



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

**TMD DISCUSSION PAPER NO. 3**

**INTERNATIONAL TRADE, REGIONAL INTEGRATION  
AND FOOD SECURITY IN THE MIDDLE EAST**

**Dean A. DeRosa**

**Trade and Macroeconomics Division**

**International Food Policy Research Institute  
1200 Seventeenth Street, N.W.  
Washington, D.C. 20036-3006 U.S.A.**

**January 1995**

*TMD Discussion Papers contain preliminary material and research results, and are circulated prior to a full peer review in order to stimulate discussion and critical comment. It is expected that most Discussion Papers will eventually be published in some other form, and that their content may also be revised. Funding for the present paper was provided by the U.S. Agency for International Development in connection with the IFPRI Project on Maintaining Food Security in Egypt (USAID Grant No. 263-0225-6-00-3102). Views expressed in the paper are solely those of the author and do not necessarily reflect official views or statements of policy of the U.S. Agency for International Development. Assistance provided by Marcelle Thomas and Joseph Nassif is gratefully acknowledged.*

## ABSTRACT

Against the background of increasing interest in closer economic relations in the Middle East, the contribution that greater integration of markets might make to improving food security in the region is investigated, using a quantitative framework for gauging the reduction in instability of market supplies for cereal, meat, and dairy commodities under regional cooperation schemes versus more general policies to increase the integration of Middle East markets with markets in Western Europe and the world at large. Nondiscriminatory trade liberalization yields the greatest improvements in food security, but expansion of intra-regional trade relations also results in improved food security, except in the case of wheat and other cereals because of already extensive Middle East imports of these commodities commercially and under bilateral and multilateral food aid programs.

# Contents

---

1.	Introduction . . . . .	1
2.	Middle East Trade Relations . . . . .	6
3.	Economic Integration and Food Security . . . . .	20
4.	Conclusion . . . . .	31
5.	Appendix: Supplementary Data . . . . .	33
6.	References . . . . .	42

## Tables

1.	Indicators of fundamental economic factors, 1990 . . . . .	3
2.	International trade of the Middle East countries, 1987-89 . . . . .	7
3.	Intra-regional trade of the Middle East countries, 1987-89 . . . . .	8
4.	International trade of Middle East countries by world regions, 1987-89 . .	10
5.	Revealed comparative advantage of the Middle East countries, 1987-89 . .	11
6.	Correlation results: RCA in international and intra-regional trade . . . . .	13
7.	Import restrictions in Middle East countries, 1987 . . . . .	15
8.	Import restrictions in Middle East country groups by primary and manufacturing categories, 1987 . . . . .	16
9.	Regional cooperation and other preferential trading arrangements in the Middle East . . . . .	19
10.	International trade in food of the Middle East countries, 1987-89 . . . . .	21
11.	Intra-regional trade in food of the Middle East countries, 1987-89 . . . . .	22

12.	Production and consumption of staple food commodities in Middle East countries and the world, 1988-90 . . . . .	24
13.	Instability of staple food production and consumption in Middle East countries, 1970-90 . . . . .	26
14.	Instability of staple food consumption in Middle East countries and market integration, 1970-90 . . . . .	28
15.	Import restrictions in Middle East countries by primary and manufacturing categories, 1987 . . . . .	33

# 1. INTRODUCTION

---

The global trading system in recent years has witnessed a resurgence of interest in preferential trading arrangements and other forms of economic cooperation to promote regional integration among developing countries, arising principally in response to the overlong duration of the Uruguay Round of multilateral trade negotiations (concluded in December 1993) and new regional economic alliances formed by the major industrial countries (i.e., the European Union and North American Free Trade Agreement). In the Middle East, the signing of the 1993 Israeli-PLO accord and the initiation of a peace process have brought to the fore considerations for the mutual interests of the Arab countries and Israel in expanding trade, investment, and other economic relations, and, more fundamentally, in enjoying more rapid economic growth and development in the wake of reduced hostilities and the liberalization of restrictive trade and other regulatory policies in the region.<sup>1</sup>

Expanded intra-regional trade is a natural focal point for discussions of the possibilities for greater integration of the Middle East economies. Indeed, while several forms of economic integration can be defined, spanning the spectrum from free trading areas to common markets to economic unions, most theoretical and applied analyses of regional integration concern how the adoption of preferential trading arrangements or customs unions might contribute to greater uniformity of relative prices for traded goods in a region and to higher levels of economic welfare.<sup>2</sup>

The present study investigates the potential of greater economic integration in the Middle East for expanding intra-regional trade in food and, thereby, for improving food security in the region. Food security refers to the ability, through domestic production or international exchange, of countries and especially lower-income households within countries to enjoy basic dietary and nutritional requirements for human well-being. In the context of the present study, it is taken to include concerns for the stability of supply of staple food commodities (e.g., wheat and other basic grains) in Middle East markets and, by implication, for the stability of local prices (relative to trend) for essential food commodities.<sup>3</sup>

Although the Middle East includes a number of higher-income countries, the fortunes of many of these countries are related mainly to their reserves of crude petroleum. Historically, the cultivation (and trade) of food and other agricultural crops

---

<sup>1</sup> Fischer et al. (1993) estimate that reduced military expenditures in the Middle East would release resources worth about 10 percent of GDP per annum and yield an increase in economic growth of between 1.3 percent and 1.7 percent in the region. See also Fishelson (1989) and Fischer (1993).

<sup>2</sup> Seminal work on the "customs union issue" includes contributions by Viner (1950) and, later, Meade (1955), Lipsey (1957-1960), and Balassa (1961). Other important contributions include Vanek (1965), Corden (1972), Kemp and Wan (1976), and Collier (1979). For recent reviews of the now large body of literature on the economic theory of free trading areas and customs unions, see Jones and El-Agraa (1981), Corden (1984), Robson (1984), and Hazlewood (1987).

<sup>3</sup> On the relationship between supply variability and price variability in food and other primary commodity markets, see for instance MacBean and Nguyen (1987).

has been of greater importance to most Middle East countries. Thus, for the purposes of the present study, it is convenient to adopt the country classification suggested by Khaldi (1984), which divides the countries of the greater Middle East region according to whether they are oil-exporting, labor-exporting, or major food-producing countries (Table 1).<sup>4</sup>

Wider dimensions of economic integration than the availability of food supplies should be recognized in considering the prospects and economic benefits of closer economic relations in the Middle East or other region. In economic theory, the gains from regional and international trade are related to the comparative advantages, and disadvantages, of countries in producing goods of all types. Thus, the actual or potential productivity of many subsectors in both industry and agriculture must be taken into some account in order to assess fully the implications of the economic integration of countries. This is especially so for less developed countries, where economic policies are often directed to promoting industrialization and, in so doing, impart a "bias" against agriculture to the structure of relative prices in the domestic economy, reducing production and exports of farm goods below their optimal levels and limiting national welfare and potential economic growth.<sup>5</sup>

Also from an economywide perspective, the similarity of the comparative advantages of countries establishing closer economic relations is important. Where countries are particularly similar in their (relative) endowments of natural resources and accumulated human and physical capital, the incentives for expanded economic relations may not be substantial after the removal of trade and other barriers to intra-regional commerce. In this vein, of relevance to policy discussions in many developing regions are the expected larger economic gains that countries might enjoy from the adoption of general (i.e., nondiscriminatory) trade liberalization rather than regional (i.e., preferential) trade liberalization (Langhammer and Hiemenz 1990; de Melo and Panagariya 1992; DeRosa 1993 1994).<sup>6</sup>

## THE MIDDLE EAST ECONOMIES

The relevance of the foregoing precepts for analyzing the food security and broader implications of economic integration in the Middle East can be considered with reference to the basic economic indicators presented in Table 1. The statistics provide

---

<sup>4</sup> Also following Khaldi (1984), the greater Middle East is defined to include North Africa and parts of West Asia (Afghanistan, Iran, and Turkey). Israel was not considered by Khaldi. Israel is included in the present study, and it is classified as a major food-producing country.

<sup>5</sup> See Valdés (1973), Cavallo and Mundlak (1982), Krueger, Schiff, and Valdés (1988 1991), and Bautista and Valdés (1993). On the relationship between agriculture and economic growth in less developed countries, see, for instance, Timmer (1988) and Ranis and Stewart (1993).

<sup>6</sup> That developing countries widely espouse regional economic cooperation is explained frequently by considerations, including political-economy considerations, for "noneconomic" factors including shared industrialization and other development goals among countries in the same region (Cooper and Massell 1965; Johnson 1965).

Table 1 - Indicators of fundamental economic factors, 1990

	Structure of Production										Merchandise Trade		
	Population	Arable Land	Pop. Density	Education	Per Capita Income	Agr.	Industry				Services	Exports	Imports
							All Inds.	Mfg.	Other	Percent of GDP			
Mill. pers.	Th. ha.	Pers./ha.	Index <sup>v</sup>	U.S. dollars									
<b>Oil-Exporting Countries <sup>v</sup></b>	124	30,564	4	101	3,736	13	39	9	30	49	31	22	
Algeria	25	7,070	4	114	2,060	13	47	12	35	41	36	25	
Iran	56	14,100	4	87	2,490	21	21	8	13	58	13	11	
Iraq	18	5,250	4	116	...	...	...	...	...	...	...	...	
Kuwait	2	4	525	179	16,210	...	56	9	47	...	35	20	
Libya	5	1,805	2	...	5,330	...	...	...	...	...	...	...	
Oman	2	16	100	69	5,850	...	80	4	76	...	6	34	
Saudi Arabia	15	2,290	7	107	7,050	8	45	9	36	48	38	30	
United Arab Emirates	2	29	55	107	19,860	2	55	9	46	43	74	40	
<b>Labour-Exporting Countries <sup>v</sup></b>	70	4,352	16	179	632	17	29	14	14	53	11	36	
Egypt	52	2,330	22	178	600	17	28	16	13	53	9	31	
Jordan	3	310	10	...	1,240	8	26	12	14	66	34	80	
Lebanon	3	208	14	...	540	...	...	...	...	...	...	...	
Yemen, A.R.	11	1,504	8	...	...	20	28	8	20	47	10	38	
<b>Major Food-Producing Countries <sup>v</sup></b>	152	62,575	2	84	1,833	19	32	20	12	50	18	26	
Afghanistan	20	7,910	3	15	...	...	...	...	...	...	...	...	
Cyprus	1	195	7	...	8,020	7	27	15	12	67	...	...	
Israel	5	351	13	247	10,920	4 <sup>v</sup>	29 <sup>v</sup>	...	...	67 <sup>v</sup>	23	...	
Morocco	25	8,713	3	89	950	16	15	18	15	51	17	27	
Sudan	25	12,830	2	14	...	30	15	9	6	51	...	...	
Syria Arab Republic	12	4,877	3	153	1,000	28	22	...	22	50	28	16	
Tunisia	8	2,909	3	83	1,440	16	32	17	15	52	32	49	
Turkey	56	24,880	2	114	1,630	18	33	24	9	49	13	23	
<b>Middle East Countries <sup>v</sup></b>	346	97,491	4	106	2,316	15	36	13	23	50	24	25	
<b>Developing Countries</b>	4,146	700,239	6	83	840	17	37	25	12	47	18	19	
Low-income	3,058	469,620	7	38	350	31	36	27	9	36	16	16	
Middle-income	1,088	230,619	5	140	2,220	12	37	...	37	50	20	20	
<b>Industrial Countries</b>	816	649,794	1	305	19,590	2 <sup>v</sup>	34 <sup>v</sup>	23 <sup>v</sup>	11 <sup>v</sup>	64 <sup>v</sup>	16	17	

Sources: F. Herblion and C. Myers, *Education, Manpower and Economic Growth*, (New York: McGraw-Hill, 1984); UNCTAD, *Handbook of International Trade and Development Statistics* (Geneva: United Nations Conference on Trade and Development, 1990); World Bank, "World Development Indicators 1992," Washington, D.C., April 1992 (computer disk); and Food and Agriculture Organization of the United Nations "FAO Agrostat-PC, Land Use, 1990," Rome, 1992 (computer disk).

<sup>v</sup> Herblion-Myers Index of human resource development calculated as the secondary enrollment rate plus five times the university enrollment rate, both calculated in their respective age cohorts (1989).  
<sup>v</sup> Weighted average for country groups using population weights for education and per capita income, and GDP weights for the structure of production and merchandise trade.  
<sup>v</sup> 1988 values.



a broad assessment of the relative resource endowments, economic structures, and "openness" of the three groups of Middle East countries vis-a-vis one another, other developing countries, and major industrial countries.

The oil-exporting countries have the highest per capita income levels in the Middle East, reflecting the dominance of crude petroleum production and the still advantageous international terms of trade of oil production over most other economic activities in these countries (except possibly Iran). Human resource development (education) is also comparatively high, indicating a substantial "stock" of human capital among the inhabitants of the oil-exporting countries. Finally, the oil-exporting countries appear to be relatively open to international trade, as a result of the importance of petroleum exports but also the comparatively high levels of imports (relative to GDP) financed by oil revenues.

The labor-exporting countries are distinguished by their higher than average population densities and lower than average (per capita) income levels and openness to international trade. While the agriculture sector is important to the economies of these countries, the extent of manufacturing is also appreciable, reflecting the relative abundance of basic labor in these countries.<sup>7</sup>

Finally, with the exception of Cyprus and Israel, the major food-producing countries are distinguished by their relative abundance of arable land and the prominence of agriculture in domestic output. Although these countries evidence generally lower levels of human resource development, per capita income, and openness than the oil-exporting countries, the major food-producing countries compare favorably in regard to these fundamental factors to other middle-income developing countries worldwide.

The differences in relative resource endowments and other fundamental factors among the three groups of Middle East countries revealed in Table 1 might be expected to support closer economic relations in the region under more liberal regional trading arrangements. At the same time, the differences in tangible resources and other sources of comparative advantage between the Middle East countries, on the one hand, and the major industrial countries and developing countries outside of the region, on the other hand, are wider still. Thus, although preferential trading arrangements and other forms of economic cooperation to promote closer economic relations in the Middle East might result in significant economic gains, one should not lose sight of the possibly greater importance of the region's economic relations with the world at large or major trading blocs in other regions, such as the new European Union. Indeed, how to enjoy the benefits of greater regional integration without forestalling possible opportunities for larger gains from expanded economic relations with industrial and developing countries in other parts of the world might be counted among the challenges facing the Middle East in a new era of regional peace and more liberal economic policies.

---

<sup>7</sup> The data are insufficient to draw reliable inferences about the importance of human capital in the labor-exporting countries.

## **PLAN OF THE PAPER**

The remainder of this paper is devoted to examining more closely the international and regional trade relations of the Middle East countries and, in particular, the potential of expanded intra-regional trade under existing (or new) regional cooperation schemes for improving food security in the region. In Section 2, recent patterns of international trade and "revealed" comparative advantage of the Middle East countries in food and agriculture, manufactures, and other broad categories of goods are examined, with explicit reference to intra-regional as well as international trade. Other important aspects of trade relations in the Middle East are also considered, including especially protection policies and regional cooperation efforts. In Section 3, data series on the production and consumption of food staples in the region are investigated, to illuminate the potentials of greater regional and international integration of commodity markets in the Middle East for reducing the instability of staple food supplies in the region. Finally, the principal findings and conclusions of the study are summarized in Section 4.

## **2. MIDDLE EAST TRADE RELATIONS**

---

### **INTERNATIONAL TRADE**

The merchandise exports of the Middle East countries averaged about \$124 billion per annum during 1987-89, while the merchandise imports of the countries averaged about \$141 billion per annum (Table 2). The largest share of exports was accounted for by mineral fuels (70 percent) and other primary commodities, while the largest share of imports was accounted for by manufactures -- principally, machinery and transport equipment (28 percent) and material manufactures such as textiles and steel (22 percent). Food accounted for about 5 percent of total exports and about 14 percent of total imports.

The exports of oil-exporting and labor-exporting countries are predominantly mineral fuels, with crude petroleum and related products accounting for as much as 90 percent in the former countries and 53 percent in the latter countries. Crude materials and material manufactures also contribute importantly (24 percent) to the exports of the labor-exporting countries. The exports of the major food-producing countries, on the other hand, are less concentrated; they are divided chiefly among foods (16 percent), crude materials and material manufactures (34 percent), chemicals (10 percent), and miscellaneous manufactures (20 percent).

With regard to imports, nearly all of the Middle East countries rely heavily on imports of machinery and transport equipment (20-30 percent) and material manufactures (about 20 percent). Both the oil-exporting and labor-exporting countries, however, evidence high demands for food imports (about 20 percent) and low demands for mineral fuel imports. For the major food-producing countries the situation is just the reverse; they exhibit high demands for imports of energy products (20 percent) and low demands for imports of food commodities and related products (7 percent).

### **INTRA-REGIONAL TRADE**

Intra-regional trade in the Middle East amounted to about \$11.4 billion during 1987-89, or about 9 percent of the total (export plus import) trade of the region (Table 3). This trade is predominantly concentrated in petroleum and related products (37 percent). It is more concentrated in manufactures (42 percent), however, than Middle East exports to the world (21 percent). Closer economic relations in the region then would seem to offer the Middle East countries important opportunities for expanding their production and exports of manufactures, such as especially chemicals and material manufactures.

Similar results are commonly found in other developing regions, and indeed they often encourage the formation of regional trading arrangements among less developed countries, with reduced tariff rates and other forms of trade preferences extended particularly to intra-regional trade in manufactures. In the Middle East, intra-regional trade remains only a small share of total trade (as noted previously), and traditional categories of exports, including agricultural commodities as well as mineral fuels, still

Table 2 - International trade of the Middle East countries, 1987-89

	Percent of Total <sup>1/</sup>										US\$ Millions (Percent of Total) <sup>1/</sup>		
	(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10-4)	(15-9)	(10-9)
<b>Exports</b>													
<b>Oil-Exporting Countries</b>													
Algeria	1	0	0	1	90	0	3	2	1	1	82,880 (91)	6,728 (7)	90,642
Egypt	0	0	0	1	88	0	1	1	0	7	6,322 (8)	312 (3)	9,318
Iraq	3	0	0	1	89	0	0	6	0	0	8,978 (94)	590 (6)	9,888
Kuwait	0	0	0	1	96	0	0	0	0	0	10,787 (97)	243 (2)	11,070
Libya	0	0	0	1	92	0	2	1	0	0	8,234 (94)	810 (8)	8,780
Oman	0	0	0	0	95	0	0	0	0	0	8,914 (95)	368 (5)	7,288
Saudi Arabia	1	0	0	0	89	0	1	1	0	1	3,364 (80)	338 (8)	3,723
United Arab Emirates	2	0	0	1	87	0	7	2	0	1	25,888 (89)	3,113 (11)	29,124
					88	0	2	5	2	1	10,412 (89)	1,268 (11)	11,781
<b>Major Food-Producing Countries</b>													
Egypt	7	0	0	11	63	0	5	13	6	2	4,020 (71)	1,506 (27)	6,640
Jordan	6	0	0	8	64	0	1	15	2	2	2,796 (77)	774 (21)	3,832
Lebanon	11	2	0	30	2	1	28	13	7	3	367 (43)	443 (54)	821
Yemen P.D.R.	16	2	0	19	0	0	4	18	37	6	131 (31)	277 (66)	428
Yemen A.R.	4	1	1	2	81	0	0	0	1	0	139 (97)	4 (2)	143
					90	0	0	0	1	2	697 (97)	7 (1)	618
<b>Major Food-Producing Countries</b>													
Algeria	18	1	1	10	8	1	10	24	9	2	9,763 (36)	17,385 (63)	27,713
Cyprus	26	3	0	44	0	0	0	34	1	1	88 (62)	52 (37)	142
Israel	10	0	0	3	1	1	28	7	27	2	273 (33)	638 (96)	826
Morocco	27	0	0	21	1	0	12	40	16	4	1,426 (16)	7,058 (90)	8,885
Sudan	23	0	0	70	1	0	15	8	4	0	1,827 (49)	1,915 (51)	3,763
Syria	10	0	0	11	1	3	0	1	2	1	557 (98)	18 (3)	579
Tunisia	8	0	0	7	65	0	2	1	1	1	935 (86)	137 (13)	1,087
Turkey	18	3	7	7	19	3	15	11	6	1	818 (34)	1,582 (66)	2,426
					9	1	6	25	5	1	3,862 (38)	6,072 (60)	10,038
<b>Middle East Countries</b>	6	0	0	3	70	0	5	7	3	1	96,863 (78)	25,618 (21)	123,994
<b>Imports</b>													
<b>Oil-Exporting Countries</b>													
Algeria	18	1	1	2	1	1	9	21	32	3	16,470 (23)	51,979 (74)	70,579
Egypt	28	0	0	6	2	3	12	19	25	0	3,690 (39)	5,818 (61)	9,952
Iraq	21	0	0	33	3	4	14	19	33	0	2,147 (29)	5,147 (70)	7,365
Kuwait	23	1	1	3	0	1	10	26	30	1	1,936 (28)	4,952 (71)	6,979
Libya	14	1	0	1	0	0	6	8	38	18	829 (18)	3,789 (81)	4,954
Oman	12	0	0	1	4	2	2	21	38	14	908 (19)	3,732 (79)	4,760
Saudi Arabia	21	2	2	2	3	1	4	20	31	11	784 (28)	1,925 (69)	2,907
United Arab Emirates	15	1	1	2	0	0	7	22	31	16	4,968 (19)	20,239 (76)	26,872
					1	1	6	23	34	3	1,210 (18)	6,398 (62)	7,809
<b>Major Food-Producing Countries</b>													
Egypt	21	1	1	6	7	2	10	19	26	6	6,651 (37)	11,210 (62)	18,163
Jordan	15	1	4	8	3	2	11	20	30	4	3,914 (35)	7,224 (64)	11,291
Lebanon	21	3	2	4	21	1	9	18	21	7	1,699 (43)	2,148 (54)	3,993
Yemen P.D.R.	32	1	2	2	3	2	2	9	20	17	511 (31)	1,154 (69)	1,875
Yemen A.R.	34	2	2	2	6	3	10	15	24	7	133 (42)	176 (56)	313
					1	3	3	19	20	7	394 (43)	508 (66)	910
<b>Major Food-Producing Countries</b>													
Algeria	7	1	7	1	20	1	11	23	23	5	19,314 (37)	32,074 (61)	52,331
Cyprus	10	5	1	1	1	1	6	50	19	7	73 (16)	335 (62)	408
Israel	8	0	0	2	12	0	33	24	33	8	677 (26)	1,676 (72)	2,601
Morocco	7	0	4	4	14	0	8	33	25	7	3,677 (26)	10,691 (79)	14,866
Sudan	10	1	1	2	22	2	10	17	21	4	3,019 (47)	3,341 (62)	6,407
Syria	16	1	2	2	2	2	36	18	36	5	233 (23)	776 (78)	1,026
Tunisia	18	0	0	3	17	2	13	23	20	3	895 (40)	1,338 (69)	2,251
Turkey	14	1	1	12	11	2	10	28	20	6	1,698 (38)	2,714 (61)	4,438
					28	2	13	18	21	3	8,041 (44)	11,107 (64)	20,644
<b>Middle East Countries</b>	14	1	5	1	9	1	10	22	28	9	42,435 (30)	95,263 (69)	141,092

Source: U.S. Agency for International Development, Center for Development Information and Evaluation, "International Trade Tables, 1967-89," Washington, D.C., 1993 (computer diskette).

<sup>1/</sup> Average annual values.

Table 3 - Intra-regional trade of the Middle East countries, 1987-89

	Food				Beverages		Crude materials		Mineral fuels		Animal and vegetable fats and oils		Chemicals		Manufactures chiefly by material		Machinery and transport equipment		Miscellaneous manufactures		Other transactions		Primary Commodities		Manufactures		Total
	(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10-11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	
	Percent of Total 1/																										
<b>Exports</b>																											
<b>Oil-Exporting Countries</b>																											
Algeria	6	0	0	3	88	0	6	7	6	3	1	1	4,486	(77)	1,272	(22)	5,900										
Iran	2	0	0	1	90	0	3	7	0	0	0	0	237	(82)	64	(18)	281										
Iraq	1	0	0	2	95	0	0	1	0	0	0	0	740	(99)	8	(1)	748										
Kuwait	4	0	0	3	92	0	3	1	0	0	0	0	2,130	(96)	88	(4)	2,219										
Libya	4	0	0	6	45	0	10	14	13	6	2	0	316	(83)	268	(46)	682										
Oman	0	0	0	1	99	0	0	1	0	0	0	0	274	(89)	33	(11)	307										
Saudi Arabia	17	3	3	1	4	0	3	11	48	6	0	0	65	(27)	168	(88)	244										
United Arab Emirates	12	0	0	9	37	0	21	12	2	2	0	0	408	(59)	268	(41)	682										
	21	2	2	0	20	0	6	23	11	13	2	2	317	(48)	377	(53)	707										
<b>Labor-Exporting Countries</b>																											
Egypt	21	2	2	6	15	0	16	23	3	11	4	4	478	(43)	587	(53)	1,065										
Jordan	18	1	1	2	36	0	8	28	1	8	3	3	253	(56)	184	(41)	437										
Lebanon	20	1	1	7	0	1	32	24	4	7	4	4	127	(29)	292	(67)	419										
Yemen P.D.R.	27	1	1	4	0	0	6	13	6	36	9	9	60	(32)	110	(59)	186										
Yemen A.R.	33	1	3	4	89	0	0	2	0	0	2	2	8	(85)	0	(2)	8										
	69	21	9	3	3	0	1	0	0	0	5	5	28	(93)	1	(2)	30										
<b>Major Food-Producing Countries</b>																											
Algeria	24	1	1	4	3	2	16	32	9	9	1	1	1,822	(34)	2,891	(68)	4,482										
Azerbaijan	88	0	0	18	0	0	0	7	0	1	16	16	4	(76)	0	(8)	5										
Cyprus	11	8	3	0	0	3	8	11	12	38	4	4	60	(26)	141	(71)	199										
Israel	4	0	0	9	23	0	42	9	6	9	0	0	69	(35)	69	(65)	107										
Morocco	14	0	0	7	1	0	33	24	4	15	1	1	69	(23)	233	(76)	305										
Sudan	64	0	0	1	40	0	0	0	1	0	1	1	91	(96)	3	(3)	96										
Syria	34	0	0	8	16	0	6	22	2	10	2	2	173	(86)	115	(39)	296										
Tunisia	10	4	4	4	4	1	41	26	7	6	1	1	58	(19)	238	(80)	297										
Turkey	26	3	3	2	2	2	12	37	10	6	1	1	1,042	(33)	2,091	(66)	3,157										
	15	1	1	4	37	1	11	19	7	6	1	1	6,483	(57)	4,748	(42)	11,370										
<b>Middle East Countries</b>																											
	15	1	1	4	37	1	11	19	7	6	1	1	6,483	(57)	4,748	(42)	11,370										
<b>Imports</b>																											
<b>Oil-Exporting Countries</b>																											
Algeria	24	2	2	2	2	1	15	31	10	11	2	2	1,832	(30)	3,454	(66)	5,112										
Iran	26	4	4	4	1	2	21	40	4	2	0	0	126	(32)	267	(88)	392										
Iraq	4	0	0	3	3	2	32	46	6	2	0	0	87	(14)	527	(66)	614										
Kuwait	12	3	3	0	0	0	18	46	13	7	1	1	186	(16)	1,001	(84)	1,194										
Libya	45	1	1	3	3	1	7	23	6	13	0	0	228	(51)	219	(49)	446										
Oman	11	1	1	1	0	0	10	14	23	12	0	0	96	(33)	315	(77)	412										
Saudi Arabia	28	2	2	2	7	0	6	27	15	12	0	0	194	(39)	298	(80)	494										
United Arab Emirates	38	1	1	4	1	0	11	19	6	14	8	8	519	(41)	833	(60)	1,257										
	24	4	4	3	3	0	6	15	36	8	4	4	99	(33)	193	(64)	304										
<b>Labor-Exporting Countries</b>																											
Egypt	18	1	1	6	34	1	9	16	9	6	1	1	886	(80)	582	(39)	1,477										
Jordan	17	2	2	9	12	2	14	25	14	6	0	0	182	(41)	289	(59)	441										
Lebanon	14	0	0	4	62	1	7	12	4	5	1	1	573	(71)	224	(28)	806										
Yemen P.D.R.	40	4	4	2	15	0	3	17	15	9	0	0	117	(81)	73	(38)	190										
Yemen A.R.	42	0	0	0	19	0	18	15	1	6	7	7	62	(7)	4	(12)	79										
	12	1	1	1	12	0	14	27	12	22	0	0	7	(26)	22	(76)	30										
<b>Major Food-Producing Countries</b>																											
Algeria	4	0	0	5	76	0	7	6	2	1	0	0	4,065	(85)	714	(15)	4,781										
Azerbaijan	84	1	1	4	0	0	4	8	1	0	0	0	186	(14)	0	(1)	187										
Cyprus	6	0	0	0	44	0	6	20	12	4	0	0	134	(56)	107	(44)	241										
Israel	11	0	0	3	77	0	8	5	1	1	0	0	177	(92)	18	(8)	195										
Morocco	1	1	1	0	66	0	9	1	1	1	0	0	678	(81)	59	(8)	737										
Sudan	12	0	0	3	44	0	14	44	18	10	1	1	11	(13)	89	(86)	100										
Syria	18	1	1	3	43	2	16	16	2	2	0	0	246	(66)	126	(34)	371										
Tunisia	7	0	0	20	40	0	8	17	5	2	0	0	238	(88)	108	(31)	344										
Turkey	1	4	4	4	87	0	6	2	0	0	0	0	2,687	(92)	228	(8)	2,915										
	16	1	1	4	37	1	11	19	7	6	1	1	6,483	(57)	4,748	(42)	11,370										

Source: U.S. Agency for International Development, Center for Development Information and Evaluation, "International Trade Tables, 1987-89," Washington, D.C., 1993 (computer database).

1/ Average annual value.

account for an appreciable share of total intra-regional trade (15 percent and 37 percent, respectively).

The importance of these considerations is strengthened by examination of the statistics for Middle East trade by major world regions (Table 4). Intra-regional trade amounts to \$11.4 billion, but it is substantially smaller in magnitude than Middle East exports to the European Union countries (\$52.6 billion) or developing Asian countries (\$52.5 billion), which include India and especially Pakistan. In proportional terms, whereas intra-bloc trade accounts for about 9 percent of total Middle East exports and imports, commerce with the European Union and developing Asian countries accounts for much larger shares of the total trade of the region, about 44 percent and 34 percent respectively.

## REVEALED COMPARATIVE ADVANTAGE

The commodity patterns of international and intra-regional trade illuminated in Tables 2 and 3 can be employed to examine the "revealed" comparative advantage of the Middle East countries. The indicator of revealed comparative advantage (RCA) employed here is specific to export trade, as opposed to total (export plus import) trade or net (export less import) trade, and is one of a number of RCA measures commonly specified in applied analyses of international trade relations (e.g., Balassa 1979). The indicator relates the importance of a given country as a supplier of a commodity to either the world market or the Middle East market, relative to the importance of the country's total exports to the market in question. In symbols, it is computed as

### World Trade:

$$RCA(i,w)_j = [X(i,w)_j/X(w,w)_j] / [TX(i,w)/TX(w,w)], \quad (1)$$

### Middle East Trade:

$$RCA(i,me)_j = [X(i,me)_j/X(w,me)_j] / [TX(i,me)/TX(w,me)], \quad (2)$$

where  $X(i,.)_j$  represents exports of commodity  $j$  by country  $i$  to the world ( $w$ ) or the Middle East ( $me$ ),  $X(w,.)_j$  represents world exports of commodity  $j$  to the same two markets, and  $TX(i,.)$  and  $TX(w,.)$  are defined analogously for total exports by country  $i$  and the world, respectively. Broadly speaking, RCA values greater (less) than unity indicate comparative advantage (disadvantage) in that the country's export share in the selected commodity import market is appreciably greater (less) than its overall export share in import markets for both primary commodities and manufactures.

The results of the revealed comparative advantage computations are reported in Table 5. The comparative advantage of the three groups of Middle East countries with respect to world markets appears to lie importantly in natural resource-based products, especially mineral fuels in the case of the oil-exporting and labor-exporting countries. In the case of the major food-producing countries and (to a somewhat lesser extent) the labor-exporting countries, comparative advantage also appears to lie importantly in food commodities (including fats and oils), crude materials which include agricultural raw materials, and miscellaneous manufactures which are generally labor-

Table 4 - International trade of the Middle East countries by world regions, 1987-89

Exports	Percent of Total <sup>1/</sup>										US\$ Millions (Percent of Total) <sup>1/</sup>		
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20-21)	(22-23)	(24)
	Food and live animals	Beverages and tobacco	Crude materials	Mineral fuels	Animal and vegetable fats and oils	Chemicals	Manufacture chiefly by material	Machinery and transport equipment	Miscellaneous manufacture	Other transactions	Primary Commodities	Manufactures	Total
World	6	0	3	70	0	5	7	3	5	1	96,883 (78)	26,818 (21)	123,894
Industrial Countries	6	0	4	63	0	4	7	4	9	2	39,809 (74)	12,998 (24)	52,919
European Union	6	0	4	63	0	4	7	4	9	2	38,726 (74)	12,882 (24)	52,638
Other	3	0	4	78	0	4	5	1	1	5	1,083 (84)	136 (11)	1,282
Developing Countries	3	0	3	76	0	6	8	3	2	1	56,874 (81)	12,620 (19)	70,076
Sub-Saharan Africa	4	0	2	86	0	9	8	7	3	0	232 (72)	90 (28)	323
Asia	1	0	2	82	0	5	6	2	1	1	44,777 (85)	7,362 (14)	52,834
Latin America	1	0	1	91	0	4	1	1	0	1	3,888 (83)	238 (6)	4,176
Middle East	15	1	4	37	1	11	19	7	6	1	6,483 (87)	4,748 (42)	11,370
Eastern Europe, Russia	5	0	20	64	0	4	5	1	1	0	1,494 (88)	179 (11)	1,673
Imports	14	1	6	9	1	10	22	28	9	2	42,436 (30)	96,263 (88)	141,062
World	12	1	4	2	1	12	20	38	8	2	16,336 (20)	66,232 (78)	83,344
Industrial Countries	10	1	3	2	1	13	22	37	9	2	10,307 (16)	51,886 (82)	63,690
European Union	10	1	3	2	1	13	22	37	9	2	10,307 (16)	51,886 (82)	63,690
Other	18	2	7	2	1	6	13	43	7	2	6,029 (31)	13,347 (88)	19,684
Developing Countries	17	1	6	19	2	7	24	13	9	3	26,100 (46)	30,032 (82)	57,718
Sub-Saharan Africa	26	3	25	6	0	6	24	3	0	8	704 (69)	380 (33)	1,193
Asia	16	1	6	18	2	5	24	15	11	3	15,641 (42)	20,873 (85)	37,845
Latin America	41	1	8	7	8	4	22	8	0	1	2,168 (86)	1,114 (34)	3,314
Middle East	15	1	4	37	1	11	19	7	6	1	6,483 (87)	4,748 (42)	11,370
Eastern Europe, Russia	12	0	6	2	1	13	26	20	6	6	903 (23)	2,906 (73)	3,996

Source: U.S. Agency for International Development, Center for Development Information and Evaluation, "International Trade Tables, 1987-89," Washington, D.C., 1993 (computer diskette).

<sup>1/</sup> Average annual values.

Table 5 - Revealed comparative advantage of the Middle East countries, 1987-89

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10-11)	(12-13)	
	Food and live animals	Beverages and tobacco	Crude materials	Mineral fuels	Animal and vegetable fats and oils	Chemicals	Manufactures chiefly by metal	Machinery and transport equipment	Miscellaneous manufactures	Other transactions	Primary Commodities 1/	Manufactures 1/
<b>International Trade</b>												
<b>Oil-Exporting Countries 1/</b>												
Algeria	0.12	0.08	0.13	9.36	0.01	0.26	0.11	0.06	0.06	0.57	1.84	0.12
Iran	0.03	0.16	0.11	9.15	0.00	0.10	0.09	0.02	0.01	2.31	1.89	0.06
Iraq	0.38	0.01	0.34	9.18	0.01	0.01	0.33	0.02	0.01	0.09	1.95	0.06
Kuwait	0.05	0.00	0.13	9.98	0.00	0.12	0.02	0.02	0.01	0.18	2.02	0.04
Libya	0.06	0.01	0.16	8.58	0.03	0.25	0.06	0.06	0.06	0.18	1.85	0.10
Oman	0.00	0.00	0.01	8.53	0.00	0.51	0.00	0.01	0.00	0.06	1.87	0.15
Saudi Arabia	0.16	0.21	0.04	9.19	0.00	0.03	0.08	0.19	0.10	0.26	1.82	0.09
United Arab Emirates	0.10	0.01	0.16	9.03	0.02	0.79	0.04	0.07	0.03	0.22	1.88	0.28
	0.18	0.13	0.12	8.93	0.02	0.21	0.28	0.08	0.17	0.32	1.85	0.18
<b>Labour-Exporting Countries 1/</b>												
Egypt	1.23	0.78	1.85	4.89	0.39	0.73	0.57	0.10	0.73	1.00	1.82	0.53
Jordan	0.80	0.15	1.41	8.58	0.08	0.14	0.82	0.06	0.24	0.77	1.77	1.24
Lebanon	1.37	0.73	4.83	3.41	1.32	3.05	0.79	0.22	0.41	1.16	1.70	1.12
Yemen P.D.R.	1.87	1.82	2.22	0.04	0.48	0.43	1.07	0.17	2.93	2.04	1.26	1.16
Yemen A.R.	1.81	0.04	0.28	8.38	0.01	0.01	0.03	0.04	0.04	0.04	2.19	0.03
	0.48	1.05	0.39	8.31	0.03	0.01	0.02	0.02	0.01	0.12	2.25	0.01
<b>Major Food-Producing Countries 1/</b>												
Afghanistan	2.18	0.89	3.49	1.24	2.29	0.73	0.98	0.23	1.24	0.81	2.00	0.80
Cyprus	2.23	0.00	7.40	0.51	0.14	0.02	2.02	0.02	0.16	0.39	0.56	0.56
Israel	3.18	3.11	0.57	0.03	1.81	0.40	0.39	0.83	2.12	0.88	1.78	0.84
Morocco	1.24	0.11	0.88	0.08	0.04	1.32	2.38	0.48	0.89	1.84	0.43	1.27
Syria	3.23	0.12	3.49	0.10	0.09	1.64	0.47	0.11	1.91	0.42	1.03	1.03
Turkey	2.84	0.01	11.74	0.05	8.04	0.02	0.08	0.06	0.02	0.32	4.13	0.04
	1.20	0.11	1.87	6.74	0.00	0.20	0.42	0.02	0.29	0.29	1.88	0.22
	0.89	0.37	0.59	1.82	7.81	1.81	0.85	0.18	2.59	0.39	2.34	1.77
	2.28	3.23	1.18	0.95	2.01	0.85	1.87	0.16	1.86	0.48	1.85	1.05
<b>Middle East Countries 1/</b>	1.17	0.87	1.81	8.16	0.88	0.87	0.85	0.13	0.87	0.79	1.82	0.48
<b>Intra-Regional Trade</b>												
<b>Oil-Exporting Countries 1/</b>												
Algeria	0.81	0.65	0.68	8.42	0.04	0.74	0.41	0.38	0.42	0.51	1.88	0.48
Iran	0.00	0.13	0.28	8.90	0.00	0.26	0.34	0.28	0.12	0.02	2.23	0.28
Iraq	0.07	0.00	0.48	10.27	0.00	0.28	0.03	0.01	0.00	0.11	1.88	0.01
Kuwait	0.28	0.07	1.00	4.88	0.02	1.08	0.86	0.00	0.01	0.06	2.18	0.08
Libya	0.00	0.00	0.14	8.85	0.00	1.03	0.03	0.01	0.01	0.87	1.27	0.77
Oman	1.20	2.08	0.88	0.44	0.00	0.36	0.51	1.72	0.82	0.01	2.00	0.27
Saudi Arabia	0.85	0.28	1.88	4.48	0.00	0.28	0.58	0.20	0.18	2.44	1.05	0.80
United Arab Emirates	1.83	1.87	0.32	2.23	0.07	0.48	1.08	0.41	1.48	0.77	1.48	0.80
<b>Labour-Exporting Countries 1/</b>												
Egypt	2.24	4.82	1.07	2.17	0.19	0.85	0.83	0.08	1.13	1.82	2.10	0.89
Jordan	1.28	1.39	0.40	3.82	0.04	0.82	1.31	0.04	0.88	1.13	1.38	0.68
Lebanon	1.41	1.50	1.50	0.00	0.78	3.36	1.13	0.13	0.37	1.53	1.00	1.26
Yemen P.D.R.	2.36	0.72	0.87	0.01	0.12	0.81	0.42	0.18	4.08	3.73	0.73	1.37
Yemen A.R.	0.48	0.48	0.67	4.54	0.00	0.00	0.08	0.02	0.01	0.82	2.06	0.03
	4.24	20.28	1.88	0.38	0.01	0.10	0.01	0.02	0.01	2.37	0.36	0.03
<b>Major Food-Producing Countries 1/</b>												
Afghanistan	1.88	1.08	2.49	0.68	0.85	1.87	0.80	0.20	1.70	1.39	1.33	1.02
Cyprus	4.14	0.00	3.84	0.00	0.00	0.00	0.00	0.02	0.08	0.11	1.60	0.11
Israel	0.81	7.38	0.85	0.02	2.21	0.88	0.53	0.42	4.62	1.89	3.21	1.81
Morocco	0.27	0.11	1.88	2.53	0.01	4.33	0.41	0.25	0.54	0.01	0.89	1.40
Syria	3.88	0.00	8.54	0.00	0.03	3.47	1.11	0.18	1.79	0.47	0.85	1.83
Turkey	2.44	0.23	1.81	0.08	0.00	0.01	0.08	0.10	0.01	0.68	2.80	0.04
	0.89	0.35	0.75	1.81	1.12	4.30	1.21	0.02	1.11	1.11	1.72	0.72
	1.87	0.31	0.84	0.17	1.88	1.88	1.78	0.38	0.63	0.41	0.87	1.80
<b>Middle East Countries 1/</b>	1.64	2.17	1.38	3.08	0.28	1.18	0.81	0.22	0.81	1.27	1.89	0.78

Source: Computed value of export market shares of countries in each commodity classification relative to their aggregate export shares in world trade and Middle East trade. U.S. Agency for International Development, Center for Development Information and Evaluation, "International Trade Tables, 1987-89," Washington, D.C., 1993 (unrevised data).

1/ Simple average.



intensive products. Overall, the revealed comparative advantage of the Middle East countries in world trade is mainly in primary commodities (1.92 RCA), not manufactures (0.48 RCA).

With regard to intra-regional trade, the revealed comparative advantage of the Middle East countries is changed little overall. The Middle East countries continue to exhibit a comparative advantage in primary commodities (1.69 RCA) and a comparative disadvantage in manufactures (0.73 RCA). The comparative disadvantage of Middle East manufactures however is marginally lower in intra-regional trade, and for some categories the RCA values for individual countries are greater than unity. In the last regard, the most notable cases are intra-regional exports of beverages and tobacco by labor-exporting and major-food producing countries, chemicals by major-food producing countries, and miscellaneous manufactures by labor-exporting countries. Also, the revealed comparative advantage of the Middle East countries in mineral fuels is lower in intra-regional than world trade, and that of the major food-producing countries in intra-regional trade in fats and oils is substantially less than unity. Finally, with regard to intra-regional trade in foods, though some major food-producing countries (Cyprus, Israel, Morocco, and Tunisia) have RCA levels that are less than unity, Egypt and the other labor-exporting countries have RCA levels that are greater than unity, with the result that the overall revealed comparative advantage of the Middle East countries in foods commodities is computed to be greater for intra-regional trade (1.54 RCA) than international trade (1.17 RCA).

The differences in revealed comparative advantage between the international and intra-regional trade of the Middle East countries can be tested statistically, as in Table 6 where the results of rank correlations of the RCA statistics across traded goods categories for each country are reported. For several countries (Iran, Iraq, Lebanon, Yemen, Israel, Syria, and Tunisia) the rankings of RCA levels for international and intra-regional trade are highly correlated. For most Middle East countries, however, they are not, indicating that under current economic and other circumstances the comparative advantage of these countries differs depending upon whether their exports are destined for world markets or nearby regional markets.<sup>8</sup>

## PROTECTION AND ECONOMIC COOPERATION

### Import Policies

While relative endowments of natural and accumulated resources and other fundamental economic factors importantly shape the production possibilities and comparative advantage of countries, the commodity patterns of both international and

---

<sup>8</sup> While this finding holds possible implications for the formulation of policies in regard to the multilateral versus regional relations of the Middle East countries, it does not provide guidance to the relative benefits of pursuing one set of economic relations over the other. The quantitative analysis presented in Section 3 provides an exploratory investigation of the relative benefits of expanding intra-regional versus international trade in staple food commodities, but it too is subject to some important limitations as discussed further below.

**Table 6 -- Correlation results: RCA in international and intra-regional trade**

	Rank Correlation Coefficient
<b>Oil-Exporting Countries</b>	
Algeria	0.083
Iran	0.817 **
Iraq	0.800 **
Kuwait	-0.017
Libya	0.233
Oman	-0.583
Saudia Arabia	0.167
United Arab Emirates	-0.533
<b>Labor-Exporting Countries</b>	
Egypt	0.350
Jordan	0.233
Lebanon	0.817 **
Yemen P.D.R.	0.433
Yemen A.R.	0.700 *
<b>Major Food-Producing Countries</b>	
Afghanistan	0.583
Cyprus	0.017
Israel	0.750 *
Morocco	-0.333
Sudan	-0.183
Syria	0.817 **
Tunisia	0.833 **
Turkey	0.317

**Source:** Rank correlation of revealed comparative advantage values in Table 5 (excluding SITC 9). Asterisks denote correlation coefficients that are significantly different from zero at the 5 percent (\*) and 1 percent (\*\*) levels.

intra-regional trade may also be importantly influenced by political measures to limit trade in the aggregate and particularly in individual sectors where vested interests often play a primary role in encouraging the adoption of policies to restrict competition from imports.

Table 7 provides an overview of the protection policies enforced in the Middle East countries, with the exception of Israel, Lebanon, and Yemen PDR, during the late-1980s. It presents information about the average rates of (nominal) protection enforced through the application of tariff and other fiscal charges (so-called para-tariffs), but also quantitative restrictions on imports and other forms of nontariff barriers (NTBs). While the fiscal measures are presented in familiar *ad valorem* terms, the nontariff measures are presented in terms of frequency ratios that measure the percentage of tariff-line items within an aggregate traded goods category affected by a given import regulation. Notably, the data are drawn from an inventory of trade control measures in developing countries, compiled by the U.N. Conference on Trade and Development (UNCTAD) from official national sources, GATT documents, and commercial trade-reporting services (UNCTAD 1987 1988 1989).

The most "open" countries in the Middle East are the high-income, Arab Gulf states (Kuwait, Oman, Saudi Arabia, and United Arab Emirates). Most other Middle East countries are highly inward-looking. This is true of lower-income countries such as Egypt and Sudan, but also middle-income countries such as Algeria, Iran, and Turkey. Although tariff rates average only about 27 percent in the region as a whole, the addition of other fiscal charges raises the average level of tariffs and para-tariffs combined to 49 percent. More important still is the widespread reliance on nontariff barriers, in the form of state trading monopolies and restricted access to foreign exchange as well as more familiar forms, such as especially restrictive import licensing requirements.<sup>9</sup> Particularly trade-distorting, these import barriers are very costly in economic terms because, unlike *ad valorem* tariffs, they limit the extent to which the price system allocates resources among alternative uses in the economy. They also tend to be associated with discretionary administered systems for authorizing imports that encourage rent-seeking activities that are fundamentally "socially unproductive."<sup>10</sup>

The structure of nominal protection -- that is, the profile of protection measures by traded goods categories -- is also important to consider. In Table 8 protection in the Middle East countries is examined by several broad categories of primary commodities and manufactures, including agricultural commodities, other natural resource-based goods, chemicals, machinery and equipment, and other manufactures which consist mainly of labor-intensive and other light-industrial products. For expository purposes, the data are aggregated according to the three groups of Middle East countries.<sup>11</sup>

---

<sup>9</sup> As discussed further below, the prohibition of trade with Israel is also widespread in the region.

<sup>10</sup> On the economics of rent-seeking and so-called directly unproductive profit-seeking activities, see Tullock (1967, 1980), Krueger (1974), and Bhagwati (1982).

<sup>11</sup> More complete information about the structure of protection measures in the individual Middle East countries is provided in Appendix Table 15.

Table 7--Import restrictions in Middle East countries, 1987 1/

	Tariffs, Para-Tariffs		Non-Tariff Barriers (NTBs) 2/				
	Mean Tariff	Total Charges 3/	All NTBs 4/	Quantitative Restrictions			
				Lic.	Quota	Prohib.	Other 5/
-----Percent-----							
<b>Oil-Exporting Countries</b>	18.1	56.0	77.6	34.7	2.0	16.9	FX(3), ST(4)
Algeria	21.7	26.2	67.8	6.1	0.0	2.7	FX, ST
Iran	20.7	100.9	100.0	61.6	0.0	33.8	FX 6/, ST
Iraq	16.8	19.4	100.0	13.1	13.1	4.8	ST 6/
Kuwait	3.9	3.9	3.8	1.9	0.0	1.8	-
Libya	18.3	34.7	100.0	100.0	0.0	10.3	FX 6/, ST 6/
Oman	2.9	2.9	3.6	2.9	0.0	0.7	-
Saudia Arabia	3.7	4.0	5.4	4.1	0.0	1.1	-
United Arab Emirates	4.5	4.5	1.0	1.0	0.0	0.0	-
<b>Labor-Exporting Countries</b>	36.9	47.7	87.9	10.2	0.0	18.7	FX(2), ST(2)
Egypt	42.8	54.5	100.0	7.4	0.0	22.9	FX 6/, ST
Jordan	13.8	28.0	100.0	11.5	0.0	2.0	FX 6/
Lebanon	..	..	..	..	..	..	..
Yemen Arab Rep.	16.2	22.0	28.7	22.9	0.0	3.9	ST
Yemen PDR	..	..	..	..	..	..	..
<b>Major Food-Producing Countries</b>	30.5	41.5	98.0	16.7	0.1	2.7	FX(4), ST(4)
Cyprus	17.5	23.5	32.2	32.0	0.0	0.0	-
Israel	..	..	..	..	..	..	..
Morocco	23.5	36.1	100.0	27.6	0.0	0.0	FX 6/, ST
Sudan	56.6	56.6	100.0	9.4	0.2	0.5	FX 6/
Syria	14.8	27.5	100.0	11.8	0.0	18.5	FX 6/, ST
Tunisia	24.0	27.4	76.2	60.7	0.7	12.4	ST
Turkey	26.6	42.6	100.0	9.6	0.0	0.0	FX 6/, ST
<b>Middle East Countries</b>	26.9	48.5	88.5	22.8	0.8	11.7	FX(9), ST(10)

Sources: UNCTAD, Handbook of Trade Control Measures of Developing Countries 1987 (New York: United Nations, 1987), UNCTAD, Handbook of Trade Control Measures of Developing Countries 1987: Supplement (Geneva: UNCTAD, 1989), and Appendix.

- 1/ Simple averages of rates of protection across trade goods categories in 17 Middle East countries. Averages for country groups are computed using national population levels as weights.
- 2/ Statistics are frequency ratios of the incidence of NTBs computed using information by national tariff line.
- 3/ Customs duties plus customs surcharges and surtaxes, stamp taxes, certain other fiscal charges on imports, and taxes on foreign exchange transactions.
- 4/ Possible health and sanitary regulations applicable to food and other imports are not included.
- 5/ Foreign exchange restrictions (FX) and state trading monopolies (ST). Numbers in parentheses denote number of countries enforcing the nontariff barrier.
- 6/ The nontariff barrier applies to all imports.

Table 8 - Import restrictions in Middle East country groups by primary and manufacturing categories, 1987 1/

	Tariffs, Para-Tariffs		Non-Tariff Barriers (NTBs) 2/				
	Mean Tariff	Total Charges 3/	All NTBs 4/	Quantitative Restrictions			Other 5/
				Lic.	Quota	Prohib.	
		Percent					
<b>Oil-Exporting Countries</b>	<b>18.1</b>	<b>56.0</b>	<b>77.6</b>	<b>34.7</b>	<b>2.0</b>	<b>16.9</b>	<b>FX(3), ST(4)</b>
Primary Products	13.0	42.7	76.1	25.8	0.2	21.3	FX(2), ST(4)
Foods	20.8	66.6	82.4	21.9	0.0	31.7	FX(2), ST(4)
Agr. raw mats.	11.4	30.4	82.0	36.6	0.3	17.2	FX(2), ST(3)
Crude ferts.	7.2	22.2	77.2	37.8	0.0	12.0	FX(2), ST(3)
Min. fuels	6.3	16.1	76.0	26.0	0.0	22.1	FX(2), ST(3)
Nonferrous metals	7.0	26.6	80.0	47.6	1.3	3.7	FX(2), ST(4)
Manufactures	18.1	58.7	76.5	36.6	2.7	14.6	FX(3), ST(4)
Chemicals	11.4	25.4	74.4	36.9	0.5	6.5	FX(3), ST(4)
Iron & steel	7.7	20.2	82.3	47.3	0.8	2.7	FX(3), ST(4)
Machinery & equip.	9.9	31.7	75.5	50.0	4.1	4.7	FX(3), ST(4)
Other manufa.	27.1	92.2	78.3	29.5	3.2	25.0	FX(3), ST(4)
<b>Labor-Exporting Countries</b>	<b>36.9</b>	<b>47.7</b>	<b>87.9</b>	<b>10.2</b>	<b>0.0</b>	<b>18.7</b>	<b>FX(2), ST(2)</b>
Primary Products	48.1	58.2	87.3	7.5	0.0	16.3	FX(2), ST(2)
Foods	89.8	99.9	86.4	9.8	0.0	31.6	FX(2), ST(1)
Agr. raw mats.	12.9	22.9	89.6	6.5	0.0	2.8	FX(2), ST(1)
Crude ferts.	10.7	20.3	83.5	2.6	0.0	2.5	FX(2), ST(1)
Min. fuels	10.9	21.9	89.5	5.4	0.0	0.0	FX(2), ST(2)
Nonferrous metals	14.7	25.0	83.0	6.9	0.0	5.2	FX(2), ST(1)
Manufactures	32.8	43.8	88.2	11.1	0.0	19.6	FX(2), ST(1)
Chemicals	13.4	24.7	83.2	13.2	0.0	5.2	FX(2), ST(1)
Iron & steel	13.2	24.2	83.0	10.4	0.0	1.8	FX(2), ST(1)
Machinery & equip.	22.4	32.4	90.7	9.9	0.0	11.9	FX(2), ST(1)
Other manufa.	47.8	59.4	89.7	10.9	0.0	31.7	FX(2), ST(1)
<b>Major Food-Producing Countries</b>	<b>30.5</b>	<b>41.5</b>	<b>98.0</b>	<b>16.7</b>	<b>0.1</b>	<b>2.7</b>	<b>FX(4), ST(4)</b>
Primary Products	26.8	37.2	98.1	18.2	0.0	3.9	FX(4), ST(4)
Foods	36.2	48.9	99.5	28.2	0.0	5.6	FX(4), ST(4)
Agr. raw mats.	19.8	30.4	96.0	6.3	0.0	3.0	FX(4), ST(1)
Crude ferts.	15.8	24.5	97.7	10.5	0.0	1.6	FX(4), ST(2)
Min. fuels	14.9	25.8	99.1	16.4	0.0	3.6	FX(4), ST(3)
Nonferrous metals	22.3	31.7	86.5	9.9	0.0	1.7	FX(4), ST(2)
Manufactures	31.9	43.0	97.9	16.1	0.1	6.5	FX(4), ST(4)
Chemicals	19.1	28.7	96.2	9.0	0.0	0.4	FX(4), ST(4)
Iron & steel	18.4	27.4	99.0	15.8	0.0	4.9	FX(4), ST(1)
Machinery & equip.	24.9	36.3	97.7	16.5	0.0	0.7	FX(4), ST(2)
Other manufa.	42.7	55.5	98.6	19.1	0.2	3.4	FX(4), ST(1)

Sources: UNCTAD, *Handbook of Trade Control Measures of Developing Countries 1987* (New York: United Nations, 1987); and UNCTAD, *Handbook of Trade Control Measures of Developing Countries 1987: Supplement* (Geneva: UNCTAD, 1989), and Appendix.

Notes: See Table 7 for countries included under each group of Middle East countries. Primary and manufacturing categories are defined according to the Standard International Trade Classification system as follows: foods (SITC 0 + 1 + 22 + 4), agricultural raw materials (SITC 2 less 22 + 27 + 28), mineral fuels (SITC 3), mineral and nonferrous metal ores (SITC 27 + 28 + 68), chemicals (SITC 5), iron and steel (SITC 67), machinery and equipment (SITC 7), and other manufactures (SITC 6 + 8 less 67 + 68).

1/ Averages based on statistics for 17 Middle East countries, excluding Israel among other Middle East countries and using national population levels as weights.

2/ Statistics are frequency ratios of the incidence of NTBs computed using information by national tariff line.

3/ Customs duties plus customs surcharges and surtaxes, stamp taxes, certain other fiscal charges on imports, and taxes on foreign exchange transactions.

4/ Possible health and sanitary regulations applicable to food and other imports are not included.

5/ Foreign exchange restrictions (FX); state trading monopolies (ST).

With regard to *tariffs and para-tariffs*, some frequent features of protection in industrial and less developed countries are apparent. First, protection for manufactures in the three groups of Middle East countries tends to be higher than that for primary products (except in the case of the labor-exporting countries), with other manufactures typically the most highly protected category of traded goods. Thus, not unlike protection in many other developing as well as industrial countries, "tariff escalation" is commonly encountered in the Middle East region.<sup>12</sup>

Second, while most often tariff escalation reflects the incidence of import-substitution policies to promote local industries and safeguard industrial employment, the food-producing sector also enjoys high rates of tariffs and other fiscal protection measures, especially in the labor-exporting countries. These countries enforce average import duties on foods of about 100 percent, compared to about 67 percent in the oil-exporting countries and about 50 percent in the major food-producing countries. In fact, tariff protection is typically higher for the food-producing sector than the manufacturing sector (perhaps reflecting lower import price elasticities of demand for foods than industrial goods), but also other agricultural goods-producing sectors. Thus, while protection in many Middle East countries might be deemed to give rise to a bias against agriculture in general, the food-producing sector would seem to enjoy a substantial measure of protection, possibly reflecting concerns of policymakers for achieving greater food security through domestic production.

Finally, the statistics on the incidence of *nontariff barriers* indicate that most Middle East countries impose nearly uniform, high frequency ratios of NTBs across commodity categories. While the customs duty data indicate some differentiation of protection rates across goods categories, the NTB data indicate that trade in all goods categories is extensively controlled by quantitative restrictions, foreign exchange controls, and, in the case of agricultural goods, state trading. Such extensive reliance on administered protection has parallels mainly in the trade policies of the low-income developing countries of South Asia and Sub-Saharan Africa (DeRosa 1986 1992; Erzan et al. 1989). In more open trading regimes, such as those found in East and Southeast Asia, administered protection is enforced much more selectively and at lower average frequency ratios (e.g., DeRosa 1986 1993).

## Regional Cooperation

Among the Arab countries, economic cooperation efforts in the Middle East have their origin in the Alexandria Protocol of 1945, which established the League of Arab States. During the intervening years to date, a number of formal agreements have been signed to foster closer economic relations in the region, with little lasting success (Lakhoua 1993). Today, two primary organizations are devoted to expanding trade and other economic relations among Arab countries: the Council of Arab Economic Unity (CAEU) and the Cooperation Council for the Arab States of the Gulf (GCC).

---

<sup>12</sup> Similar evidence of high rates of protection against imports of labor-intensive manufactures is reported for developing Asian countries by DeRosa (1986). For a review of the evidence of tariff escalation in developing countries, see Laird and Yeats (1987). Rates of tariff escalation in developing and industrial countries are compared in Finger and Laird (1987) and Yeats (1987).

In the greater Middle East region, as indicated in Table 9, Lebanon and several North African countries (Algeria, Libya, Morocco, and Tunisia) have established special bilateral trading accords among themselves. Finally, trade with Israel is widely prohibited in Middle East countries.

The CAEU and GCC have as objectives in common the establishment of customs unions, with specific accommodations for expanded preferential trade in agricultural commodities as well as industrial products. Indeed, the Unified Economic Agreement signed by the GCC countries in 1981 and the Arab Common Market formed in 1965 by a core group of CAEU countries (Egypt, Iraq, Jordan, Syria, and the, then, separate Yemen republics) prescribe the liberalization of customs duties among member states on agricultural, animal products, and natural resource commodities and goods.<sup>13</sup>

Whether in fact tariff and nontariff barriers to intra-regional trade in primary commodities or manufactured goods have been lowered under the two economic cooperation agreements or the several bilateral trading accords in the Middle East is problematical. More probable is that especially the nontariff barriers reviewed previously are enforced against imports universally by the countries that are parties to the area agreements and accords. Therefore, although framework agreements and other pacts for closer economic relations in the Middle East exist, the effective implementation of these agreements is far from a reality today, not unlike the circumstances of similar arrangements for economic cooperation in other developing regions (e.g., de Melo and Panagariya 1993).

---

<sup>13</sup> In 1970, the League of Arab States established the Arab Organization for Agricultural Development, with headquarters in Khartoum. The objectives of the organization, to which more than 15 Arab states belong, include increasing intra-regional trade in agricultural products among Arab countries (UIA 1987).

Table 9 - Regional cooperation and other preferential trading arrangements in the Middle East, 1987

Exporting Country	Importing Country																								
	Algeria	Iran	Iraq	Kuwait	Libya	Oman	Saudi Arabia	United Arab Emirates	Egypt	Jordan	Lebanon	Yemen A.R.	Afghanistan	Cyprus	Israel	Morocco	Sudan	Syria	Tunisia	Turkey					
Algeria					STA											STA									
Iran					CAEU*		CAEU	CAEU	CAEU*	CAEU*		CAEU*					CAEU								
Iraq			CAEU		CAEU	GCC	GCC	GCC	CAEU	CAEU		CAEU					CAEU								
Kuwait			CAEU*		CAEU	GCC	GCC	GCC	CAEU*	CAEU*		CAEU*					CAEU								
Libya									CAEU*	CAEU*		CAEU*				STA	CAEU								
Oman																									
Saudi Arabia																									
United Arab Emirates			CAEU	CAEU, GCC	CAEU	GCC	GCC	GCC	CAEU	CAEU	STA	CAEU					CAEU								
Egypt			CAEU*	CAEU	CAEU*				CAEU*	CAEU*		CAEU*					CAEU, STA								
Jordan			CAEU*	CAEU	CAEU*				CAEU*	CAEU*	STA	CAEU*				STA	CAEU								
Lebanon																									
Yemen A.R.									CAEU*	CAEU*		CAEU*					CAEU								
Afghanistan																									
Cyprus																									
Israel	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Morocco					STA																				
Sudan			CAEU	CAEU	CAEU				CAEU	CAEU	STA	CAEU					CAEU								
Syria			CAEU*	CAEU	CAEU*, STA				CAEU*	CAEU*	STA	CAEU*					CAEU								
Tunisia					STA																				
Turkey																									

Sources: Augusto de la Torre and Margaret R. Kelly, *Regional Trade Arrangements*, Occasional Paper 83 (Washington, D.C.: International Monetary Fund, 1992); and UNCTAD, *Handbook of Trade Concessions of Developing Countries 1987* (New York: United Nations, 1987).

Notes: Information excludes the GATT Protocol Relating to Trade Negotiations among Developing Countries (1974), to which Israel, Tunisia, and Turkey are signatories. STA = Bilateral trading arrangement. CAEU = Council of Arab Economic Unity (1964 - Trade, customs matters, industrial cooperation and harmonization of infrastructure). Asterisks (\*) denote members of the CAEU Arab Common Market. ECO = Economic Cooperation Organization (1985 - Infrastructure development, agriculture, and technology transfer). GCC = Cooperation Council for the Arab States of the Gulf (1981 - Social, industrial, and trade development). X = Trade prohibited by the importing country.



### **3. ECONOMIC INTEGRATION AND FOOD SECURITY**

---

The importance of food in the international and intra-regional trade of the Middle East countries is evident from the discussion of the previous section. In this section, following a brief, more detailed, look at the commodity patterns of trade in food by the Middle East countries, the production and consumption of several staple food commodities in these countries are considered in quantitative terms using a simple analytical framework, with a view to assessing the potential of closer economic relations for contributing to enhanced food security in the region.

#### **TRADE IN FOOD COMMODITIES**

Vegetables and fruit account for 50 percent or more of the international exports of food commodities of the major food-producing countries, but also other Middle East countries, including more agrarian oil-exporting countries such as Algeria, Iran, and Iraq (Table 10). Fish and cereals in significant quantities are also exported to world markets by these countries. On the other hand, the principal food imports of the Middle East countries from the world are cereals (about 35 percent), followed by meats, dairy products, vegetables and fruit, sugar, and coffee and spices (each accounting for about 10 percent). Given their wealth and more limited agricultural resources, the oil-exporting countries are the largest importers of foods (\$12.5 billion), followed by the labor-exporting countries (\$4.0 billion) and major food-producing countries (\$3.7 billion). Notably, Egypt accounts for over half of the total food imports of the labor-exporting countries, and Israel accounts for about one-fourth of the total food imports of the major food-producing countries.

Intra-regional trade in food commodities is concentrated predominantly in vegetables and fruits (about 40 percent, Table 11). The second most prominent category of intra-regional trade in food commodities is live animals (22 percent). Among other staple foods (chiefly cereals, meats, and dairy products), only cereals are traded extensively within the Middle East (18 percent). Finally, similar to overall Middle East trade in foods, total intra-regional trade in foods (\$1.7 billion) is shipped mainly from the major food-producing countries (\$1.1 billion) to the oil-exporting countries (\$1.2 billion).

#### **FOOD SECURITY**

Notwithstanding the emphasis of the Arab Common Market and Gulf Cooperation Council on production and trade of natural resource-based commodities and the importance of international food aid to Egypt and other Middle East countries

Table 10 -- International trade in food of the Middle East countries, 1987-89

Exports	Percent of Total 1/										US\$ millions 1/
	(00)	(01)	(02)	(03)	(04)	(05)	(06)	(07)	(08)	(09)	
	Live Animals	Meats	Dairy products	Fish	Cereals	Vegetables and fruits	Sugar	Coffee, tea, spices	Animal feed stuffs	Miscellaneous edible products	Food and live animals
<b>Oil-Exporting Countries</b>	2	0	0	11	28	47	1	4	1	2	868
Algeria	0	0	0	3	7	80	0	0	4	4	26
Iran	0	0	0	11	0	82	1	6	0	0	292
Iraq	13	1	1	11	11	70	0	0	4	0	48
Kuwait	0	24	3	28	27	9	0	6	0	2	34
Libya	1	0	1	80	6	5	0	8	2	0	1
Oman	8	0	0	54	18	18	0	2	0	0	68
Saudi Arabia	0	1	3	2	86	5	1	1	1	1	230
United Arab Emirates	1	9	4	8	11	53	3	5	1	6	182
<b>Leban-Exporting Countries</b>	3	0	0	9	6	59	7	7	3	1	357
Egypt	0	2	0	6	8	80	11	6	3	1	188
Jordan	4	0	17	1	8	64	1	2	2	1	92
Lebanon	0	0	1	0	2	82	4	3	5	2	64
Yemen P.D.R.	0	0	0	82	0	0	0	8	0	0	21
Yemen A.R.	0	0	1	18	7	23	6	44	1	0	24
<b>Major Food-Producing Countries</b>	8	3	1	12	6	64	1	2	1	2	4,541
Algeria	0	0	0	0	0	96	0	3	0	0	26
Cyprus	0	3	3	4	2	84	1	1	1	1	217
Israel	0	6	1	1	1	82	1	1	1	6	890
Morocco	0	0	0	39	1	57	1	1	0	1	1,013
Sudan	30	0	0	0	34	10	7	0	18	0	132
Syria	46	0	2	0	14	34	0	0	3	1	107
Tunisia	5	1	1	47	4	37	0	0	1	1	200
Turkey	12	3	1	4	8	64	1	2	1	1	1,946
<b>Middle East Countries</b>	6	3	1	12	9	61	1	2	1	2	5,796
<b>Imports</b>											
<b>Oil-Exporting Countries</b>	6	10	12	1	32	13	6	9	5	3	12,497
Algeria	2	0	16	0	32	8	14	16	7	2	2,652
Iran	1	18	8	0	54	0	0	4	4	2	1,551
Iraq	0	17	9	0	46	4	5	5	9	2	1,585
Kuwait	13	10	12	0	16	27	4	8	3	4	697
Libya	11	3	16	2	36	11	2	6	12	3	591
Oman	3	14	12	1	22	30	4	8	1	5	677
Saudi Arabia	17	11	10	2	23	20	3	8	2	4	4,061
United Arab Emirates	7	13	11	2	28	18	7	9	2	4	783
<b>Leban-Exporting Countries</b>	4	11	9	3	38	7	9	10	6	3	4,007
Egypt	3	11	8	3	42	4	10	12	5	3	2,588
Jordan	2	18	6	3	31	12	10	10	6	1	663
Lebanon	11	9	11	2	23	15	8	10	7	5	349
Yemen P.D.R.	3	7	28	0	45	4	5	2	1	4	101
Yemen A.R.	2	2	15	1	45	6	12	5	12	1	306
<b>Major Food-Producing Countries</b>	4	7	5	3	39	8	11	15	5	3	3,703
Algeria	0	2	4	0	3	6	4	39	0	40	43
Cyprus	0	12	6	0	31	9	5	10	12	6	226
Israel	0	15	1	6	30	18	11	10	4	2	1,034
Morocco	1	2	7	1	33	3	18	33	1	1	662
Sudan	1	0	0	1	52	6	6	13	1	5	164
Syria	8	2	4	0	44	3	18	12	4	4	407
Tunisia	2	4	10	0	47	4	10	12	9	2	601
Turkey	13	4	2	2	54	4	4	9	8	1	567
<b>Middle East Countries</b>	6	10	10	2	35	11	9	10	5	3	20,208

Source: U.S. Agency for International Development, Center for Development Information and Evaluation, "International Trade Tables, 1987-89," Washington, D.C., 1993 (computer database).

1/ Average annual values.

Table 11 -- Intra-regional trade in food of the Middle East countries, 1987-88

	Percent of Total 1/										US\$ millions 1/
	[00]	[01]	[02]	[03]	[04]	[05]	[06]	[07]	[08]	[09]	
	Live Animals	Meats	Dairy products	Fish	Cereals	Vegetables and fruits	Sugar	Coffee, tea, spices	Animal feed stuffs	Miscellaneous edible products	Food and live animals
<b>Exports</b>											
<b>Oil-Exporting Countries</b>											
Algeria	4	8	0	4	5	34	36	2	3	1	4
Iran	4	0	0	0	0	0	39	0	0	19	0
Iraq	27	0	0	0	0	22	94	0	5	0	13
Kuwait	0	34	0	2	0	37	13	2	7	8	0
Libya	0	0	0	0	0	24	11	0	48	17	0
Oman	12	0	0	33	0	26	23	0	2	0	37
Saudi Arabia	0	2	1	0	0	64	5	1	1	2	82
United Arab Emirates	2	11	4	2	13	54	3	4	0	0	181
<b>Labor-Exporting Countries</b>											
Egypt	4	0	0	8	1	7	65	6	2	2	240
Jordan	7	0	3	0	11	62	10	4	0	0	82
Lebanon	4	0	18	1	8	63	1	2	2	1	87
Yemen P.D.R.	0	0	0	0	2	87	2	1	6	0	90
Yemen A.R.	0	0	0	31	0	3	63	3	0	0	3
	0	0	1	4	8	29	7	61	0	0	18
<b>Major Food-Producing Countries</b>											
Algeria	31	4	0	3	1	16	35	2	2	2	1,114
Cyprus	0	0	0	0	0	0	100	0	0	0	0
Iraq	4	3	18	0	17	32	9	6	6	1	23
Israel	12	0	47	0	4	4	2	1	24	15	4
Morocco	0	0	0	7	24	64	0	0	0	11	43
Sudan	77	0	0	1	4	17	0	0	1	0	82
Syria	48	0	2	1	16	33	0	0	2	0	103
Tunisia	27	0	2	2	27	22	2	10	0	0	32
Turkey	28	6	3	0	16	36	2	1	2	2	856
Middle East Countries	22	4	4	1	18	39	2	3	2	4	1,698
<b>Imports</b>											
<b>Oil-Exporting Countries</b>											
Algeria	26	5	0	5	1	10	42	3	3	1	1,234
Iran	0	18	0	0	0	20	48	5	2	0	103
Iraq	0	11	24	0	6	34	15	1	2	4	26
Kuwait	27	4	4	1	6	6	37	7	1	6	144
Libya	32	0	1	0	14	8	56	1	1	2	201
Oman	3	11	0	5	1	39	1	6	0	9	46
Saudi Arabia	41	4	1	1	7	57	4	4	0	7	141
United Arab Emirates	38	1	4	10	11	35	2	3	0	1	503
<b>Labor-Exporting Countries</b>											
Egypt	12	2	2	2	33	40	1	1	4	1	280
Jordan	31	2	3	2	10	39	0	2	10	0	82
Lebanon	2	6	2	3	46	40	1	1	2	0	118
Yemen P.D.R.	10	1	2	2	35	43	2	2	2	2	76
Yemen A.R.	0	0	1	0	84	9	6	0	0	0	6
	0	3	4	0	77	14	1	0	0	2	4
<b>Major Food-Producing Countries</b>											
Algeria	11	2	0	1	47	23	1	3	2	9	172
Cyprus	1	4	0	0	0	0	1	0	0	89	2
Israel	0	0	0	2	30	33	4	4	8	6	16
Morocco	0	0	0	0	28	57	4	4	6	0	23
Sudan	0	0	0	7	49	31	0	12	1	0	6
Syria	0	1	2	0	36	43	6	4	0	6	10
Tunisia	27	3	0	0	49	6	0	0	1	13	68
Turkey	0	0	0	0	56	24	0	7	0	10	28
	1	0	0	1	72	21	0	2	2	0	21
Middle East Countries	22	4	4	1	18	39	2	3	2	4	1,698

Source: U.S. Agency for International Development, Center for Development Information and Evaluation, "International Trade Tables, 1987-89," Washington, D.C., 1993 (computer database).

1/ Average annual values.

(principally, Sudan, Tunisia, Afghanistan, and Morocco),<sup>14</sup> the production and of food commodities takes place under administered policy regimes in many Middle East countries. Indeed, the extent of the trade control measures reviewed in Section 2 should be viewed as limiting possibilities for greater integration of Middle East markets for staple foods within the region but also with markets for food outside of the region, substantially limiting possibilities for greater food security as well as economywide gains from expanded trade and economic exchange.<sup>15</sup>

## Production and Consumption of Staple Foods

In the first instance, food security is usually associated with the extent of domestic production of staple foods. Table 12 provides an overview of the production of major staple food commodities in the greater Middle East region during 1988-90, on an average annual basis.<sup>16</sup> Wheat (43.5 million tons), followed by barley (17.1 million tons) and maize (7.7 million tons), are the most important cereals cultivated in the region. Rice and sorghum also contribute significantly to production in Egypt (rice, sorghum), Iran (rice), and Sudan and Yemen (sorghum). In almost equal quantities across the region, meat production is devoted to bovine meats (1.7 million tons), sheep and goat (1.6 million tons), and poultry (1.9 million tons). The last category of staple food commodities considered is dairy products, in which milk and egg products (20.0 million tons and 1.7 million tons, respectively) bulk particularly large.

Comparison of the statistics for production with those for consumption in Table 12 makes clear that food security in the Middle East is achieved through reliance on food imports as well as domestic production. In fact, for the Middle East countries as a group the consumption of major cereals, meats, and dairy products during 1988-90 generally exceeded domestic production, implying that the region's net demands for staple foods are met importantly by imports from outside of the region (e.g., Western Europe and United States). Notwithstanding this, the detailed statistics reveal that individual countries are net producers of some of the food commodities considered here. For example, Egypt's production of rice exceeds its consumption by about 150

---

<sup>14</sup> During 1988-90, food aid (in cereals) to Egypt amounted to about 1.4 million metric tons (tons) per annum. Food aid to Sudan and Tunisia amounted to 0.4 million tons per annum during the same period, and that to Afghanistan and Morocco exceeded 0.2 million tons per annum. A number of other Middle East countries also received food shipments from international donors, but in substantially smaller amounts. See, FAO (1992).

<sup>15</sup> Although their consideration lies beyond the scope of the present study, economywide gains from trade arising principally in connection with the adjustment of the real exchange rate between tradable and nontraded goods can also contribute significantly to increasing food security in highly protected economies, by encouraging greater exports that in turn can be exchanged for additional imports of food.

<sup>16</sup> The staple food commodities upon which the analysis of the remainder of the paper is based are, by and large, the same ones examined by Khaldi (1984) in his thoroughgoing study of food production and consumption patterns in the greater Middle East region.

Table 12 -- Production and consumption of staple food commodities in Middle East countries and the world, 1988-90

	Cereals					Meats			Dairy	
	Wheat	Rice	Barley	Maize	Sorghum	Bovine	Sheep/Goat	Poultry	Milk	Eggs
-----Thousands of Metric Tons 1/-----										
<b>Production</b>										
<b>Oil-Exporting Countries</b>	12,350	1,699	6,823	140	83	378	541	865	5,388	710
Algeria	823	1	620	2	1	80	89	85	878	168
Iran	7,184	1,442	3,200	7	...	213	318	284	3,111	280
Iraq	872	158	1,318	122	3	61	28	210	670	89
Kuwait	...	...	1	2	...	2	2	29	51	12
Libya	158	...	131	1	...	8	28	57	171	32
Oman	1	...	...	...	3	3	8	3	72	8
Saudia Arabia	3,331	0	350	3	76	19	53	210	368	155
United Arab Emirates	1	...	2	4	...	2	7	11	48	8
<b>Labor-Exporting Countries</b>	3,748	2,075	238	4,542	1,108	502	189	357	2,783	264
Egypt	3,429	2,075	129	4,472	600	486	89	202	2,230	181
Jordan	72	...	38	3	2	0	6	52	89	22
Lebanon	53	...	18	3	2	2	3	18	95	53
Yemen A.R.	153	...	54	64	504	11	58	47	319	17
Gaza Strip	1	...	0	...	0	1	2	7	8	5
West Bank	37	...	0	...	...	3	14	31	61	5
<b>Major Food-Producing Countries</b>	27,382	482	11,225	3,063	2,399	789	873	715	11,825	718
Afghanistan	1,783	259	227	461	...	65	132	13	548	14
Cyprus	10	...	129	...	...	4	8	19	133	7
Israel	235	...	7	2	0	36	6	178	887	104
Morocco	3,853	18	2,864	399	14	139	70	124	1,010	86
Sudan	279	1	...	25	2,380	204	100	16	2,888	25
Syria	1,719	0	1,318	133	1	28	95	57	1,288	71
Tunisia	587	...	247	...	4	37	47	49	410	56
Turkey	18,915	214	6,433	2,033	...	277	415	258	4,580	351
<b>Middle East Countries</b>	43,478	4,186	17,065	7,735	3,589	1,889	1,583	1,926	19,975	1,689
<b>Consumption</b>										
<b>Oil-Exporting Countries</b>	23,848	3,581	11,761	3,501	109	674	783	1,195	10,068	758
Algeria	6,227	32	1,095	1,118	1	75	101	68	2,608	174
Iran	11,036	2,033	3,510	885	28	335	377	265	3,748	261
Iraq	3,892	821	1,443	687	3	138	41	240	1,135	84
Kuwait	174	115	205	104	...	27	47	77	338	25
Libya	1,025	68	651	258	...	25	60	60	483	33
Oman	...	...	...	...	...	...	...	...	...	...
Saudia Arabia	2,135	337	4,778	408	76	58	106	438	1,499	147
United Arab Emirates	162	174	78	60	...	19	52	52	296	34
<b>Labor-Exporting Countries</b>	12,502	2,213	465	6,486	1,204	701	204	425	3,743	257
Egypt	10,243	1,921	168	6,931	594	629	97	228	2,576	183
Jordan	490	89	184	328	132	15	29	64	190	17
Lebanon	413	35	61	114	2	28	13	60	300	53
Yemen A.R.	1,368	157	54	123	476	29	65	74	677	24
Gaza Strip	...	...	...	...	...	...	...	...	...	...
West Bank	...	...	...	...	...	...	...	...	...	...
<b>Major Food-Producing Countries</b>	33,187	890	11,561	4,377	3,029	863	812	690	12,415	696
Afghanistan	2,172	263	227	461	...	66	132	13	563	15
Cyprus	...	...	...	...	...	...	...	...	...	...
Israel	972	72	403	418	382	75	6	188	1,018	99
Morocco	5,081	24	2,664	520	31	144	70	124	1,144	86
Sudan	874	47	0	41	2,552	204	98	18	2,986	25
Syria	2,911	135	1,334	240	1	32	101	61	1,422	89
Tunisia	1,822	8	536	264	62	50	47	50	638	57
Turkey	18,374	430	6,397	2,435	...	292	380	258	4,634	346
<b>Middle East Countries</b>	69,338	6,773	23,787	14,374	4,342	2,237	1,789	2,310	26,244	1,711
<b>Memorandum Items</b>										
<b>World Production</b>	550,328	399,284	172,078	451,228	59,861	53,100	9,218	38,186	529,868	38,353
Western Europe	127,630	1,751	72,347	51,832	588	10,787	1,478	8,168	174,419	7,304
United States	59,741	5,548	8,102	172,819	14,847	10,447	165	10,188	68,176	4,037
Asia	158,347	353,825	5,498	117,081	17,587	4,992	2,307	6,033	78,313	11,119
Latin America	21,662	14,370	1,518	51,536	10,218	10,039	421	4,839	40,702	3,667
<b>World Consumption</b>	552,081	388,069	172,541	478,950	65,230	52,821	9,218	38,234	533,022	38,340
Western Europe	106,713	2,703	63,403	58,895	1,177	10,374	1,666	7,683	181,277	7,194
United States	29,303	3,189	7,864	143,761	12,184	11,257	178	9,694	68,411	3,995
Asia	189,849	338,103	6,608	122,545	17,787	5,079	2,323	6,072	83,768	11,160
Latin America	25,598	16,531	2,972	57,140	12,497	9,085	422	4,731	45,988	3,682

Source: Food and Agriculture Organization of the United Nations, "FAO Agrostat-PC, Production and Food Balance Sheets," Rome, 1992 (computer disk).

1/ Average annual values.

thousand tons, and Israel's production of eggs exceeds its consumption by about 5 thousand tons. More generally, however, the net food demands of the oil-exporting countries tend to exceed those of the labor-exporting and major food-producing countries by substantial margins.

### Instability of Market Supplies

Following Koester (1986) and Badiane (1991), food security is analyzed here with reference to the instability of year-to-year food supplies (relative to their trend), which holds implications ultimately for the variability of food prices (e.g., MacBean and Nguyen 1987). Table 13 reports computed values of instability for production and consumption of staple foods in the Middle East countries for the 21-year period ending in 1990, using the instability index (I):

$$I = 100 CV (1 - \bar{R}^2)^{1/2}, \quad (3)$$

where CV is the coefficient of variation of the relevant series and  $\bar{R}^2$  is the coefficient of determination from the linear regression of the series on time (corrected for degrees of freedom). Formulated by Cuddy and Della Valle (1978), this index provides a cardinal measure of the instability of time series data relative to their respective trends. The instability of domestic production series indicates the food security circumstances that would prevail in countries under autarky. The instability of domestic consumption series, on the other hand, indicates the actual circumstances surrounding the meeting of food demands in countries, that is, those surrounding the actual quantities of food made available in local markets through domestic production (plus net drawdowns of private and official stocks), but also through foreign trade (net imports, including international shipments of food aid).

There are wide differences among the Middle East countries in the instability of staple food production. The countries with the largest production of individual food commodities tend to enjoy greater stability of domestic output. Accordingly, given their larger and more extensive agricultural sectors, the major food-producing countries and labor-exporting countries tend to have lower levels of production instability than the oil-exporting countries, especially in the case of cereals. In the case of higher value foods (e.g., bovine meats and eggs) the evidence of greater instability of production in the oil-exporting countries is less clear-cut, in part because of the inclusion in the group of more agrarian countries such as Iran and Iraq.

The instability statistics in Table 13 for the consumption of staple food commodities indicate that food security in the Middle East is improved appreciably by foreign trade, in that for almost every food commodity and country instability is lower for domestic consumption than production.<sup>17</sup> In the case of wheat, for instance, whereas the average value of the instability index for wheat production in the Middle East countries is 21.3, that for wheat consumption is less than one-third as large, 6.0.

---

<sup>17</sup> Administered systems for the pricing, procurement, and distribution of food staples in the Middle East countries might also contribute importantly to this outcome, but their contribution is not separately identifiable in the instability statistics.

Table 13 - Instability of staple food production and consumption in Middle East countries, 1970-90

	Cereals					Meats			Dairy	
	Wheat	Rice	Barley	Melze	Sorghum	Bovine	Sheep/Goat	Poultry	Milk	Eggs
	Index value									
<b>Production 1/</b>										
<b>Oil-Exporting Countries</b>	23.9	19.4	69.2	55.5	50.0	16.0	12.2	25.0	6.1	30.8
Algeria	23.8	37.4	40.5	52.0	57.1	12.8	12.8	3.2	4.6	54.0
Iran	8.9	12.5	15.3	55.7	...	7.1	8.3	4.5	3.7	19.4
Iraq	42.1	35.8	37.8	60.6	29.5	9.0	9.3	30.3	3.5	26.9
Kuwait	...	...	72.3	103.3	...	53.6	27.6	29.1	26.4	38.8
Libya	28.3	...	44.6	21.8	...	34.9	21.1	9.8	6.9	21.9
Oman	74.1	...	...	...	126.8	24.9	11.1	23.3	13.3	48.9
Saudia Arabia	63.0	...	128.4	67.1	47.7	38.1	21.1	38.0	9.5	27.0
United Arab Emirates	69.8	...	99.4	48.2	...	47.4	16.3	34.4	16.8	24.7
<b>Labor-Exporting Countries</b>	25.1	9.2	37.8	7.5	25.9	17.4	17.2	27.7	4.6	17.3
Egypt	22.0	9.2	13.0	6.2	7.3	16.3	15.1	14.0	1.3	13.4
Jordan	66.9	...	56.2	...	112.7	58.9	51.7	23.1	20.4	23.4
Lebanon	36.6	...	53.9	59.0	75.2	20.3	18.1	19.2	23.1	23.5
Yemen A.R.	29.2	...	33.6	24.2	24.7	14.4	4.0	76.9	2.3	18.7
Gaza Strip	59.5	...	65.7	...	...	47.1	20.9	32.0	26.8	29.7
West Bank	36.5	...	151.6	...	...	30.1	20.7	34.6	23.1	38.0
<b>Major Food-Producing Countries</b>	18.0	16.9	26.5	21.2	44.9	12.5	11.0	11.1	9.9	9.0
Afghanistan	13.7	9.1	7.8	10.7	...	3.8	13.7	4.5	16.7	2.5
Cyprus	63.1	...	35.4	...	...	34.9	29.3	18.9	19.0	14.1
Israel	30.3	...	52.5	57.8	69.5	16.4	13.4	10.3	3.9	7.0
Morocco	29.6	72.8	33.5	29.8	61.6	10.8	9.3	10.8	7.3	5.9
Sudan	37.8	53.7	...	34.5	41.6	18.7	14.1	4.8	13.4	18.8
Syria	28.5	...	73.8	49.9	70.5	19.9	11.4	36.9	10.8	26.3
Tunisia	37.1	...	51.6	...	18.8	19.9	14.1	13.6	9.3	10.1
Turkey	10.5	14.9	14.2	14.3	...	7.6	8.6	5.5	8.4	6.2
<b>Middle East Countries</b>	21.3	36.4	48.7	27.9	39.7	15.1	12.7	21.3	7.7	19.9
<b>Consumption 1/</b>										
<b>Oil-Exporting Countries</b>	6.7	9.0	34.2	38.9	71.6	19.4	11.8	16.1	9.1	20.3
Algeria	2.8	19.8	19.8	42.4	59.0	15.0	15.3	4.2	6.9	17.3
Iran	5.0	4.6	8.8	21.6	153.5	12.2	10.0	12.0	6.9	21.4
Iraq	9.4	8.9	27.0	42.7	330.7	20.1	18.8	30.6	13.6	25.3
Kuwait	3.9	6.5	21.5	24.3	...	33.4	10.9	18.6	12.3	20.2
Libya	7.8	14.1	25.3	48.9	...	50.4	9.8	8.1	8.0	20.0
Oman	...	...	...	...	...	...	...	...	...	...
Saudia Arabia	19.8	30.7	60.2	57.0	30.4	37.6	12.8	12.5	16.3	17.1
United Arab Emirates	10.7	16.2	40.1	43.6	...	41.8	13.7	19.2	10.6	26.6
<b>Labor-Exporting Countries</b>	4.9	6.4	27.6	6.8	38.8	14.4	12.2	21.1	8.1	14.9
Egypt	3.9	2.6	9.1	4.2	6.9	13.9	13.7	20.5	5.9	12.3
Jordan	2.9	40.4	39.1	29.7	275.3	45.1	30.5	16.0	14.5	19.4
Lebanon	3.0	7.7	39.8	30.7	146.5	11.9	8.1	13.5	13.3	20.6
Yemen A.R.	14.2	16.8	31.6	44.9	12.0	13.0	2.7	33.5	12.2	17.3
Gaza Strip	...	...	...	...	...	...	...	...	...	...
West Bank	...	...	...	...	...	...	...	...	...	...
<b>Major Food-Producing Countries</b>	8.9	14.2	13.3	18.2	12.4	12.5	11.4	10.3	9.3	10.2
Afghanistan	7.2	9.2	7.8	8.5	...	9.5	13.7	6.0	16.5	2.8
Cyprus	...	...	...	...	...	...	...	...	...	...
Israel	10.1	8.8	23.4	35.4	15.5	16.7	13.4	8.6	4.1	5.9
Morocco	4.2	18.8	12.4	8.5	22.2	10.2	10.3	11.3	6.2	5.8
Sudan	13.3	25.9	69.8	15.6	9.0	18.9	13.6	4.6	13.8	18.5
Syria	7.1	3.9	35.7	29.9	70.5	20.5	11.8	33.6	10.1	25.3
Tunisia	1.9	47.3	16.9	33.9	168.3	12.7	14.1	13.2	7.3	9.9
Turkey	8.9	19.2	8.3	16.4	...	9.3	9.7	5.5	7.7	9.3
<b>Middle East Countries</b>	6.0	8.6	23.8	18.1	21.2	15.2	11.7	15.3	9.1	15.4

Sources: Computed values of Cuddy-Della Valle Index of instability, using annual data and linear regression estimates of time trends. J.D.A. Cuddy and P.A. Della Valle, "Measuring the Instability of Time Series Data," *Oxford Bulletin of Economics and Statistics*, Vol. 40 (1978), pp. 79-85.

1/ Values for country groups are weighted averages using 1988-90 consumption levels as weights.

These results demonstrate that although highly distortionary trade and other regulatory controls still surround the agricultural sector in the Middle East, food markets in the region are already integrated to an important degree with one another or markets outside of the region.

Notwithstanding this *de facto* integration of Middle East markets for staple foods, substantial "margins" may still exist for further improving the stability of food supplies and hence food security, through the elimination of remaining barriers in Middle East countries to greater intra-regional or international trade in staple food commodities. In what follows, the implications for the instability of food supplies of completely integrating food markets in different regional and international groups of Middle East and other countries are investigated, specifically, to illuminate the potential of greater market integration for overcoming in part the vagaries of nature and other factors that give rise to the variability of staple food production in different countries.<sup>18</sup> By the application of this simple methodology, the benefits of different schemes for increasing regional integration under preferential trading arrangements can be compared. The relative benefits of increasing the integration of Middle East food markets with those in Western Europe and the world at large through general (i.e., nondiscriminatory) trade liberalization can also be assessed using the same methodology.<sup>19</sup>

## INTEGRATION OF FOOD MARKETS: A QUANTITATIVE ANALYSIS

Table 14 presents the results of computations of the instability of food supplies under alternative assumptions about the geographic extent of integration of Middle East markets for staple food commodities. In addition to possibilities for greater regional integration under existing or new Middle East cooperation schemes, the implications of greater Middle East integration with the Western European countries and the world economy at large are considered, under the rubric of international integration.

### Regional Integration

The possibilities considered for greater regional integration include closer economic relations among (a) Israel, the Gaza Strip, and the West Bank (IGW); (b) current and prospective members of the Arab Common Market and Gulf Cooperation

---

<sup>18</sup> This methodology for assessing the implications of market integration follows closely the methodology applied previously by Koester (1986) and Badiane (1991). The two previous studies, however, placed different degrees of emphasis on the integration of regional versus international food markets, and they considered the instability of domestic food production rather than consumption, as the baseline for assessing the benefits of market integration.

<sup>19</sup> As discussed below in the text, this methodology does not take into account commodity stockholding behavior or the importance of protection in industrial and developing countries outside of the Middle East region.



Table 14 - Instability of staple food consumption in Middle East countries and market integration, 1970-90

	Cereals					Meats			Dairy	
	Wheat	Rice	Barley	Maize	Sorghum	Bovine	Sheep/Goat	Poultry	Milk	Eggs
	Index values									
<b>Consumption 1/</b>										
<b>Oil-Exporting Countries</b>	6.7	9.0	34.2	38.9	71.6	19.4	11.8	16.1	9.1	20.3
Algeria	2.8	19.6	18.8	42.4	59.0	15.0	15.3	4.2	5.9	17.3
Iran	5.0	4.6	6.8	21.6	153.5	12.2	10.0	12.0	6.9	21.4
Iraq	8.4	8.9	27.0	42.7	330.7	20.1	18.8	30.6	13.6	25.3
Kuwait	3.9	6.5	21.5	24.3	...	33.4	10.9	19.6	12.3	20.2
Libya	7.6	14.1	25.3	48.9	...	50.4	9.9	8.1	8.0	20.0
Oman	...	...	...	...	...	...	...	...	...	...
Saudi Arabia	19.8	30.7	60.2	57.0	30.4	37.8	12.9	12.5	16.3	17.1
United Arab Emirates	10.7	16.2	40.1	43.8	...	41.6	13.7	19.2	10.6	28.6
<b>Labour-Exporting Countries</b>	4.9	5.4	27.6	6.9	35.6	14.4	12.2	21.1	9.1	14.9
Egypt	3.9	2.6	9.1	4.2	6.9	13.9	13.7	20.5	5.9	12.3
Jordan	2.9	40.4	39.1	29.7	275.3	45.1	30.5	16.0	14.5	19.4
Lebanon	3.0	7.7	39.8	30.7	146.5	11.9	8.1	13.5	13.3	20.6
Yemen A.R.	14.2	16.8	31.6	44.9	12.0	13.0	2.7	33.5	12.2	17.3
Gaza Strip	...	...	...	...	...	...	...	...	...	...
West Bank	...	...	...	...	...	...	...	...	...	...
<b>Major Food-Producing Countries</b>	5.9	14.2	13.3	18.2	12.4	12.5	11.4	10.3	9.3	10.2
Afghanistan	7.2	9.2	7.6	8.5	...	3.5	13.7	6.0	16.5	2.8
Cyprus	...	...	...	...	...	...	...	...	...	...
Israel	10.1	9.8	23.4	35.4	15.5	15.7	13.4	6.6	4.1	5.9
Morocco	4.2	18.9	12.4	8.5	22.2	10.2	10.3	11.3	6.2	5.9
Sudan	13.3	25.9	69.6	15.6	8.0	18.9	13.6	4.6	13.6	16.5
Syria	7.1	3.9	35.7	28.9	70.5	20.5	11.8	33.6	10.1	25.3
Tunisia	1.9	47.3	16.9	33.9	166.3	12.7	14.1	13.2	7.3	9.9
Turkey	5.9	19.2	8.3	16.4	...	9.3	9.7	5.5	7.7	9.3
<b>Other Country Groups</b>										
Israel-Gaza-West Bank (IGW)	10.1	8.8	23.4	35.4	15.5	16.7	13.4	8.6	4.1	5.9
Arab Common Market (ACM)	6.3	6.4	29.6	11.7	39.2	16.7	12.6	24.8	8.2	18.7
ACM, including IGW	6.5	6.4	29.0	13.0	33.5	16.7	12.6	21.8	8.5	16.1
Gulf Cooperation Council (GCC)	19.1	25.8	59.8	55.3	30.4	36.6	13.1	13.2	15.3	19.2
GCC, including Egypt & IGW	6.9	7.5	55.6	8.7	11.7	16.5	13.3	14.2	8.7	13.7
ACM, GCC & IGW	7.7	9.1	45.5	15.3	33.3	18.3	12.7	18.8	9.8	16.9
<b>Middle East Countries</b>	6.0	8.6	23.9	18.1	21.2	15.2	11.7	15.3	9.1	15.4
<b>Market Integration 2/</b>										
<b>Regional Integration</b>										
Israel-Gaza-West Bank (IGW)	29.7	...	59.2	57.8	69.7	12.5 #	14.8	7.1 #	4.2	5.9
Arab Common Market (ACM)	18.7	9.9	39.8	7.1 #	12.5 ##	12.1 #	4.7 ##	16.9 #	1.8 ###	9.2 ##
ACM, including IGW	18.7	9.9	39.4	7.0 #	12.3 ##	11.8 #	4.2 ##	10.6 ##	1.5 ###	6.8 ##
Gulf Cooperation Council (GCC)	62.9	...	126.4	40.0 #	47.4	22.4 #	17.1	34.5	16.0	25.0
GCC, including Egypt & IGW	29.5	9.2	34.0 #	6.1 #	7.9 #	15.0 #	12.3 #	10.5 #	1.7 ###	10.7 #
ACM, GCC & IGW	20.9	9.9	39.2 #	7.0 ##	12.9 ##	11.5 #	5.5 ##	13.0 #	1.5 ###	6.1 ##
<b>Middle East Countries</b>	7.7	7.6 #	14.3 #	5.4 ##	25.7	3.9 ##	2.4 ###	6.2 ##	4.0 ##	4.6 ##
<b>International Integration 3/</b>										
Middle East-Western Europe	5.3 #	6.5 #	6.3 ##	8.1 ##	22.1	4.6 ##	1.7 ###	3.5 ###	3.2 ##	2.8 ###
Middle East-World	4.3 #	2.9 ##	6.6 ##	8.4 ##	9.1 ##	3.3 ###	4.0 ##	3.0 ###	0.8 ###	2.6 ###

Sources: Table 13 and computed values of Cuddy-Della Valle Index of Instability, using annual data and linear regression estimates of time trends. J.D.A. Cuddy and P.A. Della Valle, "Measuring the Instability of Time Series Data," *Oxford Bulletin of Economics and Statistics*, Vol. 40 (1978), pp. 79-85.

1/ Values for country groups are weighted averages using 1988-90 consumption levels as weights.

2/ Symbols denote reduced instability of consumption by 1-50 percent (#), 51-75 percent (##), and more than 75 percent (###).

3/ Reduced instability, denoted by symbols, is measured vis-a-vis the instability of consumption in Middle East countries as a group.

Council (including IGW and Egypt); and (c) all countries and territories in the greater Middle East region.

For most food commodities, regional integration among even the small IGW-group offers economic advantages in terms of reduced instability of staple food supplies compared to the instability of domestic production (i.e., autarky). It does not, however, offer clear advantages over the current circumstances of domestic consumption in all cases, depending upon the food commodity and extent of regional integration envisioned. In the case of the meat and dairy commodities, regional integration generally reduces the instability of commodity market supply, often by 50 percent or more. In the limiting case of complete integration of Middle East markets, for instance, supply instability is reduced in the markets for bovine and sheep/goat meats by 74 percent and 79 percent respectively, and in the markets for milk and eggs by 56 percent and 70 percent respectively. With regard to the markets for cereals, similar quantitative results are apparent for maize and sorghum, and to a somewhat lesser extent for barley and rice.<sup>20</sup> In the important case of wheat, however, the integration of Middle East markets tends to increase the instability of market supply, by 28 percent under complete regional integration and by similar or substantially greater margins under narrower regional integration.

With regard to the quantitative results under the two existing economic cooperation schemes in the Middle East, the computed instability of market supplies is generally lower for the Arab Common Market than for the Gulf Cooperation Council, presumably because the first scheme involves a higher proportion of more agrarian countries than the second scheme. Notably, the expansion of either scheme to include the IGW-bloc (and Egypt in the case of the Gulf Cooperation Council) finds greater gains in stability of market supplies for the GCC countries than the ACM countries, owing to the greater complementarity of resources achieved by integrating the commodity markets of the GCC countries with those of Egypt and the IGW-bloc countries which are better endowed with arable land and other agricultural resources (including water). Only for a few commodities (chiefly sorghum and milk) does the integration of commodity markets among the "core" Middle East countries (i.e., IGW, ACM, and GCC countries) result in lower instability values than the complete integration of markets in the greater Middle East region. Thus, wider integration of food markets in the Middle East is most often preferable to narrower regional integration.

Finally, it is important to note that not all individual Middle East countries would benefit from the greater regional integration of food markets. In particular, countries that currently enjoy relatively low levels of instability of market supplies, because of the underlying stability of their domestic production, extent of commercial imports, or availability of international food aid, would not benefit directly. In the case of wheat, for instance, relatively stable production conditions in Iran and other countries, extensive imports on a commercial basis by countries such as Kuwait, and the receipt of large shipments of bilateral and multilateral food aid by among other

---

<sup>20</sup> In the case of rice, regional integration is beneficial only if the integration is inclusive of all markets in the greater Middle East region. Similarly in the case of barley, regional integration is beneficial if the integration is inclusive of all, or nearly all, Middle East markets.

countries, Egypt, Morocco, and Tunisia, might importantly limit regional interest in joining cooperation pacts to strengthen food security.

## International Integration

In Table 14, the most significant margins for improving food security in the Middle East lie principally in pursuing greater integration of food markets in the Middle East with similar markets in Western Europe and other regions of the world. To realize the lower levels of supply instability under international market integration the liberalization of Middle East barriers to expanded trade in food commodities must be pursued in concert with similar reforms to agricultural trade policies in partner industrial and developing countries in other regions, for instance, under the terms of the final agreement of the recently concluded Uruguay Round or special bilateral trading arrangements. The quantitative results make clear, however, that greater integration of Middle East markets with markets outside of the region offers the Middle East countries the most dependable option for improving the stability of their food supplies and, by implication, their food security.

The integration of food production in the Middle East and the world at large results in the most substantial benefits, according to the quantitative results. The instability of wheat production, for example, falls to an index value of 4.3, from 6.0 under present consumption and 7.7 under complete regional integration. In the case of milk, the instability of production falls to just 0.8, from 9.1 under present consumption and 4.0 under complete regional integration. In comparison, the potential benefits of greater integration with the Western European countries tend to be somewhat lower, but still appreciably greater than found for the integration of all food markets in the greater Middle East region. For barley, maize, and sheep/goat meat, the benefits of Middle East-Western Europe integration are superior to those for either regional or Middle East-world integration.

Finally, the one case in which the quantitative results indicate that international integration would be inferior to regional integration is maize. Whereas complete regional integration results in an instability level of 5.4, international integration results in somewhat higher values, 8.1 under Middle East-Western Europe integration and 8.4 under Middle East-world integration. These results provide evidence that regional integration can be superior to international integration, and, indeed, they offer encouragement that more extensive analysis of food commodities produced and consumed in the Middle East might lead to the identification of additional food commodities for which food security might be improved as a consequence of greater regional cooperation. Ultimately, however, such outcomes should be weighed not only in the terms considered here (i.e., reduced instability of food supplies), but also in broader terms involving the identification and measurement of gains in economic welfare to Middle East producers and consumers from liberalizing trade over a wide range of primary commodities and manufactures, on either a preferential (i.e., regional) basis or a nondiscriminatory (i.e., international) basis.<sup>21</sup>

---

<sup>21</sup> Assessment of the relative gains in economic welfare from trade liberalization to promoted greater regional versus international integration requires a more sophisticated analytical framework than

## 4. CONCLUSION

---

With the recent initiation of a process for forging peace in the Middle East, the countries in the region face an historic opportunity for pursuing economic as well as political change, namely, to liberalize their economies to take full advantage of the anticipated regional "peace dividend." In this connection, the possible advantages of pursuing closer economic relations among Middle East countries have come to the fore in policy discussions. The present paper has sought to contribute to these discussions through consideration of the contribution that greater integration of the Middle East economies with one another, but also the world economy, might make to increasing food security in the region.

While the Middle East countries may be grouped according to whether they are oil-exporting, labor-exporting, or major food-producing countries, they are predominantly middle-income developing countries whose economies are highly sheltered from import competition. Particularly the extensive use of highly distortionary nontariff barriers denies consumers and internationally-competitive producers in the Middle East the opportunity to benefit from expanded trade relations with countries that lie within and outside of the region.

On the supply side, economic incentives for greater efficiency and productivity in the food and agriculture sectors are adversely affected by import-substitution policies favoring industrialization and, more generally, diversification away from more traditional activities. On the demand as well as supply side, protection against agricultural trade limits the integration of markets for food and agricultural commodities, regionally and internationally.

In applying a simple analytical framework for assessing the benefits of increasing the integration of food markets among countries, this paper has sought to illuminate the potential of more open trading regimes in the Middle East countries for reducing the instability of market supplies for several major cereal, meat, and dairy commodities and, thereby, for improving food security in the region. In the analysis, the trade liberalization corresponds to greater integration of Middle East markets for staple food commodities, under existing and new schemes for economic cooperation in the region and, alternatively, under more general policies to increase the integration of Middle East food markets with markets in Western Europe and the world at large. The benefits of trade liberalization themselves are measured in terms of the reduced instability of food supplies under the different policy regimes, vis-a-vis the present levels of instability in Middle East markets for staple food commodities.

The liberalization of intra-regional trade in food among a wider group of Middle East countries than included in the membership of either the Arab Common Market

---

employed in the present study of Middle East trade in staple food commodities and food security, in particular, one taking into greater account the underlying comparative advantage of the Middle East countries in agriculture but also other primary and industrial sectors. For recent applications of, for example, multi-sector models to gauging the implications of regional trading arrangements for agriculture, but also industrial and other sectors, see Burfisher, Robinson, and Thierfelder (1992) and DeRosa (1993).

or Gulf Cooperation Council, namely, to include Israel, Gaza Strip, and West Bank but also important "peripheral" countries in the greater Middle East region such as the North African countries, Iran, and Turkey, is beneficial in most instances. Among the most important findings of the analysis, however, is that under a number of regional cooperation scenarios the integration of Middle East markets for major cereals, including especially wheat and barley, does not result in substantial gains in food security, owing to the present extent of regional and international grain imports by the Middle East countries on a commercial basis, and additional food imports by Egypt and several countries under international aid programs.

The largest margins for improving food security in the Middle East through trade liberalization and integration of markets are found to lie mainly in increasing the integration of Middle East commodity markets with those in Western Europe and the world at large. In other words, the analysis points to the superiority of international over regional integration, and hence to the dominance of nondiscriminatory over preferential trade liberalization, for reducing the instability of food supplies in Middle East markets.

The importance of these findings for policy deliberations regarding economic policy reforms and possible initiatives for fostering greater regional integration in the Middle East in a new era of peace in the Middle East must be tempered by some caveats, including recognition of the still limited (albeit important) sample of staple food commodities examined and the importance of the liberalization of agricultural trade policies in Western Europe and other world regions, as well as the Middle East. Also, the importance of the present findings must be tempered by recognition of the partial equilibrium nature of the analysis. In this last regard, the economic gains from intra-regional versus more general liberalization of trade relations in the Middle East should be judged in a wider context than the instability of food market supplies. Specifically, with particular reference to the underlying comparative advantages (and disadvantages) of the Middle East countries in producing a wide array of primary and industrial commodities and goods, they should be judged on the basis of more formal measures of the economywide and sectoral gains from trade to producers and consumers in the Middle East, inclusive of the concerns of policymakers for food security in the region.

## APPENDIX: SUPPLEMENTARY DATA

Table 15--Import restrictions in Middle East countries by primary and manufacturing categories, 1987<sup>1/</sup>

	Tariffs, Para-Tariffs		Non-Tariff Barriers (NTBs) <sup>2/</sup>				
	Mean Tariff	Total Charges <sup>3/</sup>	All NTBs <sup>4/</sup>	Quantitative Restrictions			Other <sup>5/</sup>
				Lic.	Quota	Prohib.	
	----- In Percent -----						
<b>ALGERIA</b>	21.7	26.1	67.8	6.1	0.0	2.7	FX, ST
<b>Primary Products</b>	17.1	19.2	79.3	3.6	0.0	6.8	ST
Foods	27.9	31.1	86.3	6.0	0.0	12.4	ST
Agr. raw mats.	11.0	12.2	78.6	0.1	0.0	1.8	ST
Crude ferts.	8.3	9.3	65.7	0.0	0.0	4.5	ST
Min. fuels	1.5	2.5	61.1	2.8	0.0	0.1	ST
Nonferrous metals	3.5	4.6	79.2	5.7	0.0	0.0	ST
<b>Manufactures</b>	23.4	28.8	63.6	7.2	0.0	1.0	FX, ST
Chemicals	11.0	12.3	50.7	15.8	0.0	0.0	FX, ST
Iron & steel	4.0	5.0	88.7	0.0	0.0	0.0	FX, ST
Machinery & equip.	9.6	19.1	58.8	8.7	0.0	0.3	FX, ST
Other manufs.	38.2	43.8	68.8	3.5	0.0	2.0	FX, ST
<b>CYPRUS</b>	17.5	23.5	32.2	32.2	0.0	0.0	-
<b>Primary Products</b>	10.3	16.3	40.8	40.3	0.0	2.1	-
Foods	16.5	22.5	68.4	68.4	0.0	3.4	-
Agr. raw mats.	7.9	13.9	15.8	14.9	0.0	0.9	-
Crude ferts.	1.9	7.9	9.0	6.7	0.0	2.2	-
Min. fuels	1.0	7.0	48.1	48.1	0.0	0.0	-
Nonferrous metals	6.1	12.1	5.7	5.7	0.0	0.0	-
<b>Manufactures</b>	20.3	26.3	28.6	28.6	0.0	0.0	-
Chemicals	8.6	14.6	30.3	30.3	0.0	0.0	-
Iron & steel	3.1	9.1	23.3	23.3	0.0	0.0	-
Machinery & equip.	11.7	17.7	47.0	47.0	0.0	0.0	-
Other manufs.	30.9	36.9	19.3	19.3	0.0	0.0	-

Table 15 (Cont.)--Import restrictions in Middle East countries by primary and manufacturing categories, 1987<sup>1/</sup>

	Tariffs, Para-Tariffs		Non-Tariff Barriers (NTBs) <sup>2/</sup>				
	Mean Tariff	Total Charges <sup>3/</sup>	All NTBs <sup>4/</sup>	Quantitative Restrictions			Other <sup>5/</sup>
				Lic.	Quota	Prohib.	
----- In Percent -----							
<b>EGYPT</b>	42.8	54.5	100.0	7.4	0.0	22.9	FX <sup>6/</sup> , ST
<b>Primary Products</b>	57.2	67.8	100.0	5.7	0.0	18.4	FX <sup>6/</sup> , ST
Foods	108.4	118.7	100.0	7.9	0.0	35.8	FX <sup>6/</sup> , ST
Agr. raw mats.	14.1	24.8	100.0	0.9	0.0	2.6	FX <sup>6/</sup> , ST
Crude ferts.	11.4	21.5	100.0	3.0	0.0	3.0	FX <sup>6/</sup> , ST
Min. fuels	10.6	22.2	100.0	6.9	0.0	0.0	FX <sup>6/</sup> , ST
Nonferrous metals	16.4	27.9	100.0	8.8	0.0	6.6	FX <sup>6/</sup> , ST
<b>Manufactures</b>	37.5	49.6	100.0	7.8	0.0	24.7	FX <sup>6/</sup> , ST
Chemicals	14.5	26.3	100.0	16.4	0.0	6.4	FX <sup>6/</sup> , ST
Iron & steel	13.8	26.3	100.0	13.3	0.0	2.3	FX <sup>6/</sup> , ST
Machinery & equip.	25.2	36.5	100.0	2.9	0.0	15.0	FX <sup>6/</sup> , ST
Other manufs.	55.3	68.0	100.0	5.9	0.0	40.0	FX <sup>6/</sup> , ST
<b>IRAN</b>	20.7	100.9	100.0	61.6	0.0	33.8	FX <sup>6/</sup> , ST
<b>Primary Products</b>	16.8	81.5	100.0	55.5	0.0	43.3	FX <sup>6/</sup> , ST
Foods	21.4	119.3	100.0	36.3	0.0	61.6	FX <sup>6/</sup> , ST
Agr. raw mats.	16.7	57.2	100.0	69.0	0.0	30.9	FX <sup>6/</sup>
Crude ferts.	10.0	41.5	100.0	75.8	0.0	24.2	FX <sup>6/</sup>
Min. fuels	7.9	27.5	100.0	48.6	0.0	48.6	FX <sup>6/</sup>
Nonferrous metals	10.2	51.8	100.0	91.8	0.0	8.2	FX <sup>6/</sup> , ST
<b>Manufactures</b>	22.2	108.2	100.0	64.4	0.0	30.2	FX <sup>6/</sup> , ST
Chemicals	15.4	44.4	100.0	65.1	0.0	10.5	FX <sup>6/</sup> , ST
Iron & steel	11.9	37.8	100.0	94.2	0.0	5.8	FX <sup>6/</sup> , ST
Machinery & equip.	12.3	54.7	100.0	90.3	0.0	9.7	FX <sup>6/</sup> , ST
Other manufs.	31.3	171.2	100.0	47.4	0.0	52.1	FX <sup>6/</sup> , ST

Table 15 (Cont.)--Import restrictions in Middle East countries by primary and manufacturing categories, 1987<sup>1/</sup>

	Tariffs, Para-Tariffs		Non-Tariff Barriers (NTBs) <sup>2/</sup>				
	Mean Tariff	Total Charges <sup>3/</sup>	All NTBs <sup>4/</sup>	Quantitative Restrictions			Other <sup>5/</sup>
				Lic.	Quota	Prohib.	
	----- In Percent -----						
<b>IRAQ</b>	16.8	19.4	100.0	13.1	13.1	4.8	ST <sup>6/</sup>
<b>Primary Products</b>	12.8	14.7	100.0	1.3	1.3	3.1	ST <sup>6/</sup>
Foods	31.1	35.8	100.0	0.1	0.1	3.1	ST <sup>6/</sup>
Agr. raw mats.	4.2	4.8	100.0	1.8	1.8	7.0	ST <sup>6/</sup>
Crude ferts.	1.6	1.9	100.0	0.0	0.0	0.0	ST <sup>6/</sup>
Min. fuels	10.9	12.6	100.0	0.0	0.0	1.4	ST <sup>6/</sup>
Nonferrous metals	6.1	7.1	100.0	8.6	8.6	0.0	ST <sup>6/</sup>
<b>Manufactures</b>	18.0	20.7	100.0	17.7	17.7	5.5	ST <sup>6/</sup>
Chemicals	5.5	6.3	100.0	3.2	3.2	9.2	ST <sup>6/</sup>
Iron & steel	5.3	6.1	100.0	5.3	5.3	0.0	ST <sup>6/</sup>
Machinery & equip.	14.2	16.3	100.0	27.2	27.2	1.4	ST <sup>6/</sup>
Other manufs.	27.8	32.0	100.0	20.9	20.9	6.5	ST <sup>6/</sup>
<b>JORDAN</b>	13.8	28.4	100.0	11.5	0.0	2.0	FX <sup>7/</sup>
<b>Primary Products</b>	7.2	19.6	100.0	36.3	0.0	2.9	FX <sup>7/</sup>
Foods	11.2	25.2	100.0	76.3	0.0	5.7	FX <sup>7/</sup>
Agr. raw mats.	2.9	13.2	100.0	0.0	0.0	0.0	FX <sup>7/</sup>
Crude ferts.	3.8	14.1	100.0	4.5	0.0	0.0	FX <sup>7/</sup>
Min. fuels	4.8	16.1	100.0	0.0	0.0	0.0	FX <sup>7/</sup>
Nonferrous metals	5.9	19.9	100.0	0.0	0.0	0.0	FX <sup>7/</sup>
<b>Manufactures</b>	16.2	31.1	100.0	1.9	0.0	1.7	FX <sup>7/</sup>
Chemicals	8.0	21.5	100.0	8.3	0.0	1.5	FX <sup>7/</sup>
Iron & steel	6.4	21.7	100.0	0.0	0.0	0.0	FX <sup>7/</sup>
Machinery & equip.	13.6	26.4	100.0	0.6	0.0	1.7	FX <sup>7/</sup>
Other manufs.	22.3	38.8	100.0	0.0	0.0	2.1	FX <sup>7/</sup>



Table 15 (Cont.)--Import restrictions in Middle East countries by primary and manufacturing categories, 1987<sup>1/</sup>

	Tariffs, Para-Tariffs		Non-Tariff Barriers (NTBs) <sup>2/</sup>				Other <sup>3/</sup>
	Mean Tariff	Total Charges <sup>2/</sup>	All NTBs <sup>1/</sup>	Quantitative Restrictions			
				Lic.	Quota	Prohib.	
	----- In Percent -----						
<b>KUWAIT</b>	<b>3.9</b>	<b>3.9</b>	<b>3.8</b>	<b>1.9</b>	<b>0.0</b>	<b>1.8</b>	-
<b>Primary Products</b>	<b>3.5</b>	<b>3.5</b>	<b>4.5</b>	<b>2.0</b>	<b>0.0</b>	<b>2.6</b>	-
Foods	1.2	1.2	5.3	0.0	0.0	5.3	-
Agr. raw mats.	4.0	4.0	0.4	0.0	0.0	0.4	-
Crude ferts.	3.9	3.9	4.5	4.5	0.0	0.0	-
Min. fuels	14.1	14.1	0.0	0.0	0.0	0.0	-
Nonferrous metals	4.0	4.0	13.2	13.2	0.0	0.0	-
<b>Manufactures</b>	<b>4.1</b>	<b>4.1</b>	<b>3.0</b>	<b>1.7</b>	<b>0.0</b>	<b>1.3</b>	-
Chemicals	4.1	4.1	5.5	3.2	0.0	2.0	-
Iron & steel	4.0	4.0	2.0	0.0	0.0	2.0	-
Machinery & equip.	4.0	4.0	1.3	0.3	0.0	0.9	-
Other manufs.	4.1	4.1	2.9	1.9	0.0	1.0	-
<b>LIBYA</b>	<b>18.3</b>	<b>34.7</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>	<b>10.3</b>	<b>FX<sup>4/</sup>, ST<sup>5/</sup></b>
<b>Primary Products</b>	<b>14.2</b>	<b>29.5</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>	<b>15.0</b>	<b>FX<sup>4/</sup>, ST<sup>5/</sup></b>
Foods	17.2	31.5	100.0	100.0	0.0	29.2	FX <sup>4/</sup> , ST <sup>5/</sup>
Agr. raw mats.	15.4	31.9	100.0	100.0	0.0	4.8	FX <sup>4/</sup> , ST <sup>5/</sup>
Crude ferts.	9.3	25.2	100.0	100.0	0.0	2.2	FX <sup>4/</sup> , ST <sup>5/</sup>
Min. fuels	9.1	25.0	100.0	100.0	0.0	0.0	FX <sup>4/</sup> , ST <sup>5/</sup>
Nonferrous metals	8.2	24.0	100.0	100.0	0.0	0.0	FX <sup>4/</sup> , ST <sup>5/</sup>
<b>Manufactures</b>	<b>19.7</b>	<b>36.5</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>	<b>8.4</b>	<b>FX<sup>4/</sup>, ST<sup>5/</sup></b>
Chemicals	6.8	22.3	100.0	100.0	0.0	1.6	FX <sup>4/</sup> , ST <sup>5/</sup>
Iron & steel	1.7	16.8	100.0	100.0	0.0	1.3	FX <sup>4/</sup> , ST <sup>5/</sup>
Machinery & equip.	19.4	36.1	100.0	100.0	0.0	6.7	FX <sup>4/</sup> , ST <sup>5/</sup>
Other manufs.	27.7	45.4	100.0	100.0	0.0	13.2	FX <sup>4/</sup> , ST <sup>5/</sup>

Table 15 (Cont.)--Import restrictions in Middle East countries by primary and manufacturing categories, 1987<sup>1/</sup>

	Tariffs, Para-Tariffs		Non-Tariff Barriers (NTBs) <sup>2/</sup>				
	Mean Tariff	Total Charges <sup>3/</sup>	All NTBs <sup>4/</sup>	Quantitative Restrictions			Other <sup>5/</sup>
				Lic.	Quota	Prohib.	
----- In Percent -----							
<b>MOROCCO</b>	23.5	36.1	100.0	27.6	0.0	0.0	FX <sup>6/</sup> , ST
<b>Primary Products</b>	18.2	30.9	100.0	43.0	0.0	0.0	FX <sup>6/</sup> , ST
Foods	27.7	40.2	100.0	73.9	0.0	0.0	FX <sup>6/</sup> , ST
Agr. raw mats.	9.5	22.8	100.0	13.6	0.0	0.0	FX <sup>6/</sup>
Crude ferts.	8.4	20.9	100.0	4.5	0.0	0.0	FX <sup>6/</sup> , ST
Min. fuels	10.3	22.8	100.0	65.0	0.0	0.0	FX <sup>6/</sup> , ST
Nonferrous metals	11.9	24.4	100.0	0.9	0.0	0.0	FX <sup>6/</sup>
<b>Manufactures</b>	25.6	38.2	100.0	21.8	0.0	0.0	FX <sup>6/</sup> , ST
Chemicals	18.7	31.2	100.0	13.0	0.0	0.0	FX <sup>6/</sup> , ST
Iron & steel	8.3	20.8	100.0	3.1	0.0	0.0	FX <sup>6/</sup>
Machinery & equip.	20.8	33.3	100.0	11.8	0.0	0.0	FX <sup>6/</sup>
Other manufs.	33.2	45.9	100.0	33.0	0.0	0.0	FX <sup>6/</sup>
<b>OMAN</b>	2.9	2.9	3.6	2.9	0.0	0.7	-
<b>Primary Products</b>	2.0	2.0	2.2	1.8	0.0	0.4	-
Foods	2.2	2.2	2.9	0.0	0.0	0.0	-
Agr. raw mats.	1.9	1.9	0.9	0.9	0.0	0.0	-
Crude ferts.	1.9	1.9	4.5	1.5	0.0	3.0	-
Min. fuels	1.4	1.4	0.0	0.0	0.0	0.0	-
Nonferrous metals	2.0	2.0	0.0	0.0	0.0	0.0	-
<b>Manufactures</b>	3.3	3.3	3.8	3.0	0.0	0.8	-
Chemicals	7.8	7.8	7.8	4.8	0.0	3.0	-
Iron & steel	2.0	2.0	0.0	0.0	0.0	0.0	-
Machinery & equip.	2.0	2.0	3.3	3.3	0.0	0.0	-
Other manufs.	2.1	2.1	2.8	2.4	0.0	0.3	-

Table 15 (Cont.)--Import restrictions in Middle East countries by primary and manufacturing categories, 1987<sup>1/</sup>

	Tariffs, Para-Tariffs		Non-Tariff Barriers (NTBs) <sup>2/</sup>				
	Mean Tariff	Total Charges <sup>3/</sup>	All NTBs <sup>4/</sup>	Quantitative Restrictions			Other <sup>5/</sup>
				Lic.	Quota	Prohib.	
	----- In Percent -----						
<b>SAUDI ARABIA</b>	3.7	4.0	5.4	4.1	0.0	1.1	-
<b>Primary Products</b>	2.0	2.3	10.0	6.5	0.0	3.7	-
Foods	2.8	3.1	20.0	13.1	0.0	7.4	-
Agr. raw mats.	1.0	1.3	2.1	1.1	0.0	1.0	-
Crude ferts.	0.9	1.2	0.0	0.0	0.0	0.0	-
Min. fuels	2.7	3.0	1.4	1.4	0.0	0.0	-
Nonferrous metals	1.9	2.2	0.0	0.0	0.0	0.0	-
<b>Manufactures</b>	4.3	4.6	3.3	3.1	0.0	0.1	-
Chemicals	2.1	2.4	5.3	5.2	0.0	0.1	-
Iron & steel	0.7	1.0	0.0	0.0	0.0	0.0	-
Machinery & equip.	2.7	3.0	5.8	5.5	0.0	0.3	-
Other manufs.	6.5	6.8	1.5	1.3	0.0	0.1	-
<b>SUDAN</b>	56.6	56.6	100.0	9.4	0.2	0.5	FX <sup>6/</sup>
<b>Primary Products</b>	56.6	56.6	100.0	10.3	0.1	1.6	FX <sup>6/</sup>
Foods	70.9	70.9	100.0	21.5	0.2	3.4	FX <sup>6/</sup>
Agr. raw mats.	50.3	50.3	100.0	-	-	-	FX <sup>6/</sup>
Crude ferts.	38.3	38.3	100.0	0.7	-	-	FX <sup>6/</sup>
Min. fuels	25.4	25.4	100.0	-	-	-	FX <sup>6/</sup>
Nonferrous metals	54.2	54.2	100.0	0.9	-	-	FX <sup>6/</sup>
<b>Manufactures</b>	56.4	56.4	100.0	9.1	0.2	0.0	FX <sup>6/</sup>
Chemicals	31.4	31.4	100.0	3.1	-	0.2	FX <sup>6/</sup>
Iron & steel	53.5	53.5	100.0	-	-	-	FX <sup>6/</sup>
Machinery & equip.	42.1	42.1	100.0	3.8	-	-	FX <sup>6/</sup>
Other manufs.	75.1	75.1	100.0	15.6	0.4	-	FX <sup>6/</sup>

Table 15 (Cont.)--Import restrictions in Middle East countries by primary and manufacturing categories, 1987<sup>1/</sup>

	Tariffs, Para-Tariffs		Non-Tariff Barriers (NTBs) <sup>2/</sup>				
	Mean Tariff	Total Charges <sup>3/</sup>	All NTBs <sup>4/</sup>	Quantitative Restrictions			Other <sup>5/</sup>
				Lic.	Quota	Prohib.	
	----- In Percent -----						
<b>SYRIA</b>	<b>14.8</b>	<b>27.5</b>	<b>100.0</b>	<b>11.8</b>	<b>0.0</b>	<b>18.5</b>	<b>FX<sup>6/</sup></b>
<b>Primary Products</b>	<b>13.1</b>	<b>25.1</b>	<b>100.0</b>	<b>4.3</b>	<b>0.0</b>	<b>21.2</b>	<b>FX<sup>6/</sup>, ST</b>
Foods	20.4	34.8	100.0	5.9	0.0	35.4	FX <sup>6/</sup> , ST
Agr. raw mats.	7.7	17.7	100.0	1.4	0.0	14.7	FX <sup>6/</sup> , ST
Crude ferts.	5.9	15.5	100.0	3.0	0.0	9.0	FX <sup>6/</sup> , ST
Min. fuels	8.8	19.7	100.0	11.1	0.0	0.7	FX <sup>6/</sup> , ST
Nonferrous metals	6.2	16.2	100.0	0.0	0.0	0.5	FX <sup>6/</sup> , ST
<b>Manufactures</b>	<b>15.5</b>	<b>28.5</b>	<b>100.0</b>	<b>14.4</b>	<b>0.0</b>	<b>17.7</b>	<b>FX<sup>6/</sup>, ST</b>
Chemicals	7.3	17.6	100.0	19.8	0.0	1.4	FX <sup>6/</sup> , ST
Iron & steel	3.8	12.6	100.0	0.0	0.0	0.0	FX <sup>6/</sup> , ST
Machinery & equip.	11.5	23.1	100.0	22.3	0.0	7.3	FX <sup>6/</sup> , ST
Other manufs.	22.7	38.1	100.0	9.8	0.0	32.2	FX <sup>6/</sup> , ST
<b>TUNISIA</b>	<b>24.0</b>	<b>27.4</b>	<b>76.2</b>	<b>60.7</b>	<b>0.7</b>	<b>12.4</b>	<b>ST</b>
<b>Primary Products</b>	<b>22.3</b>	<b>26.6</b>	<b>77.4</b>	<b>51.3</b>	<b>-</b>	<b>24.4</b>	<b>ST</b>
Foods	31.8	37.9	95.4	69.0	-	22.9	ST
Agr. raw mats.	14.5	16.8	47.1	22.4	-	24.6	
Crude ferts.	13.4	15.6	74.6	63.8	-	10.8	
Min. fuels	8.5	9.5	91.7	34.7	-	56.0	
Nonferrous metals	17.6	19.6	55.7	29.2	-	26.4	
<b>Manufactures</b>	<b>24.7</b>	<b>27.6</b>	<b>75.5</b>	<b>64.4</b>	<b>1.0</b>	<b>75.7</b>	<b>ST</b>
Chemicals	17.2	18.8	48.3	34.0	-	4.3	ST
Iron & steel	11.0	12.5	93.8	15.8	-	78.0	
Machinery & equip.	20.1	22.7	70.9	70.9	-	-	
Other manufs.	32.0	35.8	87.8	80.3	2.0	4.3	

Table 15 (Cont.)--Import restrictions in Middle East countries by primary and manufacturing categories, 1987<sup>1/</sup>

	Tariffs, Para-Tariffs		Non-Tariff Barriers (NTBs) <sup>2/</sup>				
	Mean Tariff	Total Charges <sup>3/</sup>	All NTBs <sup>4/</sup>	Quantitative Restrictions			Other <sup>5/</sup>
				Lic.	Quota	Prohib.	
	----- In Percent -----						
<b>TURKEY</b>	<b>26.6</b>	<b>42.6</b>	<b>100.0</b>	<b>9.6</b>	<b>0.0</b>	<b>0.0</b>	<b>FX<sup>6/</sup>, ST</b>
<b>Primary Products</b>	<b>21.3</b>	<b>36.0</b>	<b>100.0</b>	<b>8.5</b>	<b>0.0</b>	<b>0.0</b>	<b>FX<sup>6/</sup>, ST</b>
Foods	28.9	48.0	100.0	9.0	0.0	0.0	FX <sup>6/</sup> , ST
Agr. raw mats.	14.5	30.0	100.0	4.4	0.0	0.0	FX <sup>6/</sup>
Crude ferts.	11.9	23.4	100.0	11.6	0.0	0.0	FX <sup>6/</sup>
Min. fuels	14.8	31.3	100.0	-	0.0	0.0	FX <sup>6/</sup> , ST
Nonferrous metals	17.1	30.5	100.0	17.5	0.0	0.0	FX <sup>6/</sup> , ST
<b>Manufactures</b>	<b>28.5</b>	<b>44.9</b>	<b>100.0</b>	<b>9.9</b>	<b>0.0</b>	<b>0.0</b>	<b>FX<sup>6/</sup>, ST</b>
Chemicals	16.8	30.4	100.0	3.6	0.0	0.0	FX <sup>6/</sup> , ST
Iron & steel	11.8	24.4	100.0	32.0	0.0	0.0	
Machinery & equip.	23.0	40.3	100.0	14.7	0.0	0.0	FX <sup>6/</sup> , ST
Other manufs.	38.6	58.0	100.0	7.6	0.0	0.0	
<b>UNITED ARAB EMIRATES</b>	<b>4.5</b>	<b>4.5</b>	<b>1.0</b>	<b>1.0</b>	<b>0.0</b>	<b>0.0</b>	<b>-</b>
<b>Primary Products</b>	<b>3.2</b>	<b>3.2</b>	<b>2.9</b>	<b>2.9</b>	<b>0.0</b>	<b>0.0</b>	<b>-</b>
Foods	0.8	0.8	5.3	5.3	0.0	0.0	-
Agr. raw mats.	5.6	5.6	0.0	0.0	0.0	0.0	-
Crude ferts.	4.9	4.9	3.0	3.0	0.0	0.0	-
Min. fuels	5.8	5.8	0.0	0.0	0.0	0.0	-
Nonferrous metals	5.2	5.2	0.0	0.0	0.0	0.0	-
<b>Manufactures</b>	<b>4.9</b>	<b>4.9</b>	<b>0.3</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>-</b>
Chemicals	4.4	4.4	1.4	1.4	0.0	0.0	-
Iron & steel	1.6	1.6	0.0	0.0	0.0	0.0	-
Machinery & equip.	5.0	5.0	0.0	0.0	0.0	0.0	-
Other manufs.	5.5	5.5	0.0	0.0	0.0	0.0	-

Table 15 (Concl.)--Import restrictions in Middle East countries by primary and manufacturing categories, 1987<sup>1/</sup>

	Tariffs, Para-Tariffs		Non-Tariff Barriers (NTBs) <sup>2/</sup>				
	Mean Tariff	Total Charges <sup>3/</sup>	All NTBs <sup>4/</sup>	Quantitative Restrictions			Other <sup>5/</sup>
				Lic.	Quota	Prohib.	
	----- In Percent -----						
<b>YEMEN ARAB REPUBLIC</b>	16.2	22.0	28.7	22.9	0.0	3.9	ST
<b>Primary Products</b>	17.9	25.0	25.2	7.7	0.0	10.5	ST
Foods	26.4	34.5	19.8	0.0	0.0	19.8	-
Agr. raw mats.	10.2	16.9	38.9	34.2	0.0	4.7	-
Crude ferts.	9.5	16.7	2.6	0.0	0.0	1.1	-
Min. fuels	14.0	22.3	97.2	0.0	0.0	0.0	ST
Nonferrous metals	9.4	12.8	0.0	0.0	0.0	0.0	-
<b>Manufactures</b>	15.6	20.9	30.2	29.0	0.0	1.3	-
Chemicals	10.0	18.2	0.9	0.0	0.0	0.9	-
Iron & steel	12.1	15.3	0.0	0.0	0.0	0.0	-
Machinery & equip.	12.0	15.4	45.2	44.8	0.0	0.6	-
Other manufs.	20.4	25.5	39.4	37.3	0.0	2.1	-

Sources: UNCTAD, Handbook of Trade Control Measures of Developing Countries 1987 (New York: United Nations, 1987) and UNCTAD, Handbook of Trade Control Measures of Developing Countries 1987: Supplement (Geneva: UNCTAD, 1989).

Notes: Primary and manufacturing categories are defined according to the Standard International Trade Classification system as follows: foods (SITC 0+1+22+4), agricultural raw materials (SITC 2 less 22+27+28), mineral fuels (SITC 3), mineral and nonferrous metal ores (SITC 27+28+68), chemicals (SITC 5), iron and steel (SITC 67), machinery and equipment (SITC 7), and other manufactures (SITC 6+8 less 67+68).

- <sup>1/</sup> Simple averages of rates of protection across trade goods categories in 17 Middle East countries. Averages for country groups are computed using national population levels as weights.
- <sup>2/</sup> Statistics are frequency ratios of the incidence of NTBs computed using information by national tariff line.
- <sup>3/</sup> Customs duties plus customs surcharges and surtaxes, stamp taxes, certain other fiscal charges on imports, and taxes on foreign exchange transactions.
- <sup>4/</sup> Possible health and sanitary regulations applicable to food and other imports are not included.
- <sup>5/</sup> Foreign exchange restrictions (FX); state trading monopolies (ST).
- <sup>6/</sup> The nontariff barrier applies to all imports.

## REFERENCES

- Badiane, Ousmane. 1991. Regional agricultural markets and development strategies in West Africa. *Quarterly Journal of International Agriculture* 30(1): 37-50.
- Balassa, Bela. 1961. *The theory of economic integration*. London: George Allen and Unwin.
- \_\_\_\_\_. 1979. Intra-industry trade and the integration of developing countries in the world economy. In *On the economics of intra-industry trade*, ed., Herbert Giersch. Tübingen: J.C.B. Mohr.
- Bautista, Romeo M., and Alberto Valdés. 1993. *The bias against agriculture: trade and macroeconomic policies in developing countries*. San Francisco: ICS Press.
- Bhagwati, Jagdish. 1982. Directly unproductive profit-seeking (DUP) activities. *Journal of Political Economy* 90: 988-1002.
- Burfisher, M., and S. Robinson and K. Thierfelder. 1992. Agricultural and food policies in a United States-Mexico free trade area. *North American Journal of Economics and Finance* 3(2): 117-139.
- Cavallo, D., and Yair Mundlak. 1982. *Agriculture and economic growth in an open economy: the case of Argentina*. Research Report 36. Washington, D.C.: International Food Policy Research Institute.
- Collier, Paul. 1979. The welfare effects of customs unions: an anatomy. *Economic Journal* 89: 84-95.
- Cooper, C.A., and B.F. Massell. 1965. Toward a general theory of customs unions for developing countries. *Journal of Political Economy* 73: 461-476.
- Corden, M.W. 1972. Economies of scale and customs union theory. *Journal of Political Economy* 80(3): 465-475.
- \_\_\_\_\_. 1984. Normative theory of international trade. In *Handbook of international economics*, eds., Ronald W. Jones and Peter B. Kenen. Amsterdam: North-Holland.
- Cuddy, J.D.A., and P.A. Della Valle. 1978. Measuring the instability of time series data. *Oxford Bulletin of Economics and Statistics* 40: 79-85.
- de la Torre, Augusto, and Margaret R. Kelly. 1992. *Regional trade arrangements*. Occasional Paper 93. International Monetary Fund. Washington, D.C.

- de Melo, Jaime, and Arvind Panagariya. 1992. *The new regionalism in trade policy: an interpretive summary of a conference*. Washington, D.C.: The World Bank.
- de Melo, Jaime, and Arvind Panagariya, eds. 1993. *New dimensions in regional integration*. Cambridge: Cambridge University Press for the Center for Economic Policy Research.
- DeRosa, Dean A. 1986. Trade and protection in the Asian developing region. *Asian Development Review* 4: 27-62.
- \_\_\_\_\_. 1992. Protection and export performance in Sub-Saharan Africa. *Weltwirtschaftliches Archiv* 128 (1): 88-124.
- \_\_\_\_\_. 1993. *Regional trading arrangements among developing countries: the ASEAN example*. International Food Policy Research Institute. Washington, D.C. Mimeo.
- \_\_\_\_\_. 1994. Regional integration and the bias against agriculture. IFPRI Working Paper. International Food Policy Research Institute. Washington, D.C. In process.
- Erzan, Rafik, and Hiroaki Kuwahara, Serafino Marchese, and Rene Vossenaar. 1989. The profile of protection in developing countries. *UNCTAD Review* 1: 29-50.
- FAO (Food and Agriculture Organization of the United Nations). 1992. FAO agrostat-pc, land use, 1990 (computer diskette). Rome.
- Fischer, Stanley. 1993. Prospects for integration in the Middle East. In *New dimensions in regional integration*, eds., Jaime de Melo and Arvind Panagariya. Cambridge: Cambridge University Press for the Center for Economic Policy Research.
- Fischer, Stanley, Dani Rodrik and Elias Tuma. 1993. *The economics of Middle East peace*. Cambridge, Massachusetts: The MIT Press.
- Fishelson, Gideon, ed. 1989. *Economic cooperation in the Middle East*. Boulder, Colorado: Westview Press.
- Finger, J. Michael, and Sam Laird. 1987. Protection in developed and developing countries - an overview. *Journal of World Trade Law* 21 (6): 9-24.
- Harbison, F., and C. Myers. 1964. *Education, manpower and economic growth*. New York: McGraw-Hill.
- Hazlewood, A. 1987. Customs unions. In *The new Palgrave: a dictionary of economics*, eds., John Eastwell, Murray Milgate, and Peter Newman. London: Macmillan Press.



- Johnson, Harry G. 1965. An economic theory of protectionism, tariff bargaining, and the formation of customs unions. *Journal of Political Economy* 73: 256-283.
- Jones, A. A., and A. M. El-Agraa. 1981. *The Theory of Customs Union*. Oxford: Phillips Alan.
- Kemp, M. C., and H. Wan. 1976. An elementary proposition concerning the formation of customs unions. *Journal of International Economics* 6: 95-98.
- Khaldi, Nabil. 1984. *Evolving food gaps in the Middle East/North Africa: prospects and policy implications*. Research Report 47. Washington, D.C.: International Food Policy Research Institute.
- Koester, Ulrich. 1986. *Regional cooperation to improve food security in Southern and Eastern African countries*. Research Report 53. Washington, D.C.: International Food Policy Research Institute.
- Krueger, Anne O. 1974. The political economy of the rent-seeking society. *American Economic Review* 80: 48-62.
- Krueger, Anne O., Maurice Schiff, and Alberto Valdés. 1988. Agricultural incentives in developing countries: measuring the effect of sectoral and economywide policies. *The World Bank Economic Review* 2(3): 255-272.
- Krueger, Anne O., Maurice Schiff, and Alberto Valdés, eds. 1991. *The political economy of agricultural pricing policy*. Baltimore: The Johns Hopkins University Press for the World Bank.
- Laird, Samuel, and Alexander Yeats. 1987. Empirical evidence concerning the magnitude and effects of developing country tariff escalation. *The Developing Economies* 25: 99-123.
- Lakhoua, Faycal. 1993. The past and present of Arab economic integration. Paper presented at the Conference Establishing the Economic Research Forum, June 4-6, 1993, Cairo.
- Langhammer, Rolf J., and Ulrich Hiemenz. 1990. *Regional integration among developing countries: opportunities, obstacles, and options*. Boulder, Colorado: Westview Press.
- Lipsey, Richard G. 1957. The theory of customs unions: trade diversion and welfare. *Economica* 24: 40-46.
- \_\_\_\_\_. 1960. The theory of customs unions: A general equilibrium analysis. *Economic Journal* 70: 498-513.

- MacBean, A. I., and D. T. Nguyen. 1987. *Commodity policies: problems and prospects*. London: Croom Helm.
- Meade, James E. 1955. *The theory of customs unions*. Amsterdam: North-Holland.
- Ranis, G., and F. Stewart. 1993. Rural nonagricultural activities in development: theory and application. *Journal of Development Economics* 40: 75-101.
- Robson, Paul. 1984. *The economics of international integration*. London: George Allen and Unwin.
- Timmer, C. P. 1988. The agricultural transformation. In *Handbook of Development Economics*, eds., H. Chenery and T.N. Srinivasan. Amsterdam: Elsevier Science Publishers.
- Tullock, Gordon. 1967. The welfare costs of tariffs, monopolies, and theft. *Western Economic Journal* 5: 224-232.
- \_\_\_\_\_. 1980. Efficient rent seeking. In *Towards a theory of the rent-seeking society*, ed. James M. Buchanan, Robert D. Tollison, and Gordon Tullock. College Station, Texas: Texas A&M Press.
- UIA (Union of International Associations), ed. 1987. *Yearbook of International Organizations 1987/88*. Munchen: Saur.
- UNCTAD (United Nations Conference on Trade and Development). 1987. *Handbook of trade control measures of developing countries 1987*. New York: United Nations.
- \_\_\_\_\_. 1988. The UNCTAD data base on trade measures. *UNCTAD Bulletin* (244): 1-4.
- \_\_\_\_\_. 1989. *Handbook of trade control measures of developing countries 1987: supplement*. Geneva.
- \_\_\_\_\_. 1990. *Handbook of international trade and development statistics*. Geneva.
- U.S. Agency for International Development, Center for Development Information and Evaluation. 1993. *International trade tables, 1987-89 (computer diskette)*. Washington, D.C.
- Valdés, Alberto. 1973. Trade policy and its effects on the external agricultural trade of Chile, 1945-1965. *American Journal of Agricultural Economics* 55(2): 154-164.
- Vanek, Jaroslav. 1965. *General equilibrium of international discrimination: the case of customs unions*. Cambridge, Massachusetts: Harvard University Press.

Viner, J. 1950. *The customs union issue*. New York: Carnegie Endowment for International Peace.

World Bank. 1992. *World development indicators 1992* (computer diskette). Washington, D.C.

Yeats, Alexander. 1987. The escalation of trade barriers. In *The Uruguay round: a handbook on the multilateral trade negotiations*, eds., J. Michael Finger and Andrzej Olechowski. Washington, D.C.: The World Bank.