goods are lifted. The effect on GDP and poverty is similar to that in the first simulation.

The elimination of tariffs on imports from *all* countries would increase the imports of almost all agricultural commodities, as well as stimulating agricultural exports to maintain the trade balance. The reduction in poverty would be greater in this case than in the case of the first two simulations: poverty would decline from 6.8% in the base scenario to 6.5%. Farmers and agricultural labourers would again account for most of the poverty reduction.

Finally, the elimination of all Tunisian tariffs, plus global trade liberalization (represented by a 15% increase in world agricultural prices), would not do much for the overall economy. This is partly because, as a net agricultural importer, Tunisia would lose out from higher world agricultural prices. Nonetheless, the agricultural sector would gain from the higher prices. The three main agricultural exports (olive oil, other processed foods and fruit) would expand significantly in this scenario. As a result, poverty would decline to the lowest level among the four scenarios: 6.0% among the overall population and 9.0% among farmers.

Overall, it appears that trade liberalization has only modest effects on the level of GDP, but it has a substantial effect in reducing poverty. Furthermore, the combined effect of global and domestic liberalization is more pro-poor than the effect of domestic liberalization alone.

We draw two general implications from the Tunisia case study. First, the impact on rural poverty of trade liberalization may be quite different from the impact one might assume based on simple indicators. As a net importer of agricultural commodities, Tunisia may be expected to experience terms-of-trade losses from higher world agricultural prices. Furthermore, because Tunisia has significant agricultural import protection, we would expect the agricultural sector to lose from trade liberalization that would remove this protection. Yet, the simulations suggest that trade liberalization reduces poverty among farmers and wage-earners in the agricultural sector.

Second, the positive outcome of these simulations is partly based on the ability of farmers to replace activities that were once protected, such as wheat and livestock production, by activities involving export commodities such as olives, dates and citrus. The need to facilitate the replacement of one set of activities by another highlights the importance of farmer training, marketing information systems and extension services, as well as farm-level investments and the public infrastructure necessary to expand the newly competitive crops.

## Annex to Chapter 6

### Method for estimating the impact of trade liberalization on Tunisia

#### Background on Micro-Macro Linkages

The most comprehensive way of modelling the overall impact of policy changes on the economy is through a CGE model, which incorporates many of the important general equilibrium interactions in an economic system. To measure distributive impacts, CGE models often map factor incomes among different types of households. The models have been applied in the analysis of policy changes in several developing countries. The change in the cost of living among segments of a population is then used to assess the impact on income distribution. These studies provide an upper-bound measurement of the required increase in income for each group to purchase the same quantities of goods that they purchase in the base situation.

Decaluwé et al. (1999) have evaluated the relevance of different types of macroeconomic general equilibrium modelling for measuring the impact of economic policy shocks on the incidence of poverty and on the distribution of income. Three approaches have been identified in the literature and implemented using an archetypal economy, as follows:

- The first is based on a traditional form of the CGE model that specifies a large number of households, thus allowing the capture of only inter-group income inequalities.
- The second uses survey data to estimate the distribution function and average variations by group, thereby allowing for estimates about the evolution of poverty.
- The third approach uses individual datasets directly in the general equilibrium model according to the principles of microsimulation.

Studies have demonstrated the importance of intra-group information and therefore the relevance of microsimulation exercises. Even if we disaggregate the population of households into a few representative groups, we will still not be able to obtain relevant results regarding the evolution of total inequality. Indeed, decomposable income indexes show that intra-group inequality often contributes more to total inequality measures than does inter-group inequality. Accordingly, the most promising direction consists in seeking true integration between the CGE model and the observed heterogeneity of households as observed in a household survey.

There are two main ways to achieve consistency between a macroeconomic framework and microeconomic surveys, as follows:

- The first one, proposed by Cogneau and Robilliard (2000), has been labelled the “fully integrated micro-macro framework”. It is based on a standard CGE model wherein representative households and workers are replaced by a full sample of households and workers, whose behaviour is observed through household and labour force surveys. The advantage of this method is its ability to capture the impact of macroeconomic changes on workers and households and, also, the feedback effects of microsimulation on the macroeconomic portion of the model. However, the method is very demanding in computational resources and requires the construction of a relatively simple CGE model.
- The second approach is the “sequential micro-macro framework”. The macroeconomic part of the model is an extended CGE model that is supposed to describe the functioning of the economy under analysis. The link with the microsimulation model occurs through a vector of prices, wages and aggregate employment. If one understands the change in the link variables as resulting from a shock in the macroeconomic part of the model, one may modify the microeconomic household database in a way that is consistent with the link variables. The approach combines a standard multisector CGE model with a microsimulation model that describes real income generation behaviour among a representative sample of households. The microsimulation model will be used to generate changes in individual wages and employment status in a manner that is consistent with the set of macroeconomic variables in the macroeconomic or CGE model. When this is done, the full distribution of the real household income corresponding to the shock or policy change initially stimulated in the macroeconomic model may be evaluated (Bourguignon, Robilliard and Robinson 2002).

In building a CGE microsimulation model to assess the impact on poverty of trade policy reforms and external shocks in Tunisia, we have chosen to adopt the first approach, the fully integrated micromacro framework, which involves incorporating a representative sample of households directly into the CGE model.

### Tunisian household budget and expenditure surveys

The microsimulation approach requires data on income and expenditure patterns among households in a sample. In the case of Tunisia, the available quantitative data from household budget surveys are limited to the expenditure side. Quantitative information on income sources, as well as on the level of savings (or debt), are not collected in Tunisian household budget surveys. However, important qualitative data allows an estimation of the different income sources. We believe that the mistakes linked to problems of estimation on the different income positions of households are much less important than the mistakes relative to ignorance of the income effects in the analysis of the evolution of poverty.

Seven national household expenditure surveys have been carried out: 1968, 1975, 1980, 1985, 1990, 1995 and 2000. An eighth survey covering the year 2005 is under way. The information gathered through direct observation of household consumption allows changes in living standards and welfare among households to be measured.

The method of data collection consists of interviewing households during many visits. The direct observation of the expenditures of each sample household lasts four weeks. Nonetheless, for large expenditures that are made less frequently, such as the purchase of durable goods, the observation period lasts one year; in this case, the month long enquiry is supplemented with retrospective accounts on the 11 months preceding the start of the survey. The part of the survey that is devoted to food consumption relies on measuring the food intended for household consumption ration by ration and day by day during a week for each sample household.

The survey questionnaire on household budgets and expenditures consists of a main questionnaire aimed at recording collective household expenditures and a complementary questionnaire aimed at registering the individual expenditures of each household member with an income.

For the part of the main questionnaire relative to expenditures, information is requested on the expenditures each household member makes to satisfy his needs and the needs of those household members in his charge, notably, the expenditure categories of a collective nature (e.g., food, housing, services). The main survey questionnaire is composed of four sections: the household roster, the economic activities of members aged 15 years and over, the economic characteristics of active work force members, and information on regular household expenditures (INS 2002).

### Estimation of the micromodule

As explained above, every five years, the *Institut National de la Statistique* carries out a survey on household budgets and consumption. The most recent survey was conducted in 2000 and covers a sample of 12,018 households. Although the data from this survey were not available for this analysis, we were able to obtain raw data on approximately 400 households from the 1995 household expenditure survey. The exploration and manipulation of these data revealed many inconsistencies, which give us some reservations regarding the quality of the data. The sample of 400 households is considered representative of the whole sample of 10,415 households surveyed in 1995.

Table 6-15 provides details on the composition of the households according to the occupation of the head of household for the original sample and for the subsample used in this analysis. This indicates that the subsample is representative of the larger sample and, presumably, the population as a whole.

We assume that the total revenue for each household is equal to the total expenditures; we ignore savings and debt. Indeed, a homogeneous savings level for all households in the sample will eventually be determined when the SAM is balanced out. Once the total income of each household is estimated, we move to the estimation of the different sources of income. The qualitative information collected on the professional status of the household head through the Tunisian household survey, as well as on the other household members, allow us to sketch out a table of the

**TABLE 6-15**  
Representativeness of the sample by occupation of the head of household

Socio-professional category of the household head	Number of households in the whole sample		Number of households in the subsample		Number of households at the national level		Total population	
Managers and professionals	2 853	27.4%	108	27.2%	490 100	28.8%	2 570 500	28.5%
Other non-agricultural activities	2 955	28.4%	111	28.0%	490 300	28.9%	2 725 500	30.3%
Farmers	1 349	13.0%	52	13.1%	200 700	11.8%	1 218 100	13.5%
Agricultural wage-earners	882	8.4%	33	8.3%	130 800	7.7%	752 100	8.4%
Retirees and the unemployed	2 376	22.8%	93	23.4%	387 500	22.8%	1 735 300	19.3%
<b>Total</b>	<b>10 415</b>	<b>100.0%</b>	<b>397</b>	<b>100.0%</b>	<b>1 699 400</b>	<b>100.0%</b>	<b>9 001 500</b>	<b>100.0%</b>

Source: Author calculations based on data from the *Institut National de la Statistique*.

income sources of each member and of the whole household. After constructing a table on the working members of each household in the available sample, we estimate the income of each household member. For this purpose, we establish three main income sources: salaries, rents and transfers. The main source of income in the majority of Tunisian households is salaries. Thus, based on the results of the employment survey conducted annually by the *Institut National de la Statistique*, we estimate the income derived from the salaries received by all members of each household with reference to the salary grid for 1996 and 1997 (INS 1998), which shows each professional category and the main economic activities. For independent workers who do not earn salaries, we estimate a salary equivalent equal to the salary level for the same activity carried out by a salaried worker with the same qualifications.

To simplify the estimation process, we assume that only poor households receive transfers, mostly in the form of government aid or transfers by other household members who work abroad (and who represent an important support for this category of households in Tunisia). Moreover, we suppose that poor households do not receive rents. These rents represent the income from invested capital by capital owners (such as in land). For independent workers in a given economic activity, two household categories may be distinguished: poor households (in cases where the total income only covers part of the salary equivalent that is inferior to the poverty line in Tunisia) and non-poor households. For non-poor households exercising an independent work activity, the activity income must exceed the poverty line in Tunisia.

Finally, it is important to specify that the salaries and rents received by each household are differentiated according to the economic activities carried out by the members of each household who work as wage-earners or as independent workers. Any amounts left over in the total income of each household after accounting for the salaries (or equivalent salaries) represents transfers among poor households and rents among non-poor households.

### The SAM for Tunisia

In order to reduce the inconsistencies between the SAM and the 1995 household survey data, we chose to build another SAM for the year 1996.<sup>35</sup> This allows us to balance out the SAM using an entropy programme that makes the minimal adjustments necessary in the two datasets so that they are consistent with each other. The data used to build the detailed 1996 SAM on Tunisia are drawn from various sources, including input-output tables, national accounts, the government budget and trade statistics. The microeconomic SAM for 1996 was constructed in several steps.

In the first step, we construct a microeconomic SAM covering more activities and commodities than the original input-output table established by the *Institut National de la Statistique* (19 activities and the corresponding commodities). The disaggregation of activities and commodities was carried

35/ The year 1996 is the survey year that is most proximate to the 1995 household expenditure survey, for which a SAM is already available.

out in order to match the commodity structure in the household expenditure data. Thus, the disaggregation involved mainly agriculture and agro-food processing commodities, given the importance of these commodities in household expenditures in Tunisia. The macroeconomic SAM and the input-output table were fully consistent and balanced. Additional data on the various components of supply and demand have been provided by the *Institut National de la Statistique*. These cover sectoral imports and exports, final consumption, duties on imports, investment, stock variations, and other indirect taxes. Transfers among institutions and direct tax payments have also been provided by the *Institut National de la Statistique*.

In the second step in building the microeconomic SAM, labour and capital accounts are disaggregated, the labour account into five categories (three in the agricultural sector and two in nonagricultural activities), and the capital account into land remuneration, other resources, and physical capital. Table 6-16 lists the different accounts forming the SAM for Tunisia for the year 1996 used in this study.

When the micromodule is superimposed on the 1996 SAM table using otherwise unchanged column coefficients, all sector accounts are, as expected, out of balance. An estimation approach is needed to generate a balanced SAM table. We selected a cross-entropy approach given the practical advantages and the theoretical basis of this approach in information theory (see, for example, Golan, Judge and Miller 1996). Cross-entropy is a technique for solving underdetermined estimation problems. It has been applied to the estimation of input-output tables (Golan, Judge and Robinson 1994) and SAMs (Robinson, Cattañeo and El-Said 2001; Robinson and El-Said 2000), as well as a wide range of other problems inside and outside economics. The underlying philosophy of entropy estimation is that all available relevant information should be used, but no other information (Golan, Judge and Miller 1996). More concretely, this means that the user may impose control values (in our case, by drawing on what is known for 1996). However, it is not necessary to impose values for what may not be known. Control values may be imposed exactly, or they may be imposed with allowance for measurement errors.

**TABLE 6-16**  
Dimensions of the Tunisian SAM for the year 1996

Activities	Commodities	Production factors and other accounts
Crops	Grain crops	<b>Production factors</b>
Olives and other fruits	Leguminous crops	Physical capital
Vegetables	Fruit products	Natural resources
Other agricultural activities	Vegetable crops	Land
Livestock	Meat	Non-wage agricultural workers
Forestry	Fishing products	Skilled wage-workers in agriculture
Fishing	Dairy products	Unskilled wage-workers in agriculture
Food processing	Sugar	Skilled non-agricultural workers
Other manufactured industries	Olive oil	Unskilled non-agricultural workers
Non-manufacturing industries	Beverages	<b>Institutions</b>
Services	Tobacco products	Households
	Other agro-food products	Government
	Other manufactured products	EU
	Non-manufacturing products	Rest of the world
	Services	<b>Fiscal instruments</b>
		Indirect taxes on production
		Subsidies on imports
		Tariffs
		Direct taxes
		<b>Other accounts</b>
		Savings and investment

In our case, the problem is to estimate a new micromodule with minimum entropy distance relative to the previous micromodule by drawing on the information presented in the 1996 SAM, subject to the constraint that the row and column totals of the new SAM should be equal for all accounts and that control values should be satisfied (exactly or by accounting for errors). The entropy distance depends on the differences between the two tables in terms of column coefficients and control values. Control values may be imposed exactly, or they may be imposed with allowance for measurement errors.

### CGE model structure

The CGE model used here for Tunisia is a standard neoclassical static model with imperfect substitution between domestic and foreign goods. Domestic prices are endogenous on each market (goods and factors). They equalize supply (imports, production for the domestic market, supply factors) and demand (final demand of households, the government, investors and foreign partners; intermediate demand of producers; factors demand) so as to obtain equilibrium. The equilibrium is general in the sense that it concerns all markets simultaneously. For instance, a decrease in tariffs will affect the demand for imports of both final and intermediate goods. This will, in turn, affect the supply of domestic goods and the demand for factors in each activity. This will equally affect the price of goods and the income of households, which will, in turn, affect household demand, and so on.

Supply is modelled using nested constant elasticity of substitution functions, which describe the substitution and complement relations among the various inputs. Producers are cost-minimizers, and constant return to scale is assumed. Output results from two composite goods (intermediate consumption and value added), which are combined in fixed proportions. The intermediate aggregate is obtained by combining all products in fixed proportions. The value added is then decomposed into two substitutable parts: labour and capital. The labour market is further disaggregated into five categories, and capital into three categories (physical capital, reserve of natural resources, and land). Substitutions among labour categories are implemented through a nested constant elasticity of substitution structure for two main activities: agricultural activities and non-agricultural activities. For agricultural activities, the first level of constant elasticity of substitution function describes the substitution between wage workers and non-wage workers, while the second level describes substitution between skilled and unskilled wage workers. For non-agricultural activities, substitution exists only between skilled and non-skilled wage workers.<sup>36</sup>

The labour market is modelled according to labour type. For non-wage agricultural workers (farmers), we assume that an economy-wide wage variable is free to vary to assure that the sum of demand from all activities equals the quantity supplied, which is fixed. Each activity pays an activity-specific wage that is the product of the economy-wide wage and an activity-specific wage (distortion) term. For the remaining four labour categories, we assume that there is unemployment and that the real wage is fixed. This assumption is appropriate in the Tunisian case because there is considerable unemployment among all wage-worker categories. Compared to the modelling of non-wage workers, the only change is that the economy-wide wage variable is fixed (or exogenized), while the supply variable is flexed (or endogenized). Each activity is free to hire any desired quantity at the fixed activity-specific wage (which, implicitly, is indexed to the model numéraire).

Income from labour and physical capital accrues to households using fixed shares derived from the SAM once the micromodule is fully integrated, as well as all rents created by specific capital factors (natural resources and land). Total household demand is derived by maximizing the utility function, subject to the constraints of the available income and consumer price vector. Household utility is a positive function of the consumption of the various products and savings; income elasticity for each product is set to unity. Government demand and investment demand are disaggregated into sectoral demands once the total value is determined according to fixed coefficient functions.

36/ This static model is intended to capture the short- and medium-term allocative effects of various trade policies. However, it does not incorporate some of the expected dynamic effects of trade policies, notably, on productivity, since factors availability and average efficiency are fixed in this version of the model. This feature is ignored because, in the long run, household features have to be changed, and the calibration of the model requires more than one household survey.

The model assumes imperfect substitution among goods originating in different geographical areas. Import demand results from a constant elasticity of substitution aggregation function of domestic and imported goods. Export supply is symmetrically modelled as a constant elasticity of transformation function. Producers decide to allocate their output to domestic or foreign markets in response to relative prices. At the second stage, importers (exporters) choose the optimal demand (supply) across regions as a function of relative import (export) prices and the degree of substitution across regions. Substitution elasticity between domestic and imported products is set at 2.2, while it is set at 5.0 among imported products according to origin. The elasticity of transformation between products intended for the domestic market and products for export is 5.0, while it is set at 8.0 among the different destinations for export products.<sup>37</sup>

Finally, several macroeconomic constraints are introduced into this model. First, the small country assumption holds. Tunisia is unable to change world prices; thus, its import and export prices are exogenous. Capital transfers are exogenous as well, implying that the trade balance is fixed so as to achieve balance of payments equilibrium. Second, the model imposes a fixed real government deficit and fixed real public expenditures. Public receipts thus adjust endogenously in order to achieve the predetermined net government position by shifting the income tax of households.<sup>38</sup> Third, investment is determined by the availability of savings from households, government and abroad. Since government and foreign savings are exogenous in this model, changes in investment volumes reflect changes in household savings and changes in the price of investment. Policy impacts are compared relative to the situation observed in the base year in terms of macroeconomic aggregates, trade volumes, sectoral outputs, household welfare, and poverty indicators.

37/ In the absence of trade elasticities estimated for Tunisia, we use trade elasticities from the empirical literature devoted to CGE models. For example, see Burniaux, Nicoletti and Oliveira-Martins (1992), Konan and Maskus (1997), or, more recently, Gallaway, McDaniel and Rivera (2000).

38/ This closure policy can be understood as a net transfer from households to government (or the reverse). With one representative household, it is considered the most neutral way to assess trade reform. Other closures could be tested (by adjusting indirect taxes for instance), but this would risk introducing new distortions, thereby making it more difficult to isolate conceptually the impact of the trade policy on income distribution and poverty.

# 7

## Agriculture, Trade and Poverty in Syria

## 7.1 Introduction

The Syrian Arab Republic has approximately 17 million inhabitants, of which about half live in urban areas. Per capita GDP is US\$831, above that of the poorest NENA countries (Djibouti, Somalia, the Sudan and Yemen), but below the others. The agricultural sector is relatively large, accounting for 23% of total GDP. This places Syria third after Somalia and the Sudan among the NENA13 countries under consideration.

The Syrian government adopted socialism in the late 1950s and kept control of major industries, though private services and retail trade were allowed. The economy has been adversely affected by various conflicts in the region, including the Arab-Israeli wars of 1967 and 1973 and the Syrian intervention in Lebanon from 1976 until 2005. Limited economic reforms and a major expansion in oil exports stimulated economic growth in the early 1990s, but growth has been sluggish since then. Although international trade and the exchange rate have been partially liberalized, the Government still imposes significant controls on the economy, including price controls, state monopolies in certain sectors, agricultural subsidies and a large number of state-owned enterprises. Overall, per capita GDP grew at 2.2% per year during the 1990s, an improvement over the performance during the 1980s, when it fell in real terms.

Like Jordan, Syria was adversely affected by the end of the United Nations Oil for Food programme in Iraq and the subsequent war in Iraq, which disrupted trade flows. More recently, Syria has benefited from the conflict in Iraq and high oil prices.

## 7.2 Agricultural sector

### 7.2.1 Agricultural production

Wheat is the most important food crop in Syria. Unlike most NENA countries, Syria is self-sufficient in wheat. As discussed below, the self-sufficiency in wheat is the result of policies that impose high barriers on imports. Barley and maize are also grown, but domestic production is not sufficient to satisfy demand. Grain production is subject to weather-related fluctuations since rainfall is unreliable. Syria also produces grapes, apples and olives in the highlands and citrus fruits along the coast. Horticultural production is often irrigated. About 23% of Syrian cropland is irrigated, much of this because of the Euphrates Dam built in the 1970s.

The main production units in Syrian agriculture are small and medium-sized farms, as the agrarian reform caused the practical disappearance of traditional large-scale landowners. Between the two available agricultural censuses, conducted in 1981 and 1994, there was a 26% increase in the total number of farm households, from 486,000 in 1981 to 614,000 in 1994 (Table 7-1). The percentage of farmers among whom the main occupation was agricultural and who owned land was 71% of total farm households with land in 1994 compared to 64% in 1981. Furthermore, 57% of farmers without land stated that their main occupation was farming, compared to only 15% in 1981. These changes show the growing numbers of farm households among which the main occupation is farming both with land and without land. This is the direct result of the segmentation of land and slow growth in the demand for labour in the non-agricultural sectors.

**TABLE 7-1**  
Characteristics of farm households in Syria

	1981 census	1994 census
Total number of farm households (1)	485 691	613 657
Farm households with land (2)	409 492	573 193
Farm households without land (3)	76 199	40 464
Farm households with land and main occupation is agriculture (4)	261 386	409 142
Farm households without land and main occupation is agriculture (5)	11 224	22 860
Percentage of farm households with land (2/1)	84	93
Percentage of land owners for whom agriculture is the main occupation (4/2)	64	71
Percentage of landless for whom agriculture is the main occupation (5/3)	15	56

Sources: 1981 census and 1994 census.

### 7.2.2 Agricultural trade patterns

The total exports of Syria were US\$7.6 billion in 2002. Oil and fuel account for over half of the total value of exports, although it is estimated that existing oil reserves will be exhausted within 12 years at current extraction rates. As discussed in section 3.1.6, Syrian agricultural exports are about US\$1 billion; the main commodities are cotton, sheep, tomatoes and anise/fennel (Table 3-9). As a group, fruit and vegetable exports earn over US\$300 million per year. Syrian wheat exports averaged US\$48 million in value per year over 2000-02.

The total imports in 2002 were US\$5.9. The main agricultural imports are sugar, maize and tea (Table 3-9). Unlike most NENA countries, Syria has a modest surplus in agricultural trade, although this is partly due to the tight restrictions on food and agricultural imports. According to the US Department of Agriculture, imports of processed foods, frozen foods, snack foods, meat, fruits, and vegetables are, in general, prohibited (USDA, 1999).

The principal trading partners of Syria are other Arab countries and the EU. The EU represents the main market for Syrian exports, accounting for some 60% of exports. The EU is a particularly important market for Syrian oil, but also accounts for a significant share of Syria's manufactured exports. The Arab countries are the second largest market for Syrian exports, accounting for slightly over 20% of total exports. Exports to Arab countries are mainly concentrated in foodstuffs, notably grain, fruits and vegetables.

## 7.3 Agricultural and trade policies

### 7.3.1 Agricultural policy

Syrian agricultural policy is characterized by a high level of government intervention. Before 1987, the prices of many agricultural products, such as grain, fodder, industrial crops, potatoes, garlic and some fruits, were determined by the Government. Since 1987, a gradual process of economic reform has been under way, and some regulations on production, prices and marketing have been relaxed. This process has intensified since 2002, when the Government introduced a package of reforms aiming to reduce distortions and public intervention in the economy.

On the basis of these changes, the orientation of Syrian economic policy in general, and of agricultural policy in particular, has focused on price deregulation, a reduction in public intervention and a gradual reduction in subsidies. We analyse below the main components of Syrian agricultural policy, focusing on recent reforms, as well as on obstacles that still affect the agricultural sector and farm incomes.

#### Land-use planning

In Syria, agricultural production is centrally planned by means of land-use plans, which vary from region to region. The land-use plans are prepared by the state based on its strategic goals and the technical characteristics of farms. The land-use plans often determine other aspects of Syrian agricultural policy, namely, price and credit policy. The state seeks to ensure the achievement of the objectives assigned to the agricultural sector in the national economic development plan without taking into account farmer preferences. The discrepancy between government objectives and farmer objectives has always been manifested in the flouting of the rules on land use. This situation has made it difficult for farmers to acquire the necessary inputs whenever their plans differ from the government land-use plans. In addition, the situation results in weak performance by farms as a result of the lack of credit and support for unapproved production.

#### Procurement by state monopolies

Wheat, cotton, tobacco and sugar beets are considered strategic commodities. In order to stimulate production and control distribution, the state has a marketing monopoly over these products. The prices of these commodities are fixed using a well-established procedure. First, the cost of production is estimated jointly by the Ministry of Agriculture, the general trade union of farmers, the Ministry of the Economy, the Ministry of Trade, the Ministry of Industry and other institutions. Once the average cost has been estimated, a margin of benefits is fixed for each crop on the basis of the relative importance of the crop in the Syrian economy as measured by the importance of each product in the final consumption of households and the demand for these crops as industrial

inputs. These continually revised prices are published each year before the beginning of the agricultural season. This price-fixing mechanism has led to increases in producer prices that far exceed the rise in consumer prices, typically fixed by the state for the same products. One consequence of these policies is the accumulation of large stocks by state enterprises and large financial costs in the state budget.

### **Administered prices**

Another category of agricultural commodities is subject to administered prices, but without a state monopoly on marketing. This is the case of barley, lentils, maize and sunflowers. Farmers have the option of selling to state marketing boards at the official prices, but they can also sell on the private market. Indeed, like procurement prices, these prices are fixed on the basis of a study jointly conducted by representatives of the Government, farmers and processors. Prices are set according to the estimated average production cost, plus a profit margin that is smaller than that accorded for strategic products. Thus, the proposed prices are considered as minimum guaranteed prices for farmers so as to protect them from unusually low market prices.

### **Consumer price policy**

This category of prices is also fixed by the state administration and is meant for consumption products such as vegetables, fruits, milk, meat, eggs, rice and oil. These prices are considered as simple indicators that should not be applied in transactions between producers (and importers) and consumers, except for products that public institutions buy. These prices are also fixed by a committee that is generally made up of the Ministry of the Economy and the Ministry of Trade, as well as other departments involved in the sector.

This pricing policy has undergone significant reforms during recent years. Many products, notably, vegetables, have witnessed liberalization in prices and imports. Furthermore, state monopolies in the importation of certain products have been relaxed, opening the door to private importers. However, pricing policies have not undergone changes relative to many other products, leading to high fiscal costs because of the gap between producer prices and (lower) export or retail prices.

### **Input policy**

Agricultural input policy is based on the principle that all necessary inputs for agricultural production should be made available through the establishment of state monopolies in the production of inputs. However, the private sector participates in some marketing activities without authorization from the state administration. There is a state monopoly in the importation and distribution of chemical fertilizers. State trading enterprises import fertilizers on behalf of the cooperative agricultural bank, which distributes the fertilizers to farmers. Payment is made either in cash or by means of loans granted by the same institution on the basis of conditions fixed in advance by the Ministry of Agriculture. In addition, there is a state monopoly in the production, importation and distribution of seeds. The private sector is authorized to market pesticides with the approval of the Ministry of Agriculture and to import and distribute agricultural machinery.

The partial liberalization of the importation and distribution of pesticides and agricultural equipment has helped increase the level of agricultural production in the country. However, the continued monopoly on the importation and distribution of fertilizers has had negative effects. In addition to long delays in fertilizer delivery and the rationing of fertilizer among farms, this policy has led to additional costs, estimated at 30% of the farmgate price (Bakour 2004).

### **Recent Agricultural policy reforms**

It is important to point out that the 1970s saw an increase in the use of public monopolies in the marketing of many agricultural products. This involved the purchase and distribution of these products on local and foreign markets. These marketing monopolies were directed at various cereals, the main fruits, and crops and harvests for industrial processing. Disciplinary and penal sanctions were applied against individuals who did not respect the monopoly regulations whether they were producers or traders.

However, the beginning of the 1980s witnessed the introduction of a reform in the marketing policy for agricultural products. This reform involved the following:

- the elimination of the system of compulsory importation of certain products by public enterprises (wheat, barley, lentils, chickpeas, maize and others) and of the restriction on grain purchases of the state trading enterprise from farmers who choose to sell;
- the preservation of the state monopoly in the exportation of strategic products, while granting concessions to the private sector to involve it in the exportation of cereals on condition of a prior agreement with the Grain Board;
- encouragement for the private sector to participate in export operations in fruits and vegetables through greater freedom in the use of foreign currency receipts, exemptions from the tax on agricultural production and a reduction in the income tax;
- authorization for public enterprises to process agricultural products and to obtain goods directly on the market at market prices without the obligation to pay official prices, which are often higher than market prices; and
- authorization for agricultural enterprises to market any of their production that is not under state monopoly on local and foreign markets, according to the best interests of the enterprises.

Certainly, these changes represent a movement towards liberalization in the marketing of agricultural products and in exportation. However, the results of these reforms have been modest for various reasons. First, the state monopoly in distribution has been maintained for strategic products, primarily those for which the processing industries belong to the state. This covers mainly cotton, tobacco and sugar beets. Second, there is an absence of export mechanisms able to facilitate trading relationships with foreign clients and foster new outlets. In addition, weaknesses in the marketing infrastructure and the high transaction costs in marketing have reduced the supply response in agriculture.

Agricultural policy continues to be a subject of debate. Some are calling for the maintenance of the state marketing system based on administered prices, while others are calling for a more flexible system that responds to changes in supply and demand both in marketing and in fixing agricultural prices. In the latter case, public enterprises that process or export certain agricultural products must obtain their goods directly on the market through contracts with producers or cooperatives, or with agricultural companies and wholesalers.

### 7.3.2 Trade policy

Foreign trade is subject to a significant intervention, particularly through import barriers such as tariffs, quantitative restrictions and technical barriers on trade (non-tariff barriers). These import barriers are discussed in detail below.

#### Tariffs

Current import tariffs range from 6% to 235%, and average 35%, including other duties and surcharges. There are ten tariff bands. Statutory tariffs range from 0 to 200%. These are supplemented by a unified duty that ranges from 6% to 35%, the applied surcharge increasing with the level of the applicable tariff rate. The highest tariffs apply to the imports of certain types of vehicles. Tariffs of 100% or more apply on imports of certain fruits, vegetables and processed foods, as well as on textiles, ceramics and glass products, all of which are produced locally. As discussed below, many of these products are also subject to quantitative restrictions on trade. Tariffs on goods originating in GAFTA countries are duty free.

The average tariff, weighted by the composition of imports, is currently only 8%, which is relatively low compared to the tariffs applied in other countries in the region before they joined the WTO or signed an EMP agreement. But this low average tariff rate is misleading as an indicator of openness for two reasons. First, because it is an import-weighted tariff at the mean, it gives less weight to those commodities on which the tariffs rates are the highest. Second, it does not take into account the pervasive system of quantitative restrictions, which raises effective protection (and thus the implicit tax on exports) substantially.

If account is taken of the tariff equivalent of quantitative restrictions, the overall weighted average rate of protection exceeds 25%, making Syria one of the least open countries to trade in the MENA region (World Bank 2004).<sup>39</sup>

### Quantitative restrictions

A quantitative restriction is any measure that limits the volume of trade directly, rather than through import taxes. Examples include quotas, licensing requirements and safeguard levies. In Syria, quantitative restrictions are principally implemented by the regulation of imports through four lists, as follows:

- The first list comprises all products forbidden for importation, for environmental, security, or sanitary reasons. Officials indicate that this list is similar to ones used in OECD countries.
- A second list encompasses all products forbidden for importation from non-GAFTA countries because of their negative impact on Syrian industry. Products on this list all have an equivalent produced in Syria. The list covers a large number of agricultural and industrial products: flowers, animal products, forestry products, vegetable oils, sugar-based products, quarrying products, plastic and rubber products, leather and leather products, wood products, paper products, silk, textiles and clothing, craft products, glass products, electrical machinery and materials, etc.
- The third list contains products that may only be imported by the public sector. This list includes, notably, oil and oil-related products, alcohol and beer, arms, cotton, some cereal products, tobacco, pharmaceutical products, salt, black cement, fish, fruits, olive oil, veterinary medicines and phosphates.
- The fourth list contains products that were once imported only by particular public entities and that may now be imported by anyone, provided a commission is paid to the relevant public entities. This commission generally represents 3% to 5% of the import value before taxes. The most important products on this list are cars and transport machinery, steel and steel products, wood, white cement, yarn for the textile industry, coffee, tea, rice, canned fish and meat, raw sugar, fertilizers, raw leather and paper.

Both public entities and private agents may theoretically import any products not included in these four lists. According to Syrian officials, there is thus no positive list of imports that are allowed in Syria. No mention was made by these Syrian officials of the existence of quotas, tariff quotas, calendar restrictions, or the need to comply with particular standards.

Measuring the impact of quantitative restrictions on prices is a difficult task. The most common method is the price-gap approach, which compares the domestic price of imported goods with the international price, after adjustment for tariffs, shipping costs, costs of domestic transportation and customs procedures, and the impact of import and export financing schemes (Chemingui and Dessus 2004). The remaining price differentials between domestic and world prices thus measure the impact of quantitative restrictions on the domestic price of importable goods. This approach does have limitations since it is difficult to obtain accurate information on domestic and world prices at a sufficiently disaggregated level. In most cases, the estimated tariff equivalent of quantitative restrictions covers a set of products.<sup>40</sup> In addition, it is impossible formally to assign the origin of the estimated residual price gap to an existing import regulation; for instance, corruption or quality differences might also partially explain the price gap.

Given these qualifications, Table 7-2 presents estimates of the tariff equivalents of quantitative restrictions for selected agricultural commodities. Across all product categories (agricultural and nonagricultural), tariff rates are positively correlated with the tariff equivalents of quantitative restrictions, which suggests that they are both used to support the same objective. Chemingui and Dessus (2004) estimate that, across all product categories, the weighted average tariff equivalent of quantitative restrictions is 19%, compared to the weighted average tariff rate of 8%. Thus, quantitative restrictions probably represent the main source of trade protection in Syria.

39/ See Nashashibi (2002) for a comparison of trade openness among MENA countries.

40/ The calculations carried out by Chemingui and Dessus (2004) cover, on average, 60% of the products comprised within each group of imported products (and 50% on a weighted average). By default, the authors assumed that the uncovered share of imports in each group faces the same tariff equivalent as the share of imports covered by their estimates.

**TABLE 7-2**  
**Tariff equivalents of quantitative restrictions and tariffs on agricultural products**

Group of products	Tariff equivalent of quantitative restrictions	Tariffs on agriculture products
	(%)	(%)
Fish products (SITC 03)	3.9	19.5
Fruits and nuts (SITC 057)	27.4	54.0
Other food, live animals, oils, fats and waxes (rest of SITC 0-4)	19.9	7.8
Tobacco and beverages (SITC 1)	309.3	110.1

Source: Chemingui and Dessus (2004).

SITC = Standard International Trade Classification.

### Technical barriers to trade

Two other technical barriers to trade tend to raise the cost of international trade between Syria and the rest of the world: (i) the use of a multiple exchange rate system in trade finance and (ii) cumbersome customs procedures and inefficient trade logistics.<sup>41</sup>

The import (and export) regime is complicated and rendered non-transparent because of the multiple exchange rates for private and government entities. The exchange rate system in Syria has been tightly managed, with a total of 11 rates applied for different transactions. In the 1990s, many of these rates were unified, most recently in 2002, when the three exchange rates used for the valuation of imports were harmonized and, in 2004, with the unification of the rate used for budget calculations with the rate applied to other public sector operations.

Until 2002, there were three exchange rates:

- the official rate, determined by the Central Bank of Syria, valued at SYP 46.5 per US\$1.00, which was used by the public sector for imports;
- a free market rate, approximately SYP 53 per US\$1.00, which was determined by supply and demand mainly on the Beirut foreign exchange market and which was used for both commercial and non-commercial purposes; and
- the so-called export proceeds rate, valued at SYP 51 per US\$1.00, which was used to value foreign exchange that exporters are required to surrender.

As a result, imports are generally undervalued in domestic prices (hence, they are subsidized, and at different rates depending on the end-user), while exports are implicitly taxed by an overvalued exchange rate (again, at different rates depending on the exporting sector). Estimates carried out by Chemingui and Dessus (2004) suggest that the average implicit subsidy on imports stemming from this system amounts to the equivalent of 2.7% of the value of imports. Similarly, the implicit tax on exports amounts to 8.9% of the total value of exports. These estimates are a function of the difference between the exchange rate that applies to public and private sector entities, as well as the magnitude of the foreign exchange surrender requirement. As this changes, so will the implicit import-export subsidy or taxes.

Customs procedures and regulations constrain trade through a lack of consistency, a manual system for processing customs data and the inadequate distribution of information on procedures and requirements. One additional implication of the complex system of customs tariffs and duties and the non-tariff regime is that enforcement requires complicated and burdensome procedures. Estimates by Chemingui and Dessus (2004) suggest that the tax equivalent of the transaction costs related to the clearance of goods is around 15%.<sup>42</sup> They also suggest that the implicit tax on exports due to transaction costs is around 15%. Moreover, the incidence of the system varies not only by sector, but also by type of firm or product, depending on whether the producers or importers are public or private.

41/ The term technical barrier to trade used here does not match perfectly the international definition. In particular, the multiple exchange rate system in place may also be considered a non-tariff measure because it affects directly the price of imports and exports. But, because it also entails additional transaction costs, one is equally justified in considering it a technical barrier to trade.

42/ This is consistent with the survey-based information in Zarruk (2003), described earlier. Relative to other countries in the region, Syria's import procedures are considered among the more problematic and costly by international traders.

### Recent trade policy reform

A number of actions have been taken over the last few years to liberalize the trade regime. The fact that imports may be undertaken by the private sector has been a significant change, as has been the gradual unification of the various exchange rates that apply to private and public transactions. The foreign exchange surrender requirement was further reduced to 10% in 2004. Traders in possession of import licenses are now also allowed to import directly. (They were previously required to use local agents.) Furthermore, it is no longer necessary to finance imports using foreign exchange generated from exports. There has also been a reduction in the number of prohibited imports, and explicit export taxes have been eliminated. Syria is gradually becoming integrated into the world economy at the regional and multilateral levels.

#### 7.3.3 Effect of policy on agricultural prices

The pricing and commercialization policies applied in Syria, together with the trade policy, have protected Syrian farmers from the negative effects of volatility in world markets, particularly in the case of cotton, sugar and wheat growers. Furthermore, government administered pricing commands a significant role in the rural economy because of its large-scale sequencing impact on resource allocations and farmer incomes down to the farm level (UNDP 2005c).

According to a recent study carried out by the Food and Agriculture Organization of the United Nations (FAO 2003b), if farm incomes were not supported by government purchasing at official prices, farmers growing strategic crops, because of their high costs of production, would take losses in a normal rainfall year, and, in the case of irrigated wheat and sugar beets, the losses would be higher. These losses would induce farmers to switch to other crops until only the lowest-cost producers remained in the market. The generous subsidies paid to producers and received by consumers occur at the expense of the huge losses incurred by state-owned enterprises that purchase and process wheat, seed cotton and sugar beets.

It is important to note that the seven crops on which the Government continues to set producer prices and to consider strategic crops account for over half the total value of national crop production and occupy about three quarters of the 4.6 million ha that are under cultivation in Syria. Wheat and cotton are, by far, the most important of the strategic crops in terms of farmgate value and employment creation.

By comparing the equivalent import or export price at the farmgate, one may estimate the magnitude of support provided to farmers for strategic crops in Syria. This kind of analysis was carried out by Westlake (2003) using 1999 data on six of the seven strategic crops. For sugar beets, the producer price in the late 1990s was almost three times the import parity, rendering beets much more protected than any other crop in the country. Soft wheat producer prices were 66% higher than import parity. Cotton producer prices exceeded export parity by 31% as result of a steady decline in international prices for cotton fibre from 1995 to 1999. For barley, official prices were roughly equal to import parity, but well above export parity. In the case of lentils and chickpeas, official prices were below the estimated export parity price. The analysis showed also that, to the extent that farmers may switch among crops in response to relative profitability, government price intervention has artificially stimulated the production of wheat, cotton and sugar beets at the expense of barley, lentil and chickpea production (Table 7-3).

In 1999, sugar cane farmers and sugar consumers benefited in roughly equal amounts from the subsidies on sugar. In the case of wheat, some 85% of the total price subsidies went to farmers. As shown in Table 7-4, price subsidies for wheat, cotton and sugar beet farmers totaled SYP 20.7 billion, equivalent to 2.5% of GDP. These figures are calculated at the aggregate level, without reference to the size distribution of the holdings and the land tenure status of farmers. Little is known about the distribution of these gains among small-scale farmers and large-scale farmers. In absolute terms, it is safe to say that large-scale wheat farmers capture a disproportionate share of the subsidies because the subsidy benefits are proportional to wheat production. However, the percentage contribution of these subsidies to farm incomes among different farm groups depends on the importance of the subsidized crops within their incomes.

**TABLE 7-3**  
Comparison of official and parity producer prices

Import products	Official producer price	Import parity price at the farmgate	Official price as a % of the import parity price
Soft wheat	10 800	6 497	166
Barley	7 500	7 316	103
Sugar beets	2 150	746	288
<b>Export products</b>			
Lentils	16 000	18 799	85
Chickpeas	17 800	28 852	62
Cotton	29 290	22 291	69

Source: Westlake (2003).

**TABLE 7-4**  
Government price intervention: costs and beneficiaries

	Value of subsidies	
	(SYP billion)	(% of GDP)
Wheat (1999)		
Public enterprise loss	26.29	3.24
Subsidy to farmers	9.04	1.11
Subsidy on standard flour	3.76	0.46
Cotton (1998/99)		
Public enterprise loss	6.42	0.79
Subsidy to farmers	9.88	1.22
Tax on domestic spinners	2.3	0.28
Sugar (1999)		
Public enterprise loss	3.72	0.46
Subsidy to farmers	1.55	0.19
Subsidy to consumers	1.63	0.2
<b>Total</b>		
<b>Losses</b>	<b>36.43</b>	<b>4.49</b>
<b>Subsidy to farmers</b>	<b>20.47</b>	<b>2.52</b>
<b>Subsidy to consumers</b>	<b>5.39</b>	<b>0.66</b>
<b>Tax on domestic industry</b>	<b>2.3</b>	<b>0.28</b>

Source: Westlake (2003).

Note: The official exchange rate on 30 June 1999 was SYP 41.85 per US\$1.00, according to [www.oanda.com](http://www.oanda.com).

### 7.3.4 Trade agreements

At the regional level, in February 1997, Syria signed the agreement leading to GAFTA. In 1998 and 1999, bilateral FTAs were signed with Lebanon and Jordan, and, in 2005, an FTA was signed with Tunisia. In October 1997, Syria formally started negotiations on the association agreement with the EU. An agreement was reached in 2004, but has not yet been ratified by the European countries and, so, has not entered into effect. At the multilateral level, in October 2001, Syria requested accession to WTO, but few advances have been achieved towards accession.

The FTA signed between Syria and the EU (which has not entered into effect) calls for a reinforcement in the trade relationship between Syria and the EU. This will require significant reform in Syrian trade policy and in the application of instruments of protection in Syria. The main provisions of the Syria-EU association agreement relate to trade in agricultural products and may be summarized in four sections. The first section relates to the EU imports of Syrian agricultural products. Accordingly, annual tariff quotas have been set for Syrian exports of selected horticultural products (Table 7-5).

**TABLE 7-5**  
Proposed changes in EU quotas for Syrian exports

Commodity	Season	Initial quota	Increase in quota
Potatoes	1 January to 30 April	25 000 t	Annual increase of 1 000 t for two years
Potatoes	1 June to 31 July	5 000 t	No change
Fresh tomatoes	All year	15 000 t	Annual increase of 3% for two years
Oranges	1 January to 31 May	25 000 t	Annual increase of 3% for two years
Small citrus	1 November to 28 February	13 000 t	Annual increase of 3% for two years
Lemons	1 October to 30 March	7 000 t	Annual increase of 3% for two years
Fresh grapes	1 November to 31 July	3 000 t	Annual increase of 3% for two years
Fresh apples	All year	20 000 t	No change
Olive oil	All year	10 000 t	Annual increase of 1 000 t for two years

Source: Draft EU-Syria EMP agreement.

For fresh tomatoes, a reduction of 60% applies to the most favoured nation duty for quantities above the quota, although, for products where entry prices apply, this entry price is maintained. For other products, at entry into force of the agreement, the ad valorem duty will be set at zero for unlimited quantities. A list of these products has been annexed to the agreement. For a certain number of other products, at entry into force of the agreement, the ad valorem duty will be set at zero under a tariff quota covering traditional trade. A list of these products has also been annexed to the agreement. Finally, for a number of products, at entry into force, the ad valorem duty will be reduced to a certain level. A list of these products has been annexed to the agreement.

The second section includes regulations on imports by Syria of agricultural products originating in the EU. For these, Syria will dismantle its tariffs to reach a zero tariff sequentially according to the following schema: 0-5% at entry into force, 5-10% at year 4, 10-40% at year 7, 40-100% reduced to 40% at entry into force and a linear reduction to zero at year 12, above 100% reduced to 70% at entry into force and then a linear reduction to zero at year 12. Additionally, annual tariff quotas at zero duty have been set for European exports for the following products without entry price: oranges (1,500 t), small citrus (750 t) and fresh apples (2,500 t).

The third section concerns processed agricultural products. For these products, Syria will grant annual tariff preference quotas for the following categories: mineral water, soft drinks, spirits, cigarettes and homogenized tobacco. Within the quotas, the applied tariff will be reduced by 40% when the agreement comes into force.

Finally, regarding fish, Syrian tariffs will be dismantled over 12 years: 0-10% reductions immediately, 10-30% in five years, 30-80% in seven years, and all above 80% brought down to 80% at entry into force and dismantled over 12 years. On the other hand, all imports into the EU are to be dismantled by the third year after entry into force, with the exception of tuna, on which an annual quota of 100 t will apply. (Currently, Syria does not export fish to the EU).

## 7.4 Poverty

According to the United Nations Development Programme, 11.4% of the Syrian population is unable to meet their basic food and non-food needs. Furthermore, measured by the lower household-specific expenditure poverty lines, poverty in Syria rises to 30.1%, representing almost 5.3 million individuals. Measured according to the US\$2-a-day international measure, 10.4% of Syrians are poor (UNDP 2005c).

While poverty is generally more prevalent in rural Syria than in urban areas, the greatest difference is geographical. As shown in Table 7-6, in the north-eastern region, both rural and urban areas suffer from the greatest incidence, depth and severity of poverty, the southern urban region has very low levels of poverty, and the middle and coastal regions have intermediate levels of poverty. The same report shows that poverty decreased between 1996-97 and 2003-04 for Syria as a whole, but regional patterns differ. Poverty incidence declined rapidly in the middle and southern

**TABLE 7-6**  
Poverty measures by region using the lower poverty line for 2003-04

	Poverty measures			Percentage share		
	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	Poor	Non-poor	Overall
Urban						
Southern	5.8	1.23	0.45	10	21	19
North-eastern	11.2	1.79	0.44	20	21	21
Middle	9.0	1.64	0.46	5	7	7
Coastal	9.3	1.95	0.6	3	4	4
Rural						
Southern	10.7	2.03	0.64	10	11	11
North-eastern	17.9	3.51	1.01	38	22	24
Middle	11.1	1.81	0.49	9	9	9
Coastal	9.7	1.92	0.57	4	5	5
<b>All Syria</b>	<b>11.4</b>	<b>2.13</b>	<b>0.62</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: UNDP (2005c).

**TABLE 7-7**  
Distribution of the population by location and poverty status

	Agriculture	Other activities	Total
	(% )		
Urban			
Poor	5.7	94.4	100.0
Non-poor	5.2	94.8	100.0
<b>Total</b>	<b>5.3</b>	<b>94.8</b>	<b>100.0</b>
Rural			
Poor	50.4	49.6	100.0
Non-poor	38.2	61.8	100.0
<b>Total</b>	<b>40.0</b>	<b>60.0</b>	<b>100.0</b>
All Syria			
Poor	33.9	66.1	100.0
Non-poor	21.5	78.5	100.0
<b>Total</b>	<b>22.9</b>	<b>77.1</b>	<b>100.0</b>

Source: UNDP (2005c).

regions, especially in rural areas. Poverty declined moderately in urban areas of the north-eastern and coastal regions. However, poverty actually rose in rural parts of these regions. Over this period, inequality in Syria as a whole rose slightly: the Gini coefficient rose from 0.33 to 0.37. However, a large increase in average per capita expenditure outweighed the effects of this increased disparity.

Results from the 2003-2004 surveys show that lack of education is the characteristic with the strongest correlation to poverty in Syria. More than 18% of the poor population was illiterate, and poverty was most widespread, deepest and most severe among these individuals. Poverty was inversely correlated with educational attainment, so that even a moderate improvement in education could reduce the ranks of the poor. In urban areas, the poverty headcount ranged from 11.7% among illiterate persons to only 1.5% among university graduates. The corresponding rates in rural areas were 16.5% and 5% (UNDP 2005c).

The same study shows that the highest poverty rates were among the self-employed in marginal and unskilled activities or among non-wage workers. Agricultural and construction were overrepresented within poor groups. Moreover, the poor were more likely to work in the informal sector, which employed 48% of the poor. Unemployment rates correlated with poverty; the poverty incidence among the unemployed was higher than average in urban areas. Table 7-7 shows that more than 50% of the poor in rural areas are farmers, while only 38% of the non-poor in rural areas are farmers.

**TABLE 7-8**  
Poverty measures for households of which the head is working in agriculture

	Poverty measure			% of population
	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	
Urban	9.3	1.7	0.4	5.4
Rural	18.0	3.5	1.1	40.6
<b>All Syria</b>	<b>17.0</b>	<b>3.3</b>	<b>1.0</b>	<b>23.5</b>

Source: UNDP (2005c).

Table 7-8 presents the main poverty indicators for heads of household working in agriculture. Only 9.3% of urban heads of household working in agriculture are poor, while 18% of agricultural households in rural areas are poor. It is worth noting that 17% of agricultural households are poor, compared to 11% of all Syrian households.

## 7.5 Impact of wheat market liberalization on small farmers

### 7.5.1 Background

The recently adopted five-year plan (2006-10) gives high priority to meeting the challenge of reducing the fiscal deficit by 7 percentage points of GDP over the period. The main strategy for achieving this objective is to reduce expenditure by phasing out subsidies and to increase revenue by adopting a value added consumption tax.

Phasing out subsidies would have a significant effect on the fiscal deficit. First, the cost of agricultural and energy subsidies is large, about 18.9% of GDP. Second, unlike raising taxes, this measure can yield significant efficiency gains given the large deadweight loss associated with this policy. Third, the policy reform is an opportunity to make government subsidies more equitable, converting them to a powerful instrument for redistribution and poverty reduction. Fourth, the short-term contractionary impact on the economy will be smaller, and the contribution to the adjustment of external accounts larger than other fiscal measures. Lastly, by pushing for greater efficiency in resource allocation and protecting budgetary spending on education, health and infrastructure, this reform improves the economy's long-term growth and balance of payments prospects (World Bank 2006).

In this section, we examine the economic and redistributive effects of the removal of wheat subsidies. For this purpose, we have developed a static CGE model linked to data from the Syrian household expenditure survey. The model is used to assess the direct and indirect implications of reducing the producer price of wheat to international levels and of increasing the consumer prices of wheat products through a reduction in subsidies. The assessment will focus on the overall economic structure and on household consumption and welfare.

The value of wheat subsidies (including subsidies on wheat products such as bread) is calculated as the difference in the value of the domestic consumption of these products at domestic prices and the opportunity costs of these products. For wheat products such as bread, these opportunity costs are measured by the cost of production. For wheat, the reference price is the international price after adjusting for transport costs and distribution margins up to the mill. The cost of agricultural subsidies estimated by the State Planning Council is shown in Table 7-9.

Net subsidies for agricultural and food products in 2003 amounted to 6.8% of GDP. If we add energy subsidies (12.1% of GDP), total subsidies amounted to 18.9% of total GDP in 2003. Domestic wheat prices are about 25% higher than the international price. Consumption was 6.7 million t in 2005 and had been increasing at a high rate (17% in 2003).

### 7.5.2 Methods

The model used in this study is a static CGE model based on the standard static CGE model developed by Lofgren, Harris and Robinson (2002). The Syrian standard CGE model explains all of the payments that are recorded in the SAM with which it is associated. The model is based on a SAM that was, in turn, based on the input-output table built by Chemingui and Fetini (2006) to

**TABLE 7-9**  
**Budget cost of food and agricultural subsidies in Syria**

	1995	1996	1997	1998	1999	2000	2001	2002	2003
	(SYP millions per year)								
Sugar subsidy	2.45	3.74	4.24	4.93	0.00	3.80	0.00	3.50	3.40
Rice subsidy	0.00	0.22	0.56	1.14	0.00	0.33	0.00	0.32	0.07
Wheat subsidy	0.00	0.00	4.52	4.33	1.90	2.24	9.73	8.43	7.97
Wheat products subsidy	17.26	0.00	23.50	25.48	23.24	26.01	22.09	19.99	20.61
Cotton subsidy	0.00	7.37	10.87	14.73	15.39	14.09	15.84	13.17	9.64
	(%)								
Wheat subsidies as a % of food and agricultural subsidies	88	0	64	59	62	61	67	63	69
Wheat subsidies as a % of government expenditures	11	0	13	13	10	10	10	8	7
Wheat subsidies as a % of GDP	2	0	3	3	3	3	3	3	3

Source: State Planning Council.

Note: The wheat subsidy refers to the cost of supporting the producer price of wheat, while the wheat products subsidy is paid to millers to maintain the consumer price of bread and other products at below-market levels. The official exchange rate was SYP 41 per US\$1.00 over 1995-2000, SYP 46 per US\$1.00 in 2000, SYP 53 per US\$1.00 in 2001, SYP 50 per US\$1.00 in 2002 and SYP 44 per US\$1.00 in 2003, based on the 30 June rates recorded in [www.oanda.com](http://www.oanda.com).

assess the effect of phasing out subsidies on energy products. The model includes ten households, each representing one decile of the Syrian population. This allows us to examine the impact of alternative policies on different income groups in the country. A more detailed description of the model is provided in the annex to this chapter.

The model is used to simulate three scenarios:

- a reduction in the subsidies on wheat production and wheat consumption by 20%;
- a reduction in the subsidies on wheat production and wheat consumption by 50%; and
- the elimination of the subsidies on wheat production and wheat consumption.

The decrease in the wheat producer price and the increase in the consumer prices on wheat products have multiple effects on the economy and on households. The change would affect virtually all households as consumers and some households as producers as well. The most immediate and publicly visible impact of the proposed reform of subsidies would be on the cost of living for wheat-consuming households, which now face higher prices for wheat products such as bread. In addition, the decline in the producer price of wheat would negatively affect the income of wheat-producing farmers. In addition to these two direct effects, there are indirect effects whereby the new set of relative prices will induce a reallocation in resources; farmers would reallocate land and labour from wheat to competing crops, and consumers would substitute other foods for wheat products. Other households will be affected by the reallocation in consumer spending patterns and by the reallocation in factors of production.

We calculate the incremental effects on sectoral production and prices and the overall cost of living caused by the proposed reform in wheat prices and the prices of wheat derivatives. We do this by combining a SAM that shows the input structure for the production of all final goods and a consumer expenditure survey that shows the amounts of each final good purchased by households differentiated along decile welfare groups. It is important to note that the current version of the SAM does not differentiate farmers from non-farmers; household categories are defined only by their level of per capita consumption. The income sources for each category of household is composed of labour income, capital income, remittances and other transfers.<sup>43</sup>

43/ A more detailed analysis would involve disaggregating production factors to include land rents and agricultural wages among the income sources for each decile.

### 7.5.3 Results

The macroeconomic effects of the reduction or elimination of the wheat subsidies is relatively modest, as shown in Table 7-10. Aggregate consumption, imports and exports change by less than 1% even with the full elimination of the subsidies (simulation 3). The positive (albeit small) effect of the subsidy removal is due to the elimination of a policy distortion that creates an inefficiency loss in the economy. The largest macroeconomic effect is on government savings, which increase by 2.77 percentage points of GDP as a result of the elimination of the subsidies. In other words, government savings increase from 0.78% of GDP to 1.99% of GDP. Private savings declines by 3.65 percentage points of GDP as a result of the subsidy removal.

Table 7-11 shows the impact of subsidy reduction or removal on the prices and output in various sectors of the economy. Not surprisingly, the most affected sectors are the wheat and food processing (including milling) sectors. The producer price of wheat declines by 4% with a 20% reduction in subsidies and by 16.5% with the complete elimination of the subsidies. The lower producer prices imply a decline in the profitability of wheat production and some substitution towards other crops. Because of the relatively inelastic supply of wheat, even complete elimination of the subsidy causes a decrease in wheat production of less than 2%. Thus, farmers will be the direct losers from this reform, at least at the short run.

The policy reforms would have mixed effects on the wheat milling industry. The sector benefits from the lower price of wheat but, on the other hand, it loses subsidies for wheat processing and the volume of wheat production (and thus processing) declines. Thus, the food processing sector, which includes wheat milling, faces better prices but a smaller volume (Table 7-11). The net effect on the sector appears to be slightly positive in that the price increase is greater than the volume decrease. The impact of these policy changes on output in other sectors is generally positive, because of the elimination of the distortion in the economy, but small, because the effects are indirect.

The magnitude of the welfare loss for the average consumer is not very high because the share of wheat in household expenditures is low and because a relatively small share of households grow wheat.<sup>44</sup> Disaggregating the welfare losses resulting from the reduction in wheat subsidies shows that the richest 10% of the population would gain the most from the reforms, and the top 50% would gain something, while the poorest 50% of households would lose (Table 7-12). This difference reflects the original unequal distribution of benefits from subsidies among different

**TABLE 7-10**  
Impact of wheat subsidy removal on macroeconomic indicators

Indicators	Base year	20% reduction in wheat subsidies	50% reduction in wheat subsidies	Elimination of wheat subsidies
	Value	% change	% change	% change
Real absorption	1184.9	0.13	0.31	0.49
Real household consumption	764.01	0.19	0.48	0.76
<b>Total real exports</b>	<b>431.95</b>	<b>0.17</b>	<b>0.46</b>	<b>0.77</b>
<b>Total real imports</b>	<b>403.74</b>	<b>0.19</b>	<b>0.49</b>	<b>0.82</b>
	% of GDP	Pct. point change	Pct. point change	Pct. point change
Investment	20.58	-0.02	-0.06	-0.10
Private savings	25.32	-0.89	-2.25	-3.65
Trade deficit	-4.21	0.00	0.01	0.02
Government saving	-0.78	0.70	0.01	2.77
Tariff revenue	1.52	0.00	1.74	0.02

Source: Simulations using a CGE model for Syria.

44/ The impact on welfare (welfare loss) is a relative concept in that it measures what is needed in terms of money to keep expenditure per group at the same level as the level before the increase in prices. A subsidy reduction by SYR 1 matters more for the poorest than for the richest consumer and contributes to a higher welfare loss for the former than for the latter. In absolute terms, the impact differs according to the amount of expenditure by different household groups in the wheat product and the other products that are linked to it, so that those households consuming more of a subsidized product (and therefore allocated more subsidies) will lose more if the prices for consumer goods are increased.

**TABLE 7-11**  
Impact of wheat subsidy removal on prices and production

	Producer price			Output level		
	20% reduction in wheat subsidies	50% reduction in wheat subsidies	Elimination of wheat subsidies	20% reduction in wheat subsidies	50% reduction in wheat subsidies	Elimination of wheat subsidies
Wheat	-4.045	-10.222	-16.505	-0.427	-1.136	-1.94
Other agricultural production	-0.435	-1.207	-2.165	0.059	0.139	0.21
Mining	-0.144	-0.421	-0.799	0.008	0.019	0.03
Food processing	1.791	5.044	9.238	-1.747	-4.814	-8.56
Paper, publishing and printing	-0.283	-0.794	-1.446	0.076	0.19	0.31
Non-metallic industries	-0.365	-0.982	-1.709	0.199	0.502	0.81
Chemical and textile activities	-0.103	-0.315	-0.625	0.124	0.315	0.51
Metallic industries	-0.251	-0.692	-1.235	0.153	0.386	0.62
Other manufacturing	-0.236	-0.657	-1.186	0.135	0.344	0.56
Electricity	-0.477	-1.272	-2.191	0.165	0.415	0.67
Water	-0.143	-0.434	-0.854	0.160	0.401	0.64
Other services	-0.333	-0.904	-1.589	0.208	0.530	0.87

Source: Simulations using a CGE model for Syria.

**TABLE 7-12**  
Impact of wheat subsidy removal on welfare by income decile

Decile	Change in household welfare (equivalent variation as a % of income)		
	20% reduction in wheat subsidies	50% reduction in wheat subsidies	Elimination of wheat subsidies
Poorest	-0.06	-0.19	-0.42
2	-0.06	-0.22	-0.47
3	-0.02	-0.10	-0.26
4	-0.01	-0.08	-0.21
5	-0.02	-0.03	-0.12
6	0.04	0.03	-0.01
7	0.05	0.08	0.08
8	0.09	0.11	0.13
9	0.53	0.23	0.34
Richest	0.19	1.35	2.20

Source: Simulations using a CGE model for Syria.

consumers and producers of these products and the similar distribution of income sources among categories. However, the effects are quite small; the welfare changes associated with full subsidy removal are less than 1% for all groups except the richest 10% of households.

## 7.6 Summary

The Syrian agricultural sector is characterized by a high degree of government intervention, including fixed prices, state marketing boards, state monopolies in the marketing of strategic crops, state monopolies in the distribution of fertilizer and high barriers to the importation of agricultural commodities and food products. Reforms to liberalize the agricultural sector have been introduced in recent years, but the sector remains one of the most highly regulated agricultural sectors in the NENA region.

On the one hand, agricultural policy towards the main strategic crops has been successful in achieving national self-sufficiency in wheat and rapid growth in the production of the country's main agricultural export commodity, cotton. It has also prevented the development of large disparities in the incomes of rural and urban households. On the other hand, the policy has achieved these objectives at a high cost in terms of government budgetary resources and the efficiency of resources allocation within the agricultural sector. Subsidies in agriculture and energy have also contributed to an unsustainable budget deficit. With the depletion of oil reserves over the

coming 10-15 years, the Government will need to find alternative sources of economic growth and fiscal revenue. The latest five-year plan envisages the phasing out of subsidies and the implementation of a value added tax.

Broad domestic liberalization of the agricultural sector would result in substitution away from wheat, sugar beets and cotton and towards barley, lentils and chickpeas. Completion of the EMP agreement with the EU would expand exports of fruits, vegetables and olive oil if Syrian producers can meet exacting quality and food safety requirements.

About two thirds of the agricultural subsidies are devoted to maintaining a high producer price for wheat and low consumer prices for bread and other wheat products. By banning private importation of wheat and by not importing through the state marketing board, government policy keeps the domestic price of wheat 66% higher than the import parity price. Wheat is the most important staple food, as well as an important source of income for farmers; so, the Government is particularly sensitive to the impact of reducing or removing import protection and subsidies for wheat.

Using a CGE model that simulates the effect of policy changes on households in ten income categories, we examine the effect of liberalizing wheat markets by removing import protection and eliminating subsidies. The macroeconomic effects are relatively modest, although government savings increases by almost 3% of GDP. Complete liberalization reduces the producer price of wheat by about 17%, and production by about 2%. The effects of subsidy removal on the welfare of Syrian households is regressive in the sense that high-income households gain, while lower-income households lose. The size of the effects, however, is quite small: less than 1% of the base incomes for all, but the richest income group.

It is important that one keep in mind three factors in interpreting these results. First, the impact on farmers (particularly wheat farmers) will be larger than the impact on the poorer deciles because each decile includes both farmers and non-farmers, thus diluting the adverse impact of the reforms on wheat farmers. If one third of the poorest decile are farmers and assuming there is no impact on nonfarmers, then the impact on poor wheat farmers would be a decline of 1.3% ( $0.42/0.33$ ) in welfare.

Second, the distributional impact will vary among farmers. Farmers growing and selling large quantities of wheat will lose the most in absolute terms from the elimination of protection and subsidies. Smaller farmers will lose less. The impact of the reforms in terms of percentage changes in real incomes depends on net sales of wheat as a percentage of household incomes. If net sales are a large share of incomes, the negative effect will be large. More information on the share in incomes from wheat and other crops would be needed to explore the distributional impact among farmers.

Third, the impact of liberalization on small farmers and the poor depends partly on complementary policies. For example, if the wheat market reforms were implemented, along with a reduction in energy subsidies, the combined effect would be more pro-poor. The recent study carried out by the World Bank (Chemingui and Fetini 2006) shows that, in the case of subsidies on energy products, 80% of the people will be more well off; the maximum gain would accrue to the poorest decile, which would obtain a net gain equivalent to 35% of the overall decile consumption. Only the two richest deciles would experience a net loss (equivalent to 2.5% and 5.5% of decile consumption, respectively). Alternatively, the wheat subsidy reduction could be implemented in conjunction with a safety net programme that uses a portion of the fiscal savings for targeted programmes for the poor.

One aspect of agricultural policy that is more important in Syria (and Egypt) than in the other countries under consideration is that the support for wheat farmers is provided in large part through direct subsidies from the Government rather than through the taxation of consumers through import tariffs. This increases the feasibility of a political solution whereby a portion of the savings from reducing these subsidies could be used to compensate those who lose from the reforms. One possibility would be to use some of the fiscal savings to implement a direct income-support programme that would compensate wheat farmers for losses associated with the reforms. The compensation should be a fixed amount based on historical production or area and could be phased out over a number of years, giving wheat farmers the time and resources to develop alternative income sources (see Olhan 2006 and section 9.2.7).

## Annex to Chapter 7

### Design of a CGE model of the Syrian economy

The model used in this study is a static CGE model based on the standard static CGE model developed by Lofgren, Harris and Robinson (2002). The Syrian standard CGE model explains all of the payments that are recorded in the SAM with which it is associated. The model is based on a SAM that was, in turn, based on the input-output table built by Chemingui and Fetini (2006) to assess the effect of phasing out subsidies on energy products.

Regarding domestic supply, each producer (represented by an activity) is assumed to maximize profits, defined as the difference between revenue earned and the cost of factors and intermediate inputs. Profits are maximized subject to constraints that capture the production technology and optional rigidities in factor employment. At the top level, the technology is specified by a constant elasticity of substitution function or, alternatively, a Leontief function of the quantities of value added and aggregate intermediate input. Value added is itself a constant elasticity of substitution function of primary factors, whereas the aggregate intermediate input is a Leontief function of disaggregated intermediate inputs. Each activity produces one or more commodities according to fixed yield coefficients. As noted, a commodity may be produced by more than one activity. Revenue from the activity is defined by the level of the activity, yields and commodity prices at the producer level. Factor incomes are distributed to domestic and foreign institutions in fixed shares that are defined by factor and activity.

In the CGE model, institutions are represented by households (deciles), enterprises, the Government and the rest of the world. The households (disaggregated as in the SAM) receive incomes from the factors of production (directly or indirectly via the enterprises) and transfers from other institutions. More specifically, each household receives fixed shares of factor income flows (disaggregated by factor and source, either domestic activities or the rest of the world). Transfers from the rest of the world to households are fixed in foreign currency.

The households use their incomes to save, consume and make transfers to other institutions. In the current model, direct taxes and transfers to other institutions (both domestic and the rest of the world) are defined as fixed shares of household income, whereas the savings share is flexible for selected households. Household consumption at market prices (adjusted for taxes and subsidies) is allocated across different commodities according to linear expenditure system demand functions derived from the maximization of a Stone-Geary utility function. Instead of being paid directly to the households, factor incomes may be paid to one or more enterprises.

Enterprises may also receive transfers from other institutions. Enterprise incomes are allocated to savings and transfers to other institutions. Enterprises do not consume. Apart from this, the payments to and from enterprises are modelled in the same way as the payments to and from households. The Government collects taxes and receives transfers from other institutions. In the current model, all taxes are at fixed ad valorem rates. Transfers from the rest of the world are exogenous in foreign currency, whereas transfers from domestic institutions are fixed shares of the net (post-tax and savings) incomes of these institutions. The Government uses this income to finance its own consumption, commodity and activity subsidies, and transfers to other institutions. Government consumption is fixed in real (quantity) terms, whereas government transfers to domestic institutions (households and enterprises) are indexed to the consumer price index. Government savings (the difference between government income and spending) is a flexible residual. The final institution is the rest of the world.

Commodities pass through a chain, the first stage of which consists of the generation of aggregated domestic output from the output of different activities for a given commodity. These outputs are imperfectly fungible as a result of, for example, differences in timing, quality and location among different activities. A constant elasticity of substitution function is used as the aggregation function. The demand for the output of each activity is derived through the problem of minimizing the cost of supplying a given quantity of aggregated output, subject to this constant elasticity of substitution function. Activity-specific commodity prices serve to clear the implicit market for each disaggregated commodity. At the next stage, aggregated domestic output is

allocated between exports and domestic sales on the assumption that suppliers maximize sales revenue for any given aggregate output level, subject to imperfect transformability between exports and domestic sales, expressed by a constant elasticity of transformation function.

On international markets, export demand is infinitely elastic at given world prices. The price received by domestic suppliers for exports is expressed in domestic currency (to the border) and export taxes (if any). The supply price for domestic sales is equal to the price paid because of domestic demand (from the supplier to satisfy demand) per unit of domestic sales. If the commodity is not exported, total output is passed to the domestic market.

Domestic demand is made up of the sum of the demand deriving from household consumption, government consumption, investment and intermediate inputs. If the supply of a commodity destined for domestic use is made up of both imports and domestic output, then all domestic market demand is a composite commodity made up of imports and domestic output, the demand for which is derived on the assumption that those who account for domestic demand minimize their costs, subject to imperfect substitutability. Total market demand is directed towards the imports of commodities, the demand of which is not satisfied by domestic production, and towards the domestic output of non-imported commodities. Demand prices are adjusted for commodity taxes and subsidies. The derived demand for imported commodities is met through international supplies that are infinitely elastic at given world prices. The import prices paid because of domestic demand also include import tariffs (at fixed ad valorem rates). Similarly, the derived demand for domestic output is met by domestic suppliers. Flexible prices balance between the demand for and the supply of domestically marketed domestic output.

The SAM used here is based on the input-output table built by Chemingui and Fetini (2006) to assess the effect of phasing out subsidies on energy products. This input-output table is converted to a SAM using additional information on income formation and transfers among different institutions. The activity structure of the SAM has been updated for this study by adding new sectors and commodities (wheat and wheat derivatives) and by aggregating others (mainly energy products). The specification of the agricultural sectors has also been rendered consistent with the need for meaningful mapping between input-output sectors and household expenditure items so as to be able to measure the effects of subsidy reforms on household welfare. The specification of the input-output structure has been based on detailed microeconomic data at the sectoral level, but also at the enterprise level in some cases.



# Agriculture, Trade and Poverty in Morocco

## 8.1 Introduction

The Kingdom of Morocco has a population of approximately 30 million people, about half the size of Turkey or Egypt, but similar to Algeria or the Sudan. A little more than half (57%) of the population lives in Casablanca, Rabat and other urban areas. It is a lower-middle-income country, with per capita GDP of about US\$1,457, close to the average for the NENA13 countries under consideration.

Since joining the WTO in 1995, Morocco has been liberalizing agricultural trade policies. The state monopoly on the importation of staple foods has been dismantled, except for the import of common wheat flour. Quantitative import restrictions have been converted to tariffs, resulting in import tariffs as high as 339%. The tariffs on agricultural imports average 33%. Consumer subsidies are being maintained on common wheat flour and sugar. Variable import duties are used to stabilize and support the farmgate price of wheat, barley, maize, rice and sorghum (WTO 2003b).

Morocco joined the WTO in January 1995 and signed the EMP agreement with the EU the following year. The EMP agreement calls for the elimination of Moroccan industrial duties between 2000 and 2012. In 2003, Morocco signed an FTA with the United States; this will be implemented over ten years.

In spite of these agreements, Morocco retains a relatively high tariff structure. The World Bank estimates that the simple average tariff rate is among the highest 1% among the world's countries. Progress in reducing tariffs over 2000-04 has been about average compared with other countries in the world (World Bank 2005d).

## 8.2 Agricultural sector

### 8.2.1 Agricultural production

The agricultural sector contributes 17% to GDP, provides 35% of total employment and accounts for 7% of total exports. Morocco has more agricultural potential than many NENA countries because of suitable soils and rainfall, combined with irrigation potential. Currently, agriculture satisfies about one half to two thirds of Morocco's grain requirements through cultivation of wheat, barley and maize in the rainfed areas. Wheat is the main agricultural import, followed by sugar and soybean oil.

Because grains are grown under rainfed conditions, harvests and, thus, import requirements vary sharply from one year to the next. In 2002, Morocco produced 5.0 million t of barley and wheat and imported about 3.9 million t, which represents a self-sufficiency ratio of about 56%. The following year, favourable rains increased wheat and barley output to 8.3 million t, causing imports to decline to 2.3 million t, representing 78% self-sufficiency. The Government has several programmes to extend and upgrade irrigated areas so as to make agricultural supply less vulnerable to weather, in particular by strengthening a national programme to encourage local irrigation and use water more efficiently (FAO 2004).

### 8.2.2 Agricultural trade patterns

Total exports were US\$12 billion in 2002; agricultural exports were US\$1.8 billion, or 15% of the total. Unlike for most other NENA countries, agricultural exports in Morocco are dominated by fruits and vegetables (Table 3-7). Citrus fruits, tomatoes, olives, potatoes and other horticultural crops are grown, often under irrigation, and exported to Europe. Exports are facilitated by the short distance across the Straits of Gibraltar to Spain. Fruit and vegetable exports account for about 80% of Moroccan agricultural exports.

Total imports were US\$13 billion in 2002; agricultural imports accounted for US\$2 billion. As in many NENA countries, the largest agricultural import in Morocco is wheat. Over 2000-02, Morocco imported an average of US\$531 million in wheat. Imported wheat competes with domestically produced wheat, which accounts for 50-60% of consumption, depending on the year. Morocco also imports raw sugar, soybean oil and maize (Table 3-7). Maize is mainly supplied by imports; there is no sizeable domestic production. There is substantial domestic production of barley, but not at a sufficient level to supply adequately local needs.

### 8.3 Agricultural and trade policies

Moroccan agricultural policy has gone through three main phases. The first phase, from independence until the middle of the 1980s, was characterized by significant intervention by the Government in all activities and throughout the production process. The second phase, from the mid-1980s until 1995, was related to the implementation of a structural adjustment programme, which reduced government intervention in the economy and encouraged the expansion of the private sector. The third phase, starting in 1995, has involved the consolidation of the state disengagement from the agricultural sector and the liberalization of Moroccan agriculture. The latter policy, consolidated by the FTAs, constitutes, a priori, the choice adopted for the development of Moroccan agriculture, which is based on promotion of the role of the private sector and the abandonment of the import-substitution policy. These three phases of agricultural and trade policies are described in detail in the following sections.

#### 8.3.1 Pre-adjustment period

Since independence, Moroccan agricultural policy has been conceived to achieve ambitious, but contradictory objectives. In fact, on the one hand, the policy has aimed to exploit the comparative advantages of the Moroccan agricultural sector in exports, but it has also attempted to meet internal demand through domestic production by encouraging import-substitution production.<sup>45</sup>

The agricultural policy of the mid-1960s is associated with the “policy of dams”, which, as a symbolic objective, aimed at the irrigation of a million hectares by 2000. It was a global, voluntary, but eminently selective policy. The state, which was behind the policy, promoted the construction of dams through public investment, subsidies, elimination of taxes, loans, price policies, supervision and distribution. The public investment in the basic infrastructure was therefore massive, and investment in water resource mobilization reached close to 30% of national public investments during this period. The agricultural investment code, promulgated in 1969, regulated the use of irrigated lands and encouraged the modernization of farming and the intensification of agricultural production. To help farmers come into line with the state policy in agriculture, an extensive system of subsidies and incentives was provided to foster modernization. Irrigation water was heavily subsidized.

Production pricing policy was selective. The state regulated the prices of certain basic products for the internal market, such as grains, milk and some industrial crops. However, there was no regulation of the prices of fruits (including citrus), vegetables, or olive oil products, which were promoted as export crops. At the beginning of the 1970s, agricultural policy attempted to maintain income levels among farmers through subsidies without raising consumer prices for agricultural products. In some commodities, (sugar, oilseeds and milk), the Government supervised the entire supply chain.

Two decades later, the results of these policies had not met expectations. Furthermore, the fiscal burden of the agricultural and consumer subsidies increased over time. While the world prices of basic products (grains, oil, meat and milk) decreased, producer prices in Morocco rose, and consumer prices remained stable. These budgetary imbalances were the main cause of the crisis in Moroccan public finances in the middle of the 1980s and the subsequent adoption of a structural adjustment plan under the supervision of the World Bank and the International Monetary Fund.

#### 8.3.2 Structural adjustment period

In the middle of the 1980s, Morocco undertook a programme of profound economic reform aimed at stabilizing the national economy and laying the groundwork for greater growth in the medium and long term. As in many developing countries, the adjustment programme was adopted in Morocco to escape a situation of crisis and insolvency and to gain access to international credit. The

45/ This section is largely based on Akesbi (2002).

programme represented the response to the limitations in Moroccan economic policy, of which the agricultural component was one of the main pillars. The worsening fiscal deficits and mounting debt were the main results of the costly and inefficient policies.

The structural adjustment programme aimed to reduce the budget deficit, establish a coherent pricing policy, move the real exchange rate closer to equilibrium and correct the country's trade imbalance. One of the main elements of this effort to reconstruct the national economy was the Sectoral Adjustment Programme for Agriculture.

In the medium term, the objectives of this sectoral adjustment programme were to stimulate the agricultural sector to raise economic growth, reduce the trade deficit and create employment. This was to be achieved by liberalizing agricultural markets and encouraging private investment. Within this framework, priority was given to increasing the production of agricultural products in which Morocco had a comparative advantage. The components of the programme included:

- adjusting and liberalizing producer prices and progressively eliminating subsidies to create a favourable environment for the participation of the private sector and the liberalization of activities;
- a rationalization in state intervention, progressive disengagement of the state from trade activities that could be adequately run by the private sector and the consolidation of the state's main role as a regulator; and
- an improvement in the efficiency of the policy of public expenditure and investment in line with the objectives of development and the priorities in agricultural policy.

Specific policies included the concession of some state land to the private sector, the redefinition of the role of public enterprises, the elimination of barriers to internal and foreign trade (namely, monopolies, quotas and marketing regulations), the elimination of subsidies for agricultural inputs and consumption, and the reform of the agricultural credit system. Subsidies for irrigation water and for agricultural equipment were maintained, as was the large public investment in water resources.

Producer pricing controls on agricultural commodities were eliminated for hard wheat, barley, maize, rice, milk and cattle feed. Consumer pricing on dairy products and grains was liberalized. Only the prices of soft wheat flour, sugar and vegetable oil remained controlled and subsidized by the state. Except for a few sensitive or strategic products (grains, sugar, oil, meat and dairy products), the marketing channels for most agricultural and food products were liberalized. Likewise, importation and exportation operations for agro-food products were liberalized except for sensitive products.

### 8.3.3 Global integration period

The adoption of a significant adjustment programme that included a sectoral programme of agricultural adjustment was only the beginning of a much more thorough and ongoing adjustment of the economy of the country. Starting in the mid-1990s, the Government signed a number of trade agreements that committed Morocco to greater liberalization in trade, thus consolidating the reforms carried out under the structural adjustment programme.

In 1994, Morocco signed the GATT, with the different commitments incumbent on the developing countries. A year later, like other southern Mediterranean countries, Morocco signed a partnership agreement with the EU that provided for the creation of a free trade area between the two partners over a period of 12 years. Trade liberalization through the adhesion of Morocco to free trade areas was also manifest in GAFTA, implemented beginning in 2005. Morocco likewise signed FTAs with the countries of the Agadir initiative (Egypt, Jordan and Tunisia), the European Free Trade Association,<sup>46</sup> Turkey and the United States. Some of the more important trade agreements are discussed in the next section.

46/ The European Free Trade Association includes Iceland, Liechtenstein, Norway and Switzerland.

## 8.4 Trade agreements

### 8.4.1 GATT and WTO

The commitments of Morocco under the GATT and WTO are limited to market access. In fact, Morocco does not provide export subsidies, which are the focus of a commitment for reduction. In addition, the level of aggregate market support is well below the allowable level. Concerning market access, Morocco has changed all non-tariff barriers into tariffs. For products such as grains, sugar, milk, meat and oilseeds and their by-products, which were subject to non-tariff barriers, tariff equivalents have been set. The bound tariff rates for these products allow for high levels of import protection. For products that were subject to tariff barriers alone, the bound rates have been set at 60%. This product category covers all fresh or processed agricultural products except basic products.

In both cases, Morocco has committed itself to reduce progressively these tariff rates by 2.4 percentage points per year over ten years. The products that are targeted currently for minimum access are mainly meat, milk and cereals. Because the bound tariff rates are quite high, the level of protection remains high. Because the tariff reductions over ten years are fairly small, the impact of the GATT and WTO on protection in Morocco has been quite modest.

### 8.4.2 The EMP agreement with the EU

The partnership agreement is based on the principle of reciprocity. It provides for the gradual elimination of tariffs on all industrial products. Agricultural products, as defined by the EU,<sup>47</sup> are, for the moment, excluded from the EMP implementation agreement. However, the schedule for tariff elimination is not the same for all products. The agreement provides for the rapid dismantling of the tariffs on products that are not produced domestically and on equipment. In contrast, it provides for slower tariff reductions on goods that compete with domestic production.

The current context of the agricultural negotiations between Morocco and the EU raises numerous questions. Analysis of recent trends in Moroccan trade in agricultural products reveals a deterioration in the balance of trade between Morocco and the EU. The agricultural surplus that Morocco had in the early 1990s has largely disappeared. This is due to stagnation in Moroccan agricultural exports towards the EU and increasing Moroccan agricultural imports from the EU. However, the shares of Morocco in the EU market have steadily declined, mainly because of the constraints on market access, particularly the entry price system, quality standards and subsidies for processing agricultural products.

### 8.4.3 Morocco-United States Free Trade Agreement

The FTA between Morocco and the United States was established to enhance the economic and trade relations between the two countries. In terms of foreign trade, the United States is the fourth most important trade partner of Morocco. On the Moroccan side, the agreement will help diversify the free trade process, upgrade and increase the competitiveness of Moroccan enterprises and improve the environment of trade and economic exchanges with a view to attracting more foreign investment in the country. The US market is considered a potential outlet for Moroccan products, notably, for agricultural and textile-clothing products. But, as with the European market, access to the US market is constrained by quality norms as strict and rigorous as those applied at the entry into the European market.

In Morocco, there is a concern that opening the Moroccan market to subsidized US grain will undercut local grain production, thus increasing rural poverty and causing excessive migration to urban areas. During the FTA negotiations, the Moroccan side recommended that a special framework be established for the grain sector before total liberalization, given the repercussions on the living standards of grain producers, an important segment of the Moroccan population. On the American side, the FTA must also include the agricultural component. For the US, an FTA is not a preferential agreement; meanwhile, the advantage of the agreement for Morocco resides in the structural changes in Moroccan agriculture that will make it more competitive and exploit its comparative advantages. But Moroccan negotiators are sceptical of the argument in light of the generous support given to farmers by US agricultural policy.

47/ A complete list of the agricultural products is found in Annex I of the Rome Treaty and was updated after the signing of the Amsterdam Treaty in 1997. It comprises all land-based, breeding and fishing products, as well as the related primary processed products.

The EU and Morocco signed an additional agreement at the beginning of 2004 relative to trade in agricultural products. This agreement promotes the access of Moroccan products to the European market and sets up high preferential quotas for European agricultural products on the Moroccan market depending on the level of production of these products in Morocco. Likewise, through the Morocco-US agreement, the United States will also benefit from the same treatment for its agricultural products on the Moroccan market. Within the framework of this agreement, it is clear that the United States will profit from the level of agricultural trade on account of the privileges given to European agricultural products, without bearing a corresponding financial cost for the development of the Moroccan economy as the EU did through the Middle East and Developing Africa Fund.

The FTA between Morocco and the United States was signed in June 2004 and came into force in January 2006. In contrast to the gradual pace of implementation of the EMP agreement (over 1995-2012), the pace of implementation for the Morocco-US FTA is quite rapid. Another contrast is that the EU agreement provides for financial assistance to help upgrade the Moroccan economy and legislation to take advantage of the new export opportunities, while the US agreement does not provide for financial support.

## 8.5 Poverty

Based on the 1998/99 household survey, poverty remains largely a rural phenomenon. Almost one Moroccan in four is poor in rural areas compared to one in ten in urban areas. Although the rural population represents 46% of the total population, 66% of the poor live in rural areas. But poverty in urban areas is also rising. The share of the urban poor increased from 27% to 34% of the total poor over the 1990s, almost four times more rapidly than the rural-urban population shift. Both in rural and urban areas, the poor generally lack education and live in large households with many children and few working members. The incidence of poverty is much higher among children than it is among adults; 44% of children under age 15 are poor versus 16% of adults. Among the poor, 64% are illiterate (compared to 53% among the non-poor). Poverty is heavily concentrated in the centre and northwest regions (World Bank 2004).

At the national level, the distribution of the poor by sector of activity of the head of household shows that most of the poor work in the agriculture sector (57%), followed by services (26%) and construction (13%). In urban areas, among 58% of the poor, the breadwinner is working in services, while in rural areas, agriculture is the dominant source of income among 75% of the poor.

Because of the dynamics of urbanization in Morocco, the structural causes of urban and rural poverty are closely related. Poor rural households engaged in productive activities typically have access to agricultural land, but their landholdings are small, rarely irrigated and often exhibit low productivity, especially in rainfed areas; moreover, due to lack of land titles and registration, they cannot obtain formal credit and invest in their property. They frequently try to find other sources of income, working in odd jobs and moving back and forth throughout the year between rural and urban areas. The urban poor face multiple deprivations such as lack of employment and inadequacy in access to land, housing and basic services.

## 8.6 Impact of trade liberalization on small farmers

### 8.6.1 Background

In Morocco, as in most developing countries, policymakers and researchers are concerned about the possible impact of agricultural trade liberalization. First, there is the concern that trade liberalization will adversely affect the rural poor, particularly small-scale farmers. Simulation studies (as well as economic logic) suggest that multilateral trade liberalization will raise the price of agricultural commodities, including wheat. Morocco would lose, on net, from an increase in wheat prices, but how would small farmers be affected? The answer partly depends on Moroccan wheat import policy, the liberalization of which could partly offset, nullify, or even reverse the effect of higher world prices on domestic prices. Second, there is concern about the closed markets of trading partners. For example, if Moroccan farmers switch out of wheat and into horticultural crops, will there be export opportunities for these products in the EU or in the United States?

The impact of agricultural reform on households has been difficult to address because the tools used to examine the economy-wide impacts of reform in agriculture have traditionally only been

able to assess impacts on a relatively small number of household types (Abdelkhalik 2002). Accordingly, identifying the households that are net sellers (that would gain from higher prices) and those that are net buyers (that would gain from lower prices) has been difficult.

A recent study carried out by Ravallion and Lokshin (2004) is one of the few that uses household survey data to examine the distributional impact of trade liberalization in the NENA region. The study focuses on the grain sector. Grain producers in Morocco are protected by tariffs on imports as high as 100%. This policy encourages farmers to grow wheat even if the costs of production exceed the costs of importing wheat. The high cost of production is partially absorbed by the Government, which implements a complicated system of subsidies to mills and consumers. This brings the consumer price of soft wheat down considerably, though it is still higher for consumers than it would be if wheat could be imported without trade tariffs. A policy that eliminates the border tariffs for cereals without any reform in the agricultural sector in developed countries would result in significantly lower producer prices for wheat and somewhat lower consumer prices for wheat products. This policy would benefit consumers, who would pay less for their flour and bread, but hurt producers, who would have to compete with lower-cost imported wheat. The study by Ravallion and Lokshin (2004) examines the likely distributional impacts of removing import barriers on grains in Morocco.

### 8.6.2 Methods

The method used by Ravallion and Lokshin (2004) combines the results of a CGE model focused on grain market reform and data from 5,117 sampled households in the 1998-99 Morocco living standards survey. In the first step, the CGE model is used to simulate the impact of the liberalization of the wheat import policy on prices in Morocco. In particular, four simulations were run corresponding to cutting grain import tariffs by 10%, 30%, 50%, and 100%. The model represents nine agricultural products and three non-agricultural categories. The simulated changes in prices embody both the direct effect of the policy and the indirect effects on the price of non-traded goods and on factor returns, including effects operating through the government budget constraint. In other words, the fiscal revenue lost by eliminating import tariffs is offset by additional taxes elsewhere. The model is described in more detail in Doukkali (2003).

In the second step, the price changes from each of the four policy simulations are combined with data on the sources of income and the allocation of expenditures for each household in the survey. The impact of each policy simulation on each household is calculated using standard methods of first-order welfare analysis taking account of all the induced price responses. Then, the results are aggregated to calculate changes in the mean income and incidence of poverty. Technical details of this methodology can be found in Ravallion and Lokshin (2004).

### 8.6.3 Results

According to Ravallion and Lokshin (2004), the CGE model indicates that a 100% reduction in import tariffs on grains (full liberalization) results in a 24% reduction in the producer price of grains and a 27% reduction in the consumer price of grain products. There are indirect effects on the prices of other products, but these price changes are much smaller, generally less than 3%.

These price changes are then used to calculate the change in incomes of the households in the survey. Not surprisingly, urban households gain from the elimination of protection on grains since they are net consumers of grains. Furthermore, the urban poor gain more proportionately than do the urban rich because food in general and grains in particular account for a larger share of their budgets. Overall, the urban poverty rate declines from 12.2% to 11.8% as a result of the complete import liberalization of grain and grain products. This rather modest effect is due to the fact that grains and grain products account for only 6.6% of the expenditures of urban households.

In rural areas, the impact is more complex because some households are net consumers of grain products, and others are net producers. The household survey reveals that most of the rural poor (60%) are net consumers of grain products; so, they will benefit from the lower grain prices that result from reducing import tariffs. Somewhat surprisingly, this does not imply that the rural poor gain overall since the losses of the net producers is greater, on a per household basis, than the gains of the net consumers. Thus, the overall welfare impact is negative. The simulations suggest

that the full import liberalization of grains would increase rural poverty from 28.3% to 34.2%. Overall, the incidence of poverty in Morocco rises from 19.6% to 22.1%. With full elimination of protection, the average loss for the poorest quintile is about 10% of household income.

These results contradict the conventional wisdom that the rural poor are net consumers of grain and would thus benefit from lower prices. In fact, net producers are equally represented across income categories in rural areas. In other words, there is a significant number of rural poor who are net producers and would lose from the removal of grain import protection.

The authors note two limitations in the analysis. First, the CGE model upon which it is based assumes that wage rates are fixed; so, the simulations do not incorporate the effect of labour demand on wages and wage incomes. As farmers switch out of wheat and other grains and into other crops, it is likely that the demand for unskilled labour would increase since grains tend to be less labour intensive than alternative crops. The benefits of this increase in labour demand would accrue to the rural poor, offsetting the losses associated with price changes and possibly reversing the overall welfare impact on the poor. Second, the CGE does not capture the dynamic gains from trade liberalization, defined as the gains associated with a higher rate of economic growth due to a higher rate of technology adoption and investment.

## 8.7 Summary

The Kingdom of Morocco is a lower-middle-income country with a population of about 30 million, more than half of which lives in urban areas. The agricultural sector accounts for about 16% of GDP. Like most other countries in the region, Morocco is a net agricultural importer, the main agricultural import of which is wheat. After Turkey, the agricultural exports of Morocco are the second largest among the exporters of the NENA13 countries. Fruits and vegetables, which typically account for 20-30% of agricultural exports in NENA13 countries, represent almost three quarters of the agricultural exports of Morocco.

Since the mid-1980s, Morocco has carried out a series of economic reforms to allow the market to play a larger role in production and consumption decisions, including price liberalization, a reduced role for state enterprises and the promotion of private investment. Morocco has signed an EMP agreement with the EU whereby tariffs on manufactured goods will be reduced over time. Morocco has also signed an FTA with the US, which entails gradual reduction in both industrial and agricultural protection. Nonetheless, the level of agricultural protection remains relatively high.

A study by Ravallion and Lokshin (2004) used a CGE model to simulate the effect of grain import liberalization and then used projected price changes to simulate the impact on households in a nationally representative survey. The CGE model suggests that the full liberalization of grain imports would reduce the producer price of grain by 24% and the consumer price of grain by 27%. This would reduce poverty in urban areas, where households benefit from lower-priced grain, but raise poverty in rural areas because of the losses among the net sellers of grain. The overall incidence of poverty in Morocco would rise from 20% to 22%. These results suggest that, although many rural households are net buyers of grains, lower grain prices tend to increase the poverty rate. These results, however, do not take into account the effect of global trade liberalization, which would be expected to increase the world price of wheat and other grains.

This study highlights the importance of using detailed household survey data in simulating the distributional impact of trade liberalization. A standard CGE model only gives results for a small number of representative households, while the use of household survey data provides a much richer view of the impact of trade liberalization (or other policy changes). The limited access to household survey data in the NENA region is a major obstacle to understanding the impact of alternative policies on poverty and income distribution.

These findings also demonstrate the contrasting effects of trade liberalization in different countries. In Morocco, higher grain prices appear to increase rural poverty; in Egypt, higher wheat prices seem to have negligible effects on poverty; and, in Tunisia, trade liberalization and higher wheat prices reduce rural poverty. Of course, it is possible that some of the differences in results may be due to differences in the methods and assumptions. In any case, these results highlight the importance of rigorous and comparable studies of the impact of trade liberalization in different countries. It would be risky to draw conclusions for one country based on results from similar countries.

# 9

## Summary and Policy Implications

## 9.1 Summary

### 9.1.1 Introduction

Although trade liberalization has reduced barriers to trade in numerous sectors, the agricultural sector remains highly protected in many countries. Most countries use a variety of measures, including tariffs, tariff rate quotas and non-technical barriers, to protect their farmers from import competition. Some countries (particularly high-income countries) provide direct support to farmers in the form of subsidized inputs and price supports. As a result, agriculture is one of the most distorted sectors in the world economy. Economic theory and most empirical studies suggest that the benefits of trade liberalization exceed the costs, at least on aggregate. However, policymakers are reluctant to reduce support for their own farmers unless they are assured that other countries will reciprocate.

These issues are of interest to most developing countries because of the dependence of the rural poor on agricultural income and because of the importance of food prices to the well-being of the urban poor. This concern is even greater in the NENA region because most of the countries in this region are dependent on food imports to meet consumption requirements. Furthermore, the high level of protection for farmers in the NENA region implies that full trade liberalization would have a larger impact in this region than elsewhere.

The objectives of this report are:

- to examine current agricultural trade policies in the NENA region;
- to evaluate the degree of agricultural liberalization likely to occur as part of various trade agreements;
- to analyse the impact of further trade liberalization on small farmers and other poor households; and
- to explore policy options for mitigating the negative effects of agricultural trade liberalization.

The study focuses on 13 countries and territories that are traditional borrowers from IFAD: Algeria, Djibouti, Egypt, Jordan, Lebanon, Morocco, Somalia, the Sudan, Syria, Tunisia, Turkey, the West Bank and Gaza, and Yemen. We refer to these as the NENA13 countries.

### 9.1.2 Basic characteristics

In addition to their cultural, religious and linguistic similarities, the NENA13 countries have other climatic and demographic similarities, as follows:

- Most of the NENA13 countries are semi-arid and have limited water and arable land per capita, making agricultural production highly dependent on rainfall. The exceptions are Egypt, where virtually all crop production is irrigated, and Turkey, which has relatively abundant water and land resources.
- The overall population density of the region is low compared to other developing areas, though Lebanon and the West Bank and Gaza are quite densely populated.
- The region is also more urbanized than the average for developing countries, though Somalia, the Sudan and Yemen are exceptions to this pattern.

In terms of the economies of the countries in the region, we can identify the following patterns:

- Nine of the 13 countries are lower-middle income countries according to the World Bank. Lebanon is classified as a middle-income country, while Somalia, the Sudan and Yemen are low-income countries.
- The economic performance of many of the NENA13 countries has been relatively weak; real per capita GDP growth was 1.3% per year during the 1990s. Per capita growth was negative over the decade in four countries (Algeria, Djibouti, Somalia, and the West Bank and Gaza), and it surpassed 3% in only two countries (Lebanon and Tunisia). Performance was better during 2000-03, but this covers a period in which the global economy was emerging from a recession.

- The region has been subject to various conflicts, including the Arab-Israeli conflict, the Sudanese civil war, the insurgency in Algeria (until recently), the lack of central government in Somalia and the Iraq War, which affected the economies of Jordan and Syria.
- The slow economic growth means there has been little expansion in formal sector employment, resulting in persistent problems of unemployment, particularly among youth.

Nonetheless, strong economic performance in Lebanon, Tunisia and (recently) the Sudan suggest that these problems are not insurmountable.

### 9.1.3 Agricultural and trade patterns

The NENA13 countries also exhibit some common features with regard to agricultural trade patterns:

- Agricultural exports represent a relatively small share of total exports, exceeding 10% only in the Sudan.
- Wheat is a staple food and important import for many of the NENA13 countries. It represents more than 20% of agricultural imports in Algeria, Egypt, Morocco, the Sudan and Tunisia.
- Most of the NENA13 countries are net food importers; the main exception is Turkey.
- Some countries in the region have relatively high levels of protection for farmers: Egypt, Morocco and Tunisia are among the 15 most protected economies, according to Bouet (2006b).
- The commodities that are the most protected in the region are wheat, sugar, dairy and livestock products.
- The EU is the most important trading partner for most of the countries in the region.

The NENA countries have signed a series of multilateral, regional and bilateral trade agreements. The URAA imposes some commitments on member countries; some of the more important commitments are:

- to convert quantitative restrictions into tariffs or tariff rate quotas;
- to bind tariff rates by setting a maximum rate for each tariff line;
- to reduce bound tariff rates by an average of 36% and a minimum of 15% for each item; and
- to reduce trade-distorting measures of support for agriculture by 20%, on average.

Developing countries have been given more modest targets for tariff rate reductions and more time to comply, while the LDCs are effectively exempted from meeting most commitments under the URAA. The direct impact of these commitments on the NENA13 countries has been modest. Somalia, Syria, and West Bank and Gaza are not WTO members. Djibouti, the Sudan and Yemen, as LDCs, are exempt from most URAA commitments. For the remaining seven countries, the bound rates are often far above the applied tariff rates, particularly for agricultural products. Thus, commitments to reduce the bound rate have had little effect on the actual level of agricultural protection.

As part of the EMP, the EU has signed EMAAs with five NENA countries, and three others are in the process of ratification. These EMAAs commit the parties to phasing out almost all tariffs on manufactured goods, though the NENA countries have a longer period to comply. Although there are plans to incorporate agriculture at a later date, there are no firm targets or schedules for agricultural liberalization.

In 2001, the EU launched the Everything But Arms Initiative, under which the LDCs have duty-free access to EU markets for almost all goods. Within the NENA region, Djibouti, Somalia, the Sudan and Yemen can take advantage of the initiative's provisions. Bananas, rice and sugar were temporarily exempted; for these, duty-free access has been delayed until January 2006, July 2009 and September 2009, respectively.

Under the US-Middle East Free Trade Initiative, the United States has signed bilateral FTAs with Jordan and Morocco and intermediate agreements with four other NENA countries. The effect of the US-Jordan FTA will be small because Jordan's level of protection is already low and because US-Jordan trade is small. The effect of the US-Morocco FTA will be larger because Moroccan trade barriers are higher. Of particular importance, Morocco's wheat tariffs will be phased out over ten years.

The African Growth and Opportunity Act allows duty-free access to US markets for sub-Saharan African countries that meet certain criteria in human rights, reducing corruption and fighting terrorism. Djibouti qualifies, but its exports to the US are negligible. The other sub-Saharan African countries in the NENA13 (Somalia, the Sudan and Yemen) do not qualify.

A number of bilateral and regional agreements within the NENA region have been signed, but their effectiveness has been limited by the structural similarities of the NENA economies and the exceptions for sensitive products.

Nonetheless, a number of NENA countries, most notably Egypt and Tunisia, have reduced tariff barriers unilaterally in recent years. In other words, trade liberalization does occur outside the context of global, regional and bilateral trade agreements.

#### 9.1.4 Impact of trade liberalization

The evidence suggests that global trade liberalization, by reducing agricultural support policies in OECD countries and by reducing protection, will increase world agricultural prices. Wheat production is subsidized by the EU and the US, and numerous countries (including those in the NENA region) impose high tariffs. Studies indicate that trade liberalization would increase world wheat prices by 5-12%. Rice is also subsidized by the EU and the US, while Japan, the Republic of Korea and other countries severely limit imports. Global models suggest that trade liberalization would raise the world price by 3-35%. Sugar producers are subsidized and protected from imports in many countries, making it one of the most distorted agricultural markets. Partial equilibrium models of trade liberalization suggest that sugar prices would rise by as much as 48%, while general equilibrium models show increases of less than 5%. Likewise, removing distortions in world cotton markets would increase the world price by 2-13%. Dairy production in the EU, Japan, the United States and many developing countries is protected through a complex system of support prices, import barriers and market controls. One study has estimated that global trade liberalization would increase the price of non-fat dry milk by 13%.

Almost all the NENA13 countries are net agricultural importers; so, there is clearly some basis for concern that these countries will lose as a result of global trade liberalization. Our analysis confirms that the terms-of-trade effect of a 15% increase in all world agricultural prices on the NENA13 countries would be approximately US\$1.2 billion, or 0.2% of regional GDP. The actual impact of trade liberalization, however, is likely to be more positive for three reasons:

- First, the analysis above overstates the cost of higher world agricultural prices because it assumes no response on the part of producers and consumers in the region. A net importer that is almost self-sufficient could actually benefit if the higher prices induce it to become an exporter of one or more commodities (Anderson 2003). Although this is unlikely to occur among the net agricultural importers in the NENA13 region because the gap between imports and exports is too large,<sup>48</sup> the negative impact of higher agricultural prices would be ameliorated as producers and consumers adjust to the new prices.
- Second, it assumes that the price increase is the same for all commodities. A net importer could gain if the increases in agricultural prices are not proportional across commodities. For example, Egypt could gain from global liberalization if the price of cotton (which it exports) increases more than the price of wheat (which it imports).

48/ In most cases, agricultural imports are twice as large as agricultural exports. Furthermore, the simulations in Chapter 6 suggest that trade liberalization would reduce net agricultural imports, but not eliminate the deficit. Syria is quite close to being a net agricultural exporter, but this is partly due to the high level of protection provided to wheat and other commodities.

- Finally, the analysis estimates the terms-of-trade effect of trade liberalization, but it does not include the efficiency gains associated with reducing distortions in domestic agricultural markets. Most studies of trade liberalization suggest that the efficiency effects are larger than the terms-of-trade effects.

Several dozen studies have been undertaken to examine the macroeconomic impact of various types of trade liberalization in the NENA region. Most of these studies use CGE models to simulate the effect of alternative trade policies. The results of these studies may be summarized as follows:

- Multilateral trade liberalization generally results in net gains to countries in the region, with real GDP expansion of 1 to 3%.
- The benefits of trade liberalization to a country depend largely on the degree of domestic liberalization carried out by the country. Most of the gains from agricultural trade liberalization are associated with domestic reform rather than changes in trade policy in other countries. This confirms the well-known concept in studies of trade liberalization: what you do determines what you get.
- The benefits of multilateral trade liberalization are generally greater than the benefits of bilateral trade liberalization with the European Union or the United States.
- The benefits of multilateral trade liberalization are generally greater than the benefits of regional trade agreements within NENA.
- Trade liberalization usually results in lower production and more imports of wheat, but higher production and more exports of fruits and vegetables.

In contrast, only a few studies have examined the distributional impact of trade liberalization, such as the effect on farmers or other poor groups in the NENA13 countries. One of the most thorough studies, by Ravallion and Lokshin (2004), suggests that the lower agricultural prices associated with removing agricultural protection in Morocco has had a negative effect on poverty. In the following sections, we summarize the results of our analysis of the distributional impact of trade liberalization in Egypt, Syria and Tunisia. We also describe Moroccan agricultural trade and the Ravallion and Lokshin results in more detail.

#### 9.1.5 Agriculture, trade and poverty in Egypt

Until 1987, agricultural policy in Egypt was characterized by various forms of state intervention in production, marketing and trade. The policy of import-substitution industrialization meant that the agricultural sector was heavily taxed through low official prices and compulsory sales. At the same time, some commodities were protected by import restrictions. During the late 1980s and the 1990s, Egypt gradually liberalized agricultural markets and reduced the level of import protection. Wheat markets remained distorted by a combination of import controls, fixed producer prices, consumer subsidies on certain types of bread and government control over the channels leading to the subsidized bread. In 2004, a series of significant tariff reductions was implemented, leading the World Bank to declare that Egypt had made more progress in trade liberalization than almost any other country. Even so, the degree of protection is higher in Egypt than in 40% of the countries of the world.

Full global trade liberalization would increase the prices of agricultural commodities by 5-15%. This would probably negatively affect the economy because Egypt is a net agricultural importer, though the exact effect depends on the price changes for each commodity. Given proportional increases for all agricultural commodities, Egypt would gain from higher rice and cotton prices, but lose from higher wheat and maize prices. Domestic trade reform would reduce the domestic prices of imported commodities such as wheat, thus partly offsetting the effect of global trade liberalization, as well as providing efficiency gains.

We analyse the data from the 1998 Egypt Integrated Household Survey to examine the distributional effect of changes in agricultural prices. Changes in income for each household in the sample are estimated using hypothetical increases in agricultural prices and the composition of the income and expenditures of the household. In the short to medium run, net sellers gain and net buyers lose from higher prices.

According to this analysis, higher wheat prices reduce poverty among wheat producers because two thirds of these producers are net sellers of wheat. For example, a 40% increase in wheat prices results in a 3 percentage point decline in the poverty rate among wheat farmers. However, the effect of higher wheat prices on overall poverty is negligible because significant gains by the small number of wheat farmers are offset by the small losses by the rest of the population.

The pattern for rice is quite similar. Higher rice prices reduce poverty among rice growers because over 90% of the growers are net sellers. For example, poverty declines 7 percentage points among rice farmers if rice prices rise 40%. However, in the population as a whole, the effect of higher rice prices is neutral because the large gains among the small numbers of growers are offset by the losses incurred by the majority of the population that are net buyers.

With regard to cotton, higher prices have a significant effect in reducing poverty among cotton growers. Again, a 40% increase in cotton prices reduces poverty by 7 percentage points. Nonetheless, cotton farmers represent only 4% of the population in Egypt; so, the effect of even a 40% increase in cotton prices on national poverty is negligible (less than 1 percentage point).

Higher prices for fruits and vegetables reduce poverty among horticultural growers: a 40% increase in prices reduces poverty among growers by 5 percentage points. Looking at poverty in the population as a whole, one sees that higher prices for fruits and vegetables increases overall poverty by 1 percentage point because the losses of poor consumers slightly outweigh the gains by poor farmers.

An increase in sugar cane prices has a strong effect on poverty among growers: a 40% increase in prices causes a 20 percentage point reduction in the poverty rate among sugar cane growers. This large effect occurs because sugar cane growers get almost one third of their incomes from the crop, compared to the 7-22% return for the other crops discussed here. The effect on national poverty is negligible, however, since barely 1% of the population is involved in sugar cane production.

Overall, the results show that price increases have positive effects on growers of the relevant crops, but the overall effect of price increases on national poverty is generally negligible because only a small share of the population grows each crop.

#### 9.1.6 Agriculture, trade and poverty in Tunisia

Like Egypt, Tunisia adopted a structural adjustment programme in the 1980s that reduced the intervention of the state in markets, including agricultural markets. Unlike Egypt, Tunisia maintains high tariffs on many products, including agricultural commodities. At the same time, Tunisia has a relatively good investment climate, which contributed to significant inflows of foreign direct investment and a healthy growth rate through the 1990s.

Tunisia's main exports are olives and dates, while the principle imports are wheat and maize. Like many NENA13 countries, Tunisia is a net agricultural importer. Multilateral liberalization is expected to raise agricultural prices. If all agricultural commodity prices rise proportionately, Tunisia would lose in terms of trade because it is a net importer. On the other hand, it would gain from domestic liberalization due to efficiency gains. The combined effect is likely to be positive for Tunisia as a whole because most estimates show that efficiency gains are larger than terms-of-trade effects. However, the net effect on agricultural prices and, hence, farmers, would probably be negative because the effect of losing high levels of protection (89%, on average) would be greater than the modest increase in world prices (5-15%) due to global liberalization.

In order to study the distributional impact of trade liberalization in Tunisia, we use a CGE model linked to data on 400 representative households from a household expenditure survey. The CGE simulates the effect of various policies on prices, wages and returns to other factors, while the household survey data are used to simulate the effect of these price changes on income distribution. Four simulations are examined: the removal of tariffs on industrial imports from the EU, the removal of all tariffs on imports from the EU, the removal of all tariffs on imports from any country and the removal of all Tunisian tariffs, combined with global trade liberalization, which is assumed to raise agricultural prices by 15%.

The removal of industrial tariffs on imports from the EU (which approximates the effect of the EMP agreement) causes both imports and exports to expand significantly, although almost all the change occurs in non-agricultural trade. Real GDP increases slightly (0.2%) because of the

efficiency gains associated with removing distortions. Although food and agricultural production declines, most of this takes place in processed foods. Crop production remains roughly constant, and grain production expands, presumably due to less expensive inputs. Poverty declines from 6.8% to 6.7%; the largest improvements occur among farmers and agricultural wage-earners.

The removal of *all* tariffs on imports from the EU (approximating an extended EMP agreement) causes large increases in imports of meat, beverages and tobacco, fruit, dairy products, and vegetable oil as import barriers on these goods are lifted. The production of these same goods declines more modestly in the face of import competition. The effect on GDP and poverty is similar to that in the first simulation.

The elimination of tariffs on imports from *all* countries increases the imports of almost all agricultural commodities and stimulates agricultural exports to maintain the trade balance. The reduction in poverty is greater than that in the first two simulations: poverty declines from 6.8% in the base scenario to 6.5%. Again, farmers and agricultural labourers account for most of the poverty reduction.

Finally, the elimination of all Tunisian tariffs, plus global trade liberalization (represented by a 15% increase in world agricultural prices), does not do much for the overall economy. This is partly because, as a net agricultural importer, Tunisia loses from higher world agricultural prices. Nonetheless, its agricultural sector gains from the higher prices. The three main agricultural exports (olive oil, other processed foods and fruit) expand substantially in this scenario. As a result, poverty declines to the lowest level among the four scenarios: 6.0% among the overall population and 9.0% among farmers.

### 9.1.7 Agriculture, trade and poverty in Syria

The agricultural sector in Syria is one of the most highly regulated in the NENA13 region. The Government uses a variety of policy instruments to control production and marketing, including administered prices, state marketing boards, state monopolies in the marketing of strategic crops, state monopolies in the distribution of fertilizers, subsidies, and high tariff and non-tariff barriers on food and agricultural products. Reforms in recent years have only begun to dismantle some of these restrictions.

Although Syria has been successful in achieving wheat self-sufficiency and promoting cotton exports, these accomplishments have come at a high cost in terms of inefficiency and an unsustainable fiscal burden. The likely depletion of oil reserves over the coming 10-15 years is forcing the Government to reduce costs and find new sources of revenue.

The domestic liberalization of the agricultural sector would result in substitution away from wheat, sugar beets and cotton and towards barley, lentils and chickpeas. The completion of the EMP agreement with the EU would expand exports of fruits, vegetables and olive oil if Syrian producers can meet the high quality and food safety requirements.

About two thirds of agricultural subsidies are devoted to maintaining a high producer price for wheat and low consumer prices for bread and other wheat products. By banning the private importation of wheat and by limiting imports through the state marketing board, government policy keeps the domestic price of wheat 66% higher than the import parity price. Wheat is the most important staple food, as well as an important source of income for farmers; so, the Government is particularly sensitive to the impact of reducing or removing import protection and the subsidies for wheat.

In this report, we use a CGE model to simulate the effect of trade policy options on households in ten income categories. In particular, we focus on the effects of liberalizing wheat markets. The macroeconomic effects are relatively modest, although government savings increases by almost 3% of GDP. Complete liberalization reduces the producer price of wheat declines by about 17% and production by about 2%. The effects of subsidy removal on the welfare of Syrian households is regressive: high-income households gain, while lower-income households lose. The size of the effects is quite small, however: less than 1% of base income for all but the richest income group.

These results need to be interpreted with three factors in mind. First, the impact on farmers (particularly wheat farmers) will be larger than the impact on the poorer deciles. This is because each decile includes both farmers and non-farmers, thus diluting the adverse impact of the reforms

on wheat farmers. Second, the distributional impact will vary among farmers; it will be the most adverse among farmers for whom wheat sales are a large share of household income. The impact of lower wheat prices will be positive on urban households (particularly the poor) and rural households that are net buyers of wheat. More information on the share of income from wheat and other crops would be needed to explore the distributional impact among farmers. Third, the impact of liberalization on small farmers and the poor depends partly on complementary policies. For example, a recent study suggests that, if the wheat market reform were implemented through a reduction in energy subsidies, the combined effect would be more pro-poor than wheat subsidy removal alone.

### 9.1.8 Agriculture, trade and poverty in Morocco

The Kingdom of Morocco is a lower-middle-income country with a population of about 30 million, more than half of which in urban areas. The agricultural sector accounts for about 16% of GDP. Like most other countries in the region, Morocco is a net agricultural importer, and the main agricultural import is wheat. After Turkey, Morocco's agricultural exports are the second largest among the exports of NENA13 countries. Fruits and vegetables, which typically account for 20-30% of the agricultural exports of NENA13 countries, represent almost three quarters of the agricultural exports of Morocco.

Since the mid-1980s, Morocco has carried out a series of economic reforms to allow the market to play a larger role in production and consumption decisions, including price liberalization, a reduced role for state enterprises and the promotion of private investment. Morocco has signed an EMP agreement with the EU whereby tariffs on manufactured goods will be reduced over time. Morocco also signed an FTA with the United States that entails gradual reduction in both industrial and agricultural protection. Nonetheless, the level of agricultural protection remains relatively high.

A study by Ravallion and Lokshin (2004) uses a CGE model to simulate the effect of grain import liberalization and then projected price changes to simulate the impact on households in a nationally representative survey. The CGE model suggests that the full liberalization of grain imports would reduce the producer price of grain by 24% and the consumer price of grain by 27%. This would reduce poverty in urban areas, where households benefit from lower-priced grain, but raise poverty in rural areas because of the losses among net sellers of grain. The overall incidence of poverty in Morocco would rise from 20% to 22%. These results suggest that, although many rural households are net buyers of grain, lower grain prices tend to increase the poverty rate. However, this does not take into account the effect of global trade liberalization, which is expected to increase the world price of wheat and other grains.

## 9.2 Policy implications

In this section, we examine the implications of these findings on policies and programmes in the NENA13 countries. How can policymakers in these countries maximize the benefits of trade liberalization and minimize the costs, particularly with regard to small farmers and the rural poor in general? We divide the discussion into four topics: global trade liberalization, regional and bilateral trade liberalization, domestic liberalization and complementary policies.

### 9.2.1 Policy on global trade liberalization

As discussed in section 9.1, global trade liberalization will likely increase world agricultural prices by 3-20%, imposing a terms-of-trade loss on 11 of the 13 countries under consideration (the Sudan and Turkey have small agricultural trade surpluses). The net food-importing countries have used the likely terms-of-trade loss associated with global trade liberalization to request special concessions in the form of reduced commitments to open their own borders. This position reflects the mercantilist perspective of trade negotiation, according to which import liberalization is a sacrifice that must be incurred to open up markets in other countries.

However, it is difficult to understand this position in terms of economic welfare. The flaw in the mercantilist logic is that it only takes into account the gains and losses of producers, ignoring the effects of trade policy on consumers. As discussed above, economic studies on trade liberalization

suggest that most of the benefits to a country deriving from trade liberalization would result from reforms within the country. Empirical studies of protection consistently demonstrate that the cost (in terms of higher prices to consumers) of saving each job in a protected sector is several times larger than the income earned through the job. Thus, the net food-importing countries appear to be demanding the right to forgo the efficiency gains associated with domestic trade liberalization as compensation for the terms-of-trade losses associated with reforms in other countries.

However, this analysis only takes into account the impact of trade liberalization on aggregate income or GDP. Policymakers in the NENA13 countries are also interested in equity considerations, including the objective of reducing poverty and unemployment. The effect of agricultural trade liberalization on poverty varies widely across countries in part because the effect of liberalization on agricultural prices is ambiguous. Global agricultural trade reform is likely to increase world agricultural prices, but domestic trade liberalization will reduce domestic agricultural prices relative to the world price. The net effect of liberalization on domestic agricultural prices depends partly on the country's trade patterns, the original level of protection and the details of the liberalization. If the level of domestic protection is high (as in Morocco, Syria and Tunisia), then full trade liberalization is likely to reduce domestic agricultural prices. If, on the other hand, domestic protection is modest (as in Egypt, Jordan and Lebanon), then full trade liberalization may increase domestic agricultural prices.

Furthermore, the impact of changes in agricultural prices on poverty is ambiguous. Higher agricultural prices benefit farmers who can produce a marketed surplus, but they hurt the urban poor and rural net buyers. The analysis presented in this report suggests that higher agricultural prices do benefit the poor on net, but the effect is quite small. Thus, the link between trade liberalization and agricultural price changes is ambiguous, and the effect of agricultural price changes on poverty is weak. This suggests that trade policy is a poor instrument for addressing overall poverty in the NENA13 region. Nonetheless, the impact of trade liberalization on certain agricultural producers may be substantial. Below, we discuss targeted programmes that may assist vulnerable households more effectively and more economically.

Thus far, we have assumed that adjustment to a new trade regime is costless. In fact, there are transition costs associated with any policy change that affects relative prices. As resources are reallocated within the economy, there will be a period during which factors of production will be underutilized. For example, as labour moves from formerly protected sectors to newly profitable ones, costs will be associated with unemployment and retraining. These transition costs are real and constitute an argument for phasing in the trade reform and for providing training and credit to assist those sectors that are adversely affected. Because the transition costs are temporary, while the efficiency gains are permanent, it is unlikely that transition costs represent a valid argument against implementing the trade reforms.

Of course, NENA13 countries should push aggressively for market access for the agricultural commodities that they export. Egypt, Jordan and Morocco have a strong interest in opening up the EU market for fruits and vegetables. This would include taking steps to ensure that sanitary and phytosanitary regulations regarding fruit and vegetable imports into the EU are based on scientific evidence and are not a reflection of protectionist sentiment. Likewise, Tunisia would benefit from a reduction in EU tariffs on olive oil imports, while Egypt and the Sudan would gain from reduced domestic support by the United States and (to a lesser extent) the EU for their cotton growers.

In contrast, none of the NENA13 countries would gain from global trade liberalization (including reductions in domestic support) in the wheat market. Such reforms would increase the world price of wheat by 4 to 20%, thus adversely affecting the terms of trade of importers in the region. The effects of these higher prices on consumers could be offset in many countries by reducing import tariffs to retain the original domestic price.

### 9.2.2 Policy on regional trade liberalization

The benefits of regional integration within the NENA region have been limited to date. There are three explanations for this, two of which may be corrected, and one of which cannot. One reason for the limited benefits of regional trade agreements such as GAFTA is that these agreements tend to be fairly flexible, allowing numerous exceptions for sensitive goods, permitting protection to

vary by season and granting countries the right to suspend tariff reductions under certain circumstances. Since the costs of protection rise more than proportionately with the level of protection, allowing a relatively small number of exceptions can largely negate the gains from trade liberalization. To generate significant gains for member countries, GAFTA and other regional agreements will have to insist on a greater level of discipline on tariffs and non-tariff barriers. One approach might be gradually to reduce the maximum level of tariff protection, thus constraining the highest tariffs first.

The second reason for the modest benefits associated with these trade agreements is that regional trade is hampered by a variety of factors, in addition to trade policy. The infrastructure linking the NENA countries is generally poor. Transportation services in the region are characterized by a lack of competition and high costs, and many of the countries suffer from cumbersome customs procedures that raise the cost of trade. One study estimates that the delays and uncertainties associated with customs clearance alone is equivalent to 10% of the cost of the goods being traded (Dennis 2006a). Unfortunately, multiple and overlapping regional trade agreements may actually contribute to these costs because tariff rates differ depending on the country of origin. These different rates give traders an incentive to misrepresent the origin of imports, thus forcing customs officials to require additional documentation and further slowing the process. Thus, measures to streamline customs procedures and introduce greater competition in regional transportation services would enhance the benefits of regional trade agreements.

The third reason for the modest gains associated with regional trade agreements is the similarity in the economic structures of member countries. If all member countries import wheat and maize, export fruits and vegetables and have similar wage rates, then the gains from trade are likely to be limited. There will still be some gains from trade even if two countries have identical factor endowments (labour, land, capital and other factors of production) because each country can specialize in different products so that both countries gain from economies of scale. However, the basic point is that the gains will be less than they would be for trade between countries with different wage rates, different agroclimatic conditions and different types of skills. Trade models tend to confirm that there would be benefits from economic integration among NENA countries, but the benefits are substantially smaller than the benefits associated with multilateral trade liberalization or liberalization with developed countries.

### 9.2.3 Position with regard to bilateral liberalization

The EU is in the process of signing EMAAs with six of the NENA13 countries and preparing agreements with three more.<sup>49</sup> Although the EU is the largest trading partner for all of these countries, studies suggest that the impact of the agreements on welfare in the NENA countries is positive, but rather small, typically less than 1%. The main reason for this is that the agricultural sector is largely excluded from the agreements. Simulation studies confirm the economic intuition that the gains from the agreements would be much larger if the agreements included liberalization in the agricultural sector. Since the broader Barcelona process envisages agricultural liberalization at some later date, the six countries with association agreements should begin to explore the feasibility of a second round of negotiations that would include agriculture. While recognizing the political sensitivity of agricultural prices, leaders in the NENA countries should keep in mind that most of the benefits of an expanded association agreement will be related to the degree of domestic liberalization within their own countries. At the same time, the benefits will be larger if domestic liberalization is combined with a reduction in the trade barriers to agricultural imports in the EU, which is the rationale for insisting on reciprocity. Liberalization in EU tariff and non-tariff barriers on fruits, vegetables, olive oil and sugar would be particularly beneficial to the NENA countries. It is quite possible, however, that the NENA countries will not be able to persuade the EU to explore agricultural liberalization. In that case, the NENA countries would be advised to pursue the same objectives in the context of WTO multilateral trade negotiations.

49/ The six countries with EMAAs are Algeria (2005), Egypt (2004), Jordan (2002), Morocco (2000), Tunisia (1998) and Turkey (1998). Lebanon and West Bank and Gaza have interim association agreements, while Syria is a candidate for an association agreement.

The United States has signed FTAs with Jordan and Morocco and has interim Trade and Investment Framework Agreements with four other NENA13 countries. The United States is a relatively minor trading partner with all of these countries; so, the NENA13 countries should not expect large effects, positive or negative, as a result of increased trade with the United States. On the other hand, these agreements may facilitate foreign direct investment in the NENA countries in two ways. First, the agreements typically include measures to create a more favourable climate for private investment, including the streamlining of bureaucratic procedures and greater transparency in regulations. Second, the agreements constitute a signal that the government is committed to greater integration in the global economy, which is in itself an encouraging sign for prospective investors.

#### 9.2.4 Position with regard to unilateral liberalization

Economic analysis suggests that, in general, unilaterally reducing import protection and domestic support for agriculture will increase aggregate output. Indeed, it is easy to demonstrate that the benefits of lower domestic prices to consumers are greater than the losses to producers. Yet, policymakers, trade negotiators and many non-economists see reducing domestic protection as the price a country must pay to gain access to markets in other countries. Is economic analysis flawed, perhaps based on simplifying assumptions that do not hold in the real world? Or is the conventional wisdom incorrect, biased by political pressures that give greater weight to the interests of producers over consumers?

A common argument for protectionism in general is the infant industry argument, whereby industries learn to be competitive, while growing under the protection of trade barriers. Although there is a large body of literature on this topic, it is not relevant in this context because the infant industry argument is rarely invoked to defend agricultural protection.

In the case of agricultural protectionism, a more common argument is that, in developing countries in general and in the NENA region in particular, poor farmers cannot compete with large-scale technologically advanced farmers in developed countries, particularly if the latter receive production subsidies. Certainly, commercial farmers in developing countries are hurt by the subsidies given to farmers in the EU, the United States and other countries, as well as the high barriers to agricultural imports in many countries. But, in spite of these subsidies, Egypt is a competitive exporter of cotton and rice; Morocco is able to export tomatoes to Europe; and Tunisia is a major exporter of olive oil. This suggests that NENA countries can compete in markets where they have comparative advantages. Small farmers in the NENA region can compete because their costs for labour and land are lower and because they enjoy a climate that is more suitable for the production of some agricultural commodities, particularly during the European winter.

Another argument revolves around the concept that import barriers on agricultural products reduce poverty among poor agricultural producers. However, the analysis presented in this report suggests that higher agricultural prices have mixed effects on the poor; for example:

- In Egypt, simulations reveal that higher agricultural prices generally reduce poverty among growers, but that the effects on overall poverty are quite small.
- In Syria, the removal of wheat subsidies (lowering the producer price, but raising the consumer price) adversely affects poor households.
- In Tunisia, removing import barriers reduces some agricultural prices, but also reduces poverty among farmers and agricultural labourers.
- In Morocco, Ravallion and Lokshin (2004) find that lower agricultural prices adversely affect the poor.

There are several reasons for these small and mixed effects, as follows:

- Higher agricultural prices benefit some poor households (farmers with net sales), but they hurt other poor households (the urban poor and net buyers in rural areas).
- The percentage of households that are net sellers of agricultural goods is relatively small because, in most NENA13 countries, less than half the population is in farming, and a significant share of farmers are net buyers.

- Farmers who are net sellers tend to be richer than the average farmer; so, higher farm incomes do not always translate into lower poverty.
- Even those farmers who are both poor and net sellers rely on non-agricultural activities for a significant share of their incomes.

In other words, agricultural protection is a costly and imprecise tool with which to address the problem of rural poverty. In the sections below, we discuss alternative policies that address rural poverty more directly.

Another argument for agricultural protection is that it serves as a useful bargaining chip in international negotiations, giving developing countries something to offer in exchange for greater access to markets in high-income countries. While there is some merit in this argument, it is not clear that developing countries see agricultural protection merely as a means to extract reciprocal liberalization among trade partners. The fact that the LDCs have been able to avoid almost all of the disciplines built into the URAA suggests that they view agricultural protection as an end, rather than a means.

Although political considerations may limit the ability of governments to implement unilateral trade liberalization, policymakers and trade negotiators should at least be aware that the benefits exceed the costs. The example of Egypt's trade reforms of 2004 indicate that there is some scope for trade reform outside the context of reciprocal trade agreements.

#### 9.2.5 Complementary policies to facilitate adjustment

Several studies have indicated that the size of the gains from trade liberalization depend on the existence of complementary policies and programmes. The gains are smallest (or the losses largest) when consumers and producers are limited in their ability to respond to new opportunities and new prices. Studies of trade liberalization in Morocco and Tunisia show that, if factor markets are flexible, the benefits of trade liberalization are three to five times greater than when factor markets are rigid (see Dennis 2006b). Flexible factor markets allow factors of production (such as land, labour and capital) to be reallocated from formerly protected sectors to newly profitable sectors. Examples of rigidities in NENA factor markets include:

- regulations limiting the use of temporary workers and expatriates;
- the complicated bureaucratic procedures involved in dismissing workers;
- large severance allowances;
- delays in the application for and issuance of land and construction permits;
- significant capital requirements in starting a new business; and
- difficulties in closing a business.

While these bureaucratic problems are common in many countries, business climate surveys suggest that they are more severe in the NENA countries than they are in most developing countries. As described in Chapter 2, in a ranking among countries based on the ease of doing business, only three NENA countries are in the top half (Jordan, Tunisia and Lebanon are ranked in the 45th to 49th percentile range), and several are in the bottom 15% (Egypt, Djibouti and the Sudan) (IFC 2006).

Of course, these regulations apply mainly to the formal sector. In agriculture, flexibility is more likely to be enhanced by effective agricultural services such as extension and market information systems that provide farmers with useful information about the agronomic and economic aspects of shifting into new commodities. It is sometimes claimed that farmers are not able to substitute into new crops because of agroclimatic limitations. This view is contradicted by numerous studies showing that farmers respond to incentives in the form of input and output prices, as well as new technology.

Another type of complementary policy that enhances the economic effect of trade liberalization is trade facilitation. This category includes measures to reduce the transaction costs related to international trade, including excessive documentation requirements, authorizations from multiple agencies, unclear or subjective criteria for the application of duties and delays and uncertainties related to customs clearance.

### 9.2.6 Complementary policies to support agriculture

As discussed above, global trade liberalization will raise world agricultural prices, but domestic trade reform will partially or completely offset this effect. For NENA13 countries with a high level of agricultural protection, such as Morocco, Syria and Tunisia, the combined effect would probably be a reduction in agricultural prices. Furthermore, the analysis presented in this report suggests that lower agricultural prices tend to raise the incidence of poverty, although the net effect is small because some poor households (such as urban consumers and net buyers in rural areas) gain. Policymakers may be interested in providing additional assistance to farmers both in the interest of alleviating poverty and as compensation to ensure political support for trade reform. This assistance may take the form of support for agricultural production or direct assistance to farm (or rural) households.

Under WTO rules, support for agricultural production is classified as amber box, blue box or green box. Amber box support includes various types of agricultural support prices and input subsidies. Some of the NENA13 countries are subject to disciplines under WTO commitments, while others are exempt either because they are LDCs or because they are not WTO members.<sup>50</sup> However, as discussed above, these policies are costly ways to help farmers and are not efficient at providing assistance to poor households.

Blue box support refers to agricultural support prices that are combined with policies to limit production through quotas or land set-asides. These are exempt from WTO restrictions based on the idea that the production limits prevent the support prices from distorting agricultural trade. Although these are legal under the URAA, it is not advisable to implement blue box policies in the NENA region for three reasons. First, it is difficult to justify the direct and administrative costs of such programmes in terms of the benefits to the overall economy, nor are the programmes particularly effective as anti-poverty measures. Second, these programmes are difficult to administer and monitor. The producer subsidy creates a strong incentive to evade production limits, creating a need for monitoring and enforcement, as well as the potential for corruption. Third, it is likely that blue box programmes will be limited under the Doha Round. Both the European Union and the United States have proposed limiting blue box expenditures to 2-5% of the value of production. De Gorter et al. (2004) propose eliminating the blue box and counting these programmes within the amber box.

Green box support for agriculture is exempt from WTO restrictions. It includes the following types of programmes:

- agricultural research and extension;
- pest and disease control;
- inspection services;
- marketing and promotion services;
- marketing infrastructure;
- public stockholding for food security;
- natural disaster relief;
- income insurance and safety-net programmes;
- environmental protection programmes; and
- regional assistance programmes.

Although most of these may be considered programmes that support agriculture, they are allowed under WTO rules because, supposedly, they provide “no, or at most minimal trade distorting effects or effects on production” (WTO 1994). In fact, some of these services may significantly facilitate agricultural production and exports. They are presumably exempted because they provide necessary services for the agricultural sector. In economic terms, they provide public goods, which, because

50/ Somalia, Syria, and the West Bank and Gaza are not WTO members. Djibouti, Somalia, the Sudan and Yemen are considered LDCs. Algeria and Lebanon are WTO observers, which means that they intend to apply for membership within five years and will eventually be subject to WTO rules. Turkey has not declared amber box expenditures and is thus required to keep product-specific subsidies below 10% of the value of each subsidized product and general agricultural subsidies below 10% of the value of agricultural production. Jordan, Morocco and Tunisia have declared amber box expenditures and were obliged to cut them by 13.3% over 1995-2005 (de Gorter et al 2004).

of externalities or difficulty in charging users for the services, are undersupplied by the private sector. One implication is that it is possible for well-designed government services in these areas to generate benefits for the public that exceed the costs of the programme in value.

As discussed elsewhere above, domestic trade liberalization in the NENA13 countries is likely to stimulate diversification from grain production into alternative crops such as oilseeds and fruits and vegetables. As the process of diversification proceeds, the importance of these services will inevitably rise. As farmers diversify into new crops, they will require more information about production methods and marketing opportunities. As they switch to perishable crops, disease and pest control becomes more important. As they attempt to supply increasingly quality-sensitive consumers in urban areas and in foreign markets, grading and inspection services become critical. Policymakers may facilitate this process by promoting agricultural institutions that provide public services, particularly for small and vulnerable farmers. Funding is necessary because agricultural research and extension services cannot be effective if they are forced to recover costs by selling inputs. But greater funding is not sufficient: the institutions must be designed to provide incentives so that the services are demand driven, allowing them the flexibility to respond to changing demands.

### 9.2.7 Complementary policies to support farmers

One type of green box programme does not involve the provision of public goods: decoupled payments to farmers. Payments are decoupled when they are not based on current production, but, rather, on some fixed criterion such as production or area planted in a base year. Over the last 15 years, economists and policymakers have become increasingly interested in agricultural reform that shifts from producer subsidies and import protection towards decoupled payments to farmers. The appeal of such a reform is that decoupled payments may provide equivalent support to farmers at a lower fiscal and economic cost. The fiscal cost is lower for a given level of farm income support because the decoupled payments are direct income support, rather than indirect support through agricultural prices. The economic cost is lower because decoupled payments do not distort agricultural production and trade and therefore do not influence farm decisions.

Decoupled payments to farmers have been tried in the European Union, Mexico and the United States, among other countries (see Baffes and de Gorter 2004). Below, we summarize these three experiences:

- In the 1985 US farm bill, the basis for payments was shifted from current production to current area and historical yield. The 1996 farm bill, known as the Federal Agriculture Improvement and Reform Act, replaced traditional agricultural programmes with decoupled payments under production flexibility contracts that were to be phased out over six years. The act was undermined by the US Congress, which provided supplemental farm aid in the form of emergency relief and loan deficiency payments almost every year.
- The EU has also moved towards decoupled payments to farmers. In 1992, the EU reformed the common agricultural policy to reduce price supports and switch from current planted area to area in a base year. Over the 1990s, decoupled payments rose so that they accounted for more than 20% of total producer support, while import protection was reduced. In 2003, the EU decided to increase decoupled payments to account for three quarters of the support for crop production.
- Mexico introduced a decoupled payment programme in 1994 in preparation for the North American Free Trade Agreement. The Procampo programme shifted Mexican agricultural policy from support prices and input subsidies to a system of fixed payments based on historical area, thus compensating farmers for the reduction in import protection associated with the new agreement. The programme was made more progressive by setting a minimum one hectare payment even for farms below this size and by capping the maximum payment allowed. As in the United States, the programme was partially undermined in 2002 by the reintroduction of price supports.

Perhaps most relevant to the NENA13 countries is the case of Turkey. In 2000, Turkey was providing US\$6.4 billion in support for agriculture, of which US\$1.4 billion was price support and input subsidies, and US\$5 billion was in the form of import protection. In 2001, Turkey launched the Agricultural Reform Implementation Programme with support from the World Bank. The objectives of the programme were to: (i) introduce direct income support payments, decoupled from production decisions; (ii) phase out agricultural price supports and input subsidies; and (iii) implement a system of direct income payments, decoupled from production levels. The programme began with a pilot project to experiment with alternative methods of establishing a registry of farms. Then, a massive farm registration programme was launched that eventually registered 2.8 million farms. The direct income support payments were approximately US\$90 per ha per year up to 50 ha. Over 2001-04, the payments increased, while price supports and input subsidies were phased out, so that, by 2004, the payments accounted for over 70% of the total (Cakmak 2004; Olhan 2006).

The impact of the programme has been mixed, though the interpretation of trends has been complicated by an economic crisis in 2001 during which real GDP fell by 7.5%. Between 1999 and 2003, the total area cultivated declined by 4%. The production of wheat, barley and maize increased by 5-6%, while cotton output expanded by 21%. The area under olive groves and orchards increased by 5% and 7%, respectively. On the other hand, the production of sugar beet and tobacco fell by one quarter and one half, respectively, in response to the elimination of price supports (Olhan 2006). Overall, agricultural value added per worker in agriculture rose 10% between 1998-99 and 2003 (Cakmak 2004).

In summary, decoupled payments to farmers represent a promising approach to reducing the economic distortions associated with agricultural price supports, import protection and input subsidies, while compensating farmers and minimizing any adverse impact on poverty. At the same time, it should be recognized that most NENA countries use import protection to support farm prices rather than as direct subsidies. In this situation, switching from import protection to a programme of decoupled payments implies both a loss in tariff revenue and significant new expenditure.

### 9.2.8 Complementary policies to assist the rural poor

Decoupled payments are a political solution to the problem of phasing out costly programmes involving support prices, input subsidies and import protection and of compensating farmers for their loss. Although the incidence of poverty is generally higher among farmers than among the general population, such programmes cannot be considered safety-net programmes because they do not target poor households. Decoupled payments to farmers exclude poor non-farmers, including agricultural wage labourers, owners of microenterprises and the urban poor. Furthermore, among farmers, benefits are generally proportional to farm size; so, the benefits are likely to be greater for richer farmers than for poor farmers.

If the objective is to assist poor and vulnerable households regardless of their occupation, a different type of programme should be considered. A wide variety of safety-net programmes have been established in developing countries with the explicit objective of reducing poverty or, at least, some of the negative effects of poverty. While a thorough review of alternative safety-net programmes is beyond the scope of this report, it is useful to describe briefly the main types of programmes.

*Universal food subsidies* reduce the cost of selected foods (usually basic staples) for the benefit of all consumers. The advantages include relatively simple administration (no targeting) and the fact that the relative benefits are greater for poor households because food (particularly basic staples) are a larger share of the budgets of poor households. In the 1980s, Egypt, Jordan, Syria and Tunisia offered universal food subsidies for goods such as bread, wheat flour, cooking oil and sugar. These programmes have become less popular in the last 15 years for several reasons: the high fiscal cost, the leakage of benefits to non-poor households and the low coverage among some groups of poor households, particularly in rural areas. One review of 15 food subsidy schemes has found that only three of them are progressive in the sense that the per-person benefits are greater among the poor than among the non-poor (Coady, Grosh and Hodinott 2002).

*Targeted food subsidies* make subsidized food available to selected households geographically through low-price shops located in poor neighbourhoods or through some form of ration cards that entitle bearers to purchase food at subsidized prices. Egypt, Jordan and Tunisia have attempted to introduce targeting into their food subsidy programmes (Coady 2004). In the experience in Egypt, however, corruption and political pressure led to a situation in which large numbers of non-poor households held ration cards. Efforts to narrow eligibility faced strong political opposition (Kherallah et al. 2000).

*Labour-intensive public works programmes* usually combine infrastructure development (such as road building) with hiring policies to maximize the pro-poor impact. If designed well, they may improve community infrastructure and provide assistance to the poorest households with able-bodied members. If the wage rate is set appropriately (somewhat below the prevailing wage rate), the programme is self-targeting in that the more well off members of the community will not find it worthwhile to participate, while the poor will. One drawback of these programmes is the high cost of supervising the work relative to that in cash transfer programmes. In addition, these programmes cannot assist those unable to work because of age or disability. Finally, there is a trade-off between the goal of providing quality public infrastructure, which often requires semi-skilled labour, and the goal of serving the poorest members of the community, who do not have these skills. One example of this is the World Bank-funded labour-intensive public works programme known as the Second Rural Employment Programme. This US\$95 million programme focuses on north-west and north-central Algeria and emphasizes public works to maintain natural resources and reduce soil erosion (World Bank 2003b).

*Conditional cash transfer programmes* have generated considerable interest among researchers and policymakers in the last 10-15 years. These programmes provide cash grants to households that comply with certain requirements, usually keeping children in school, attending health clinics, or receiving pre- and postnatal care. Like food-for-work programmes, conditional cash transfers serve a dual purpose: providing assistance to poor households and encouraging investments in human capital that reduce the chance of poverty being transmitted to the next generation. The Progresá Programme was launched in Mexico in 1997 and phased in over three years, eventually reaching 2.6 million rural families. Eligibility is determined in two stages by first selecting poor villages and then selecting poor families within these villages. Progresá is one of the more widely studied conditional cash transfer programmes in part because the gradual expansion of the programme has been randomized by village, allowing quasi-experimental tests of the impact of the programme. Studies show that it has been successful in increasing school attendance, reducing the incidence of child labour and improving child health (Skoufias 2005; Gertler 2004). Conditional cash transfer programmes have also been implemented in Bangladesh, Nicaragua and Turkey, among other countries.

While this section provides only a brief glimpse of alternative safety-net programmes, it demonstrates that there are a number of interesting and effective programmes for providing assistance to poor rural families in developing countries.



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