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WTO, AGRICULTURE, AND DEVELOPING COUNTRIES: A SURVEY OF ISSUES

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Abstract

The objective of this paper is to present a survey of trade issues in agriculture from the perspective of developing countries. Developing countries are a large percentage of the World Trade Organization (WTO) membership, and agriculture is critical for their economic growth, poverty alleviation, food security, and environmental sustainability.

First, this paper identifies trends in production, consumption, and trade of food and agriculture over the last four decades. Some of the significant developments food and agricultural trade is the emergence of oilseeds and fruits and vegetables, which are becoming the main exports from developing countries, replacing traditional exports such as sugar, coffee and cocoa. The trends show also a worsening of developing countries' net trade position due in part to income growth and population pressures, but also to economic policies in general, and trade policies in particular, both in developing and industrialized countries.

Second, this paper focuses on some of the main development issues linked to the WTO agricultural negotiations. The objective is to align the different legal components and subcomponents of the negotiations under the Agreement on Agriculture, with developing countries' final objectives of sustainable economic growth, poverty alleviation, and food security.

This paper concludes that the problems for developing countries are not mainly legal constraints under the AoA, but the lack of financial and human resources and institutional capabilities. To link negotiations to their development goals, developing countries must consider the issue of funding. Finally, developing countries, most of which have embarked in unilateral liberalization over the last decade, should ask significant down-payments in the reduction of the higher levels of protection and subsidies in industrialized countries.

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List of Abbreviations

AoA	Agreement on Agriculture
CBD	Convention on Biological Diversity
CPB	Cartagena Protocol on Biosafety
EU	European Community
GATT	General Agreement on Tariffs and Trade
GM	Genetically Modified
HIPC	Heavily Indebted Poor Countries
IND	Industrialized countries
IPR	Intellectual property rights
LAC	Latin America and the Caribbean
LDC	Least Developed Countries
LIFDC	Low Income Food Deficit Countries
NAFTA	North American Free Trade Agreement
NALAC	North America and Latin America and the Caribbean
NFIDC	Net Food Importing Developing Countries
R&D	Research and Development
SDT	Special and Differential Treatment
SPS	Sanitary and Phytosanitary
SSA	Sub-Saharan Africa
TBT	Technical Barriers to Trade
TE	Transitional Economies
TRIPS	Trade Related Aspects of Intellectual Property Rights
UPOV	The International Union for the Protection of New Varieties of Plants
WTO	World Trade Organization

1. Introduction

Article 20 of the Agreement on Agriculture (AoA) negotiated during the Uruguay Round mandated the continuation of the negotiations in agriculture. The negotiations began in March 2000 and were reaffirmed as part of a broader package of trade negotiations in November 2001 at the Fourth WTO Ministerial Conference in Doha, Qatar. This paper analyzes agricultural trade issues from the perspective of developing countries.

Developing countries represent about 80% of the World Trade Organization (WTO) membership, and agriculture is very important for them in terms of economic growth, poverty alleviation, food security, and environmental sustainability. WTO negotiations must consider their concerns.

Discussions about the substance of the topics to be negotiated tend to follow the structure of the negotiations, which are organized around policy issues such as domestic support, export subsidies, market access, and so on. This paper takes a different approach and focus on some of the main development issues, which have emerge from the process of consultations and negotiations within the WTO, from academic and policy-oriented research on choice of development strategy, and debates within civil society. This paper is a non-technical survey. The objective is to align the different components and subcomponents of the negotiations with the final objectives of sustainable economic growth, poverty alleviation, and food security. .

The next section identifies trends in agricultural and food production, consumption, and trade in order to establish the quantitative background to the policy discussion in section 3.

2. Quantitative Background

2.1.Agriculture and food production trends

Agricultural production per capita has been steadily increasing in developing countries, in trend with the world average (Figure 1a).[1] Since the early 1980s, it has grown at an average rate of 0.5 percent, a higher rate than that of industrialized countries (0.2 percent), where agricultural production has stagnated before a slight rise in the second half of the 1990s. With an average production of $150 from 1994 to 1998, developing countries' agricultural production is still well below the world average (World) of $207 and that of developed countries (IND) of $422 (Figure 1a). In transition economies (TE),

[1] China is not included in the different statistics because it would dominate the averages. If included, the performance of the groups from which now that country is excluded (such as developing countries, Asia developing, Low Income Food Deficit Countries), would improve markedly.

agriculture net production per capita, increased for most of the period from 1961 to 1990, but dropped in the 1990s to a low of $226 (at 1989-91 prices), a level below that of 1960. The pattern of agricultural production in developing countries is not uniform across regions or economic groups: Asia-developing increased agricultural production in the 1980s and the larger part of the 1990s, but this promising performance was interrupted in 1997 following the severe Asian financial crisis. Production per capita in Africa, was stagnant during the 1960s and the first half of the 1970s, but above the Asian average. Production per capita decreased from 1975 until 1985, when it recovered slightly but remained below the Asian average (Figure 1b). The production trend for the Latin American and Caribbean countries (LAC) has been increasing on average, particularly in the second half of the 1970s and again in the early 1990s (Figure 1b). In spite of the double hit from the financial crises of 1994 and 1997, LAC countries have maintained a level of production per capita above both the world and developing averages.

Among the vulnerable economic groups, Least Developed (LDC) countries' agricultural production has been decreasing to levels below the Net Food Importing Developing countries (NFIDC), the Low Income Food Deficit (LIFDC) countries, and Sub-Sahara African countries (SSA) (Figure 1c). While still below the developing countries average, LIFDC production has increased significantly since the early 1980s, but started falling in the late 1990s. NFIDC agricultural production, has been much more variable than that of the other groups, although the trend has been upwards. The group averaged $140 in the 1990s, just below the developing country average. SSA country production, although reversing the downward trend of the 1970s and part of the 1980s, is still in the 1990s with an average of $107, below the levels of the 1960s (Figure 1c). In SSA, the poor production performance can be associated with war, civil conflict, and the high incidence of AIDS, particularly in rural areas. It has been estimated that in the period 1990-97, SSA countries suffered 40 percent loss of agricultural output due to armed conflicts (FAO, 2000a: Table 7).

Food production, which comprises for all the regions over 90 percent of agricultural production, shows the same pattern as agricultural production (Figures 1d,e, and f). Asia has been particularly successful in increasing production of cereals, vegetable oils, and livestock products. LAC countries increased production in vegetable oils. SSA countries have been slightly more successful in increasing their production of cereals and livestock than their production of vegetable oils, and fruit and vegetables (FAO, 2000b).

2.2.Consumption trends

Consumption, measured in calories per capita per day, has increased in developing countries over the last four decades. NFIDC and LIFDC show greater increases, reaching above 2,500 calories per capita per day at the end of the 1990s (Figure 2a). For LDCs, on the other hand, consumption has stayed around 2,000 calories for the past 40 years. Consumption has increased in all regions, but mostly in Asia, where it is reaching the levels of LAC. Although Africa's consumption has increased slightly, it is lagging behind the other regions (Figure 2b).

Figure 1. Agriculture and Food Production, 1961-1998 in constant $US per capita

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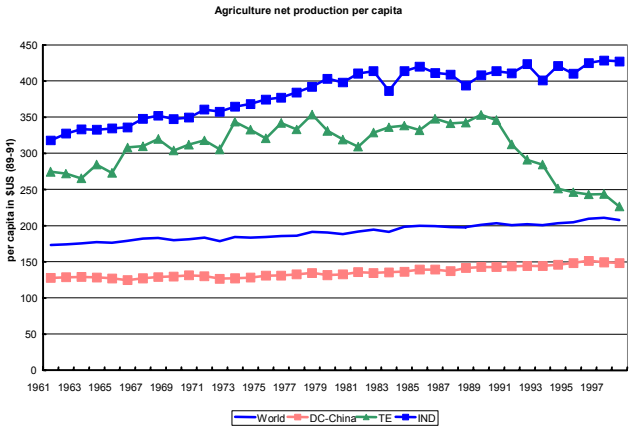

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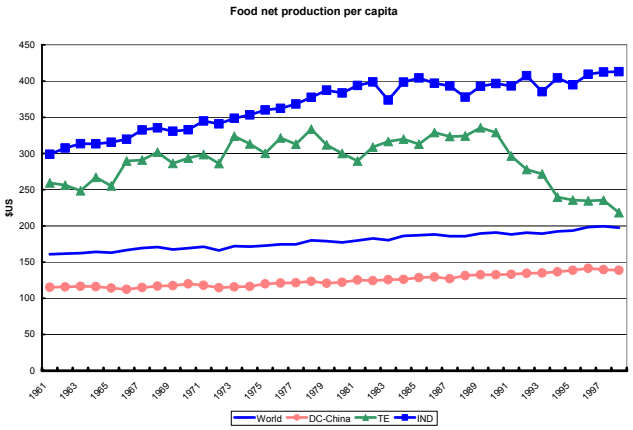

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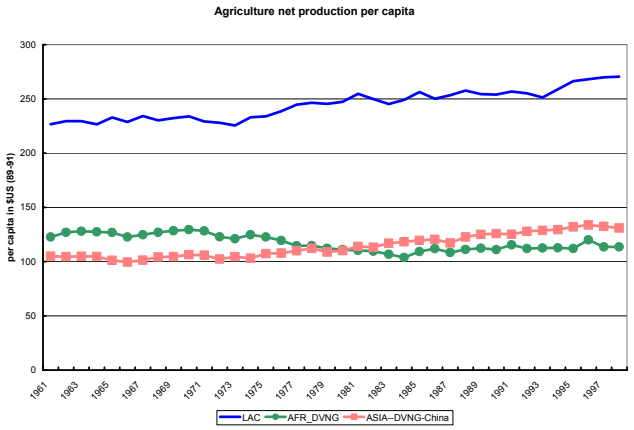

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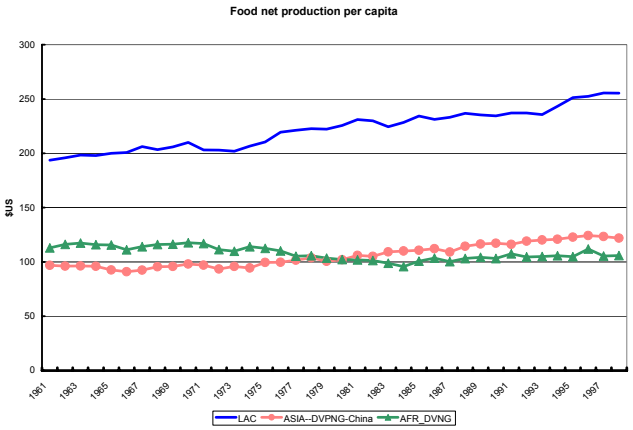

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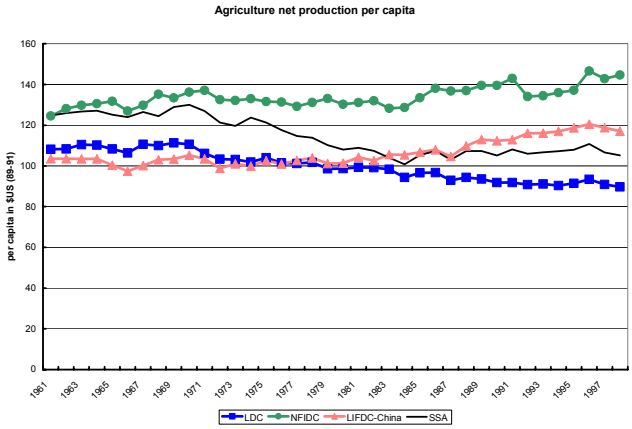

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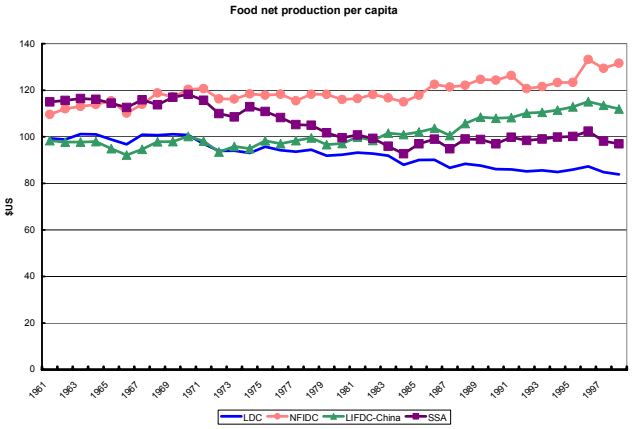


Source: Author's calculations based on FAOSTAT (2000) database.

2.3.Trade of food and agriculture

Trends in net total trade. North America and Latin America and the Caribbean (NALAC), Asia, Africa, the EU, and the transitional economies experience clear differences in trade across. In NALAC, the overall trend has been increasing since the early 1970s. While the net exports for food and agricultural products of the United States have experienced a decline in the early 1980s and a dramatic fluctuation in the mid 1990s, they have increased at a relatively more stable rate in the Latin America and the Caribbean (LAC) countries. The net exports for agricultural products in the LAC countries as a group reached their peak value above $25 billion in 1997 (Figure 3a).

The trends in Asia for both developed (Japan) and developing countries are almost the exact opposite of North America and LAC. Both groups are net importers of food and agriculture, and since the 1970s their net imports have increased, but more dramatically for Japan. In 1997, Japan experienced a deficit of more than $40 billion in agricultural products (Figure 3b).

Likewise, in the less developed countries of Africa, the net export of both agricultural and food products overall has declined since the mid-1970s. Especially in the early 1980s, Africa has experienced a dramatic decline in net export values for both agricultural and food products. On the other hand, developed Africa (South Africa) has shown stable and positive net export values for both agricultural and food products (Figure 3c).

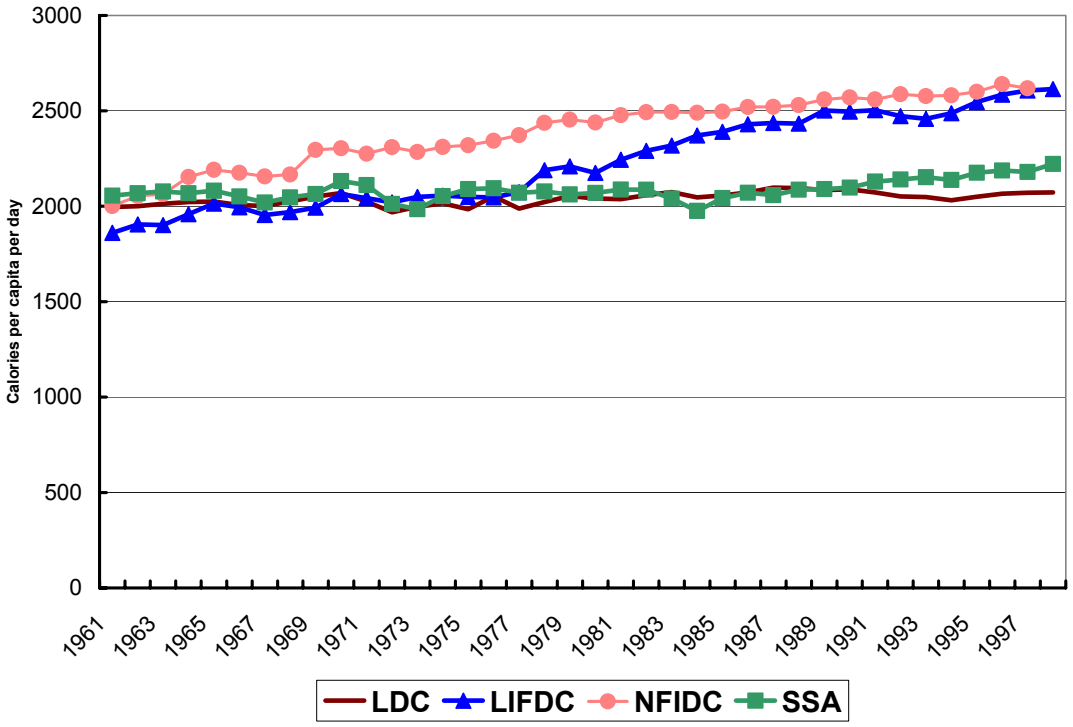
The trend in the EU is opposite than that in Asia or Africa. Until the 1980s, the EU experienced increasing net imports of food and agriculture. However, the trend was reversed in the early 1980s, and in 1993 the EU became a net exporter of food products. Although the EU has experienced small declines since then, the trend in the 1980s and 1990s continues towards the elimination of the EU as a net agricultural and food importer in world markets (Figure 3d).

Finally, and similar to Africa, net exports in transitional economies were around zero until the mid-1970s when they turned sharply negative. Since then the negative trade balance has been reduced but not eliminated, and the transitional economies are still net importers (Figure 3e).

Trade performance of the top 20 traders in agriculture and food. Table 1 lists the top 20 exporters, importers, and net exporters of food products. The top 20 food product exporters cover more than 80 percent of world export value. The US is by far the largest food exporter (14 percent of world food exports), followed by France, Netherlands, Germany, Belgium-Luxemburg, Spain, Canada, and China. Combined, these countries export more than half of world food exports. From the table, it is clear that more than half of the top 20 exporters are developed countries, and nine of them are members of the EU. In terms of developing countries, three are LAC countries, and three are from Asia. There are no countries from Sub-Saharan Africa among the top 20 food exporters.

Figure 2. Consumption Trends, 1961-1998

(a)



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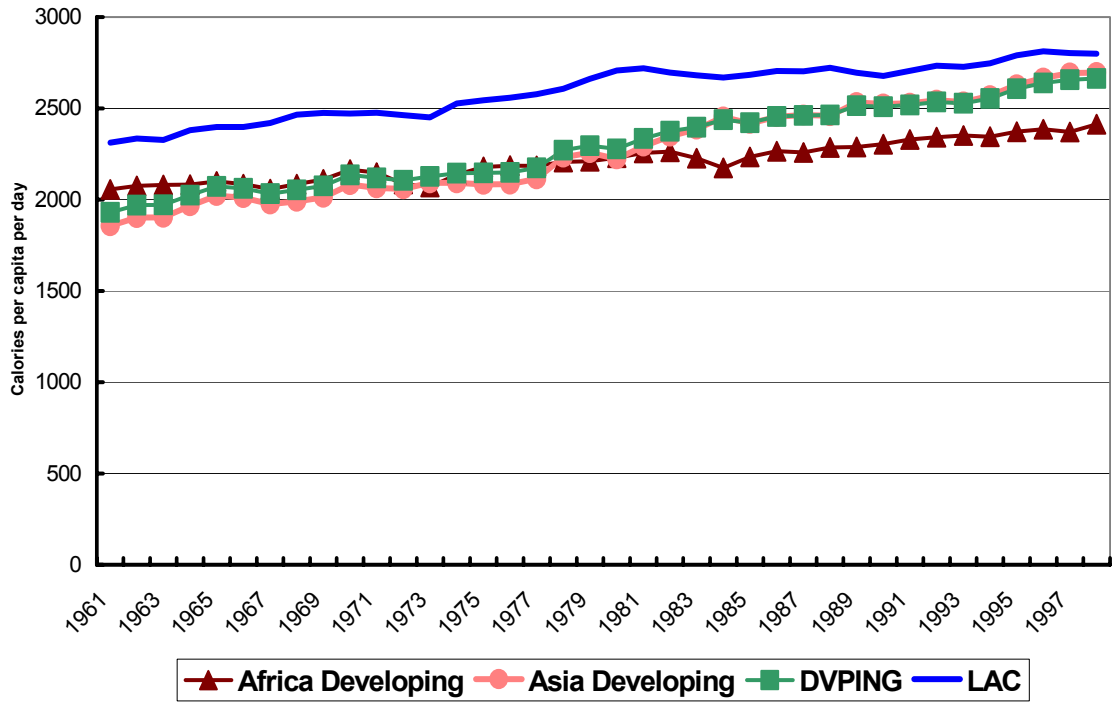
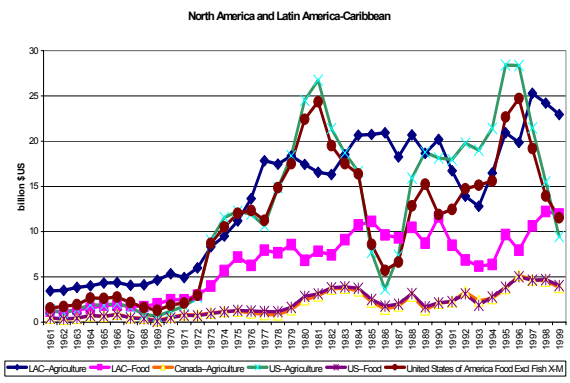


Source: Author's calculations based on FAOSTAT (2000) database.

Figure 3. Net Exports in five regions in current values, 1961-1999

(a)



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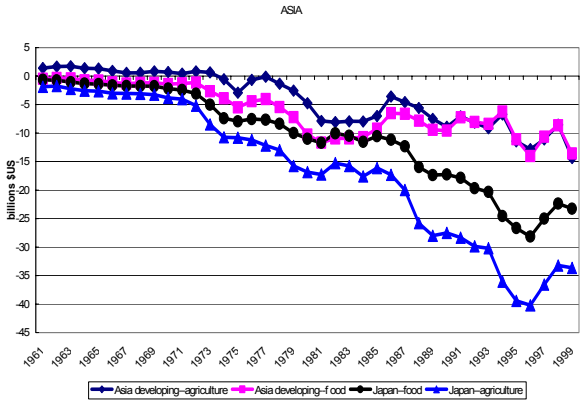

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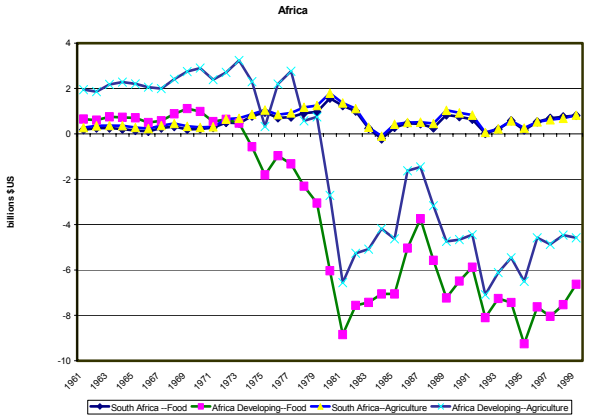

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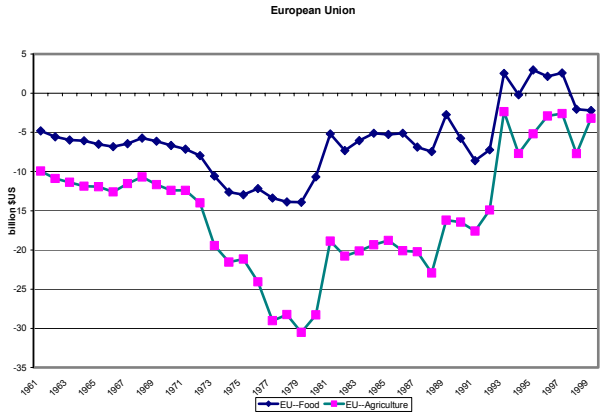

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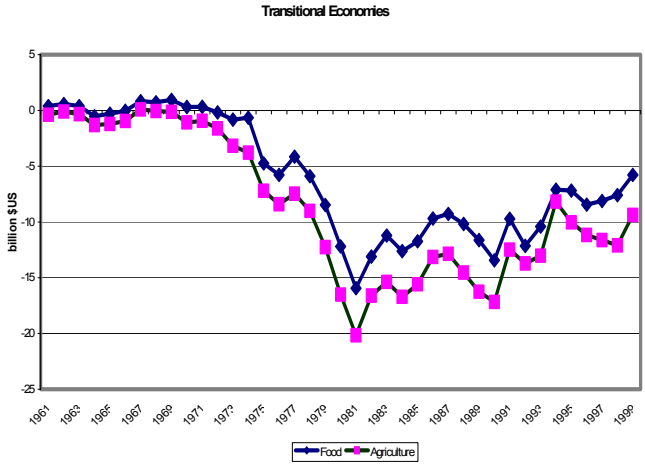


Source: Author's calculations based on FAOSTAT (2000) database.

Many of the large exporters are also large importers. As indicated previously, Asian countries' net exports turned increasingly negative. This trend is also reflected in the ranking of Table 1: there are six major food importers from Asia. Among them, Japan, which imports more than 8 percent of world food imports, is the second largest importer of food after Germany.

Despite the fact that the US ranks third as a food importer, it is the largest net food exporter due to its large share in world food exports. Unlike the main food exporter countries, six of the net-exporting countries of food are developing countries: One from Africa (Cote d'Ivoire), two from Asia (Thailand, Malaysia), four from LAC countries (Argentina, which ranks fifth among net food exporting countries, and Brazil, Chile and Ecuador), and Turkey.

Table1. Top 20 exporters, importers, and net exporters of food products, 1995-1999 average

	Exports			Imports			Net exports
	(billion $US)	Share (%)		(billion $US)	Share (%)		(billion $US)
Exporters			Importers			Net Exporters	
US	41.39	13.82	Germany	28.34	9.10	US	18.41
France	26.94	9.00	Japan	25.91	8.32	France	8.99
Netherlands	21.90	7.32	US	22.98	7.38	Australia	8.57
Germany	17.16	5.73	United Kingdom	18.37	5.90	Netherlands	7.80
Belgium-Luxembourg	14.77	4.93	France	17.95	5.76	Argentina	7.32
Spain	11.85	3.96	China	15.56	4.99	Denmark	5.09
Canada	11.57	3.86	Italy	15.52	4.98	Canada	4.45
China	11.44	3.82	Netherlands	14.10	4.53	Thailand	4.20
Italy	11.29	3.77	Belgium-Luxembourg	12.21	3.92	New Zealand	4.07
Australia	10.33	3.45	Russian Federation	8.01	2.57	Spain	3.85
Argentina	8.32	2.78	Spain	7.99	2.57	Ireland	3.67
United Kingdom	8.14	2.72	Canada	7.12	2.29	Brazil	3.44
Brazil	7.90	2.64	Mexico	5.92	1.90	Malaysia	2.90
Denmark	7.64	2.55	Korea, Republic of	4.95	1.59	Belgium-Luxembourg	2.56
Malaysia	5.81	1.94	Brazil	4.46	1.43	Turkey	1.86
Ireland	5.73	1.91	Saudi Arabia	3.95	1.27	Hungary	1.72
Thailand	5.36	1.79	Indonesia	3.17	1.02	Côte d'Ivoire	1.60
New Zealand	4.85	1.62	Austria	3.03	0.97	Ukraine	1.18
Mexico	4.27	1.42	Switzerland	3.02	0.97	Chile	1.08
Turkey	3.66	1.22	Singapore	2.98	0.96	Ecuador	1.00
Total		**80.26**	**Total**		**72.40**		

Source: Authors' calculations based on FAOSTAT (2000).

Table 2 shows the top twenty exporters, importers, and net exporters of agricultural goods. Among the exporters, the ranking is similar to the ranking of food exporters. Developed countries dominate the large share of the world exports. The United States is still the biggest exporter and, similar to its role in food exports, provides about 14 percent of the total agricultural exports in the world. The following 4 largest agricultural exporters are the same countries as in the case of food exports, but the ranking is somewhat different. Brazil, which ranked 12th among net food exporters, ranks sixth among net agricultural exporters.

Turkey and Ecuador are no longer among the top twenty net exporters. Instead, India, Colombia, and Costa Rica appear as major net exporters, ranking 13th, 16th, and 19th respectively. For most of the countries listed in Tables 1 and 2, net agricultural exports are higher than net food exports, except for Canada, Spain, Hungary, and Belgium-Luxemburg where the inverse is true.

Table 2. Top 20 exporters, importers, and net exporters of agricultural products, 1995-1999 average

	Exports			Imports			Net exports
	(billion $US)	Share (%)		(billion $US)	Share (%)		(billion $US)
Exporters			Importers			Net Exporters	
US	60.22	13.55	Germany	41.43	9.00	US	20.64
France	38.94	8.76	US	39.58	8.59	Netherlands	14.45
Netherlands	34.16	7.69	Japan	38.24	8.30	Australia	12.15
Germany	24.96	5.61	United Kingdom	27.05	5.87	France	12.12
Belgium-Luxembourg	18.60	4.18	France	26.82	5.82	Argentina	9.65
China	18.47	4.16	China	26.05	5.66	Brazil	8.73
United Kingdom	15.95	3.59	Italy	23.81	5.17	Thailand	5.54
Italy	15.84	3.56	Netherlands	19.71	4.28	Denmark	5.35
Australia	14.94	3.36	Belgium-Luxembourg	17.06	3.70	New Zealand	5.07
Canada	14.55	3.27	Spain	12.50	2.71	Canada	4.39
Brazil	14.54	3.27	Russian Federation	10.93	2.37	Ireland	3.85
Spain	14.43	3.25	Canada	10.16	2.21	Malaysia	3.67
Argentina	11.10	2.50	Korea, Republic of	8.84	1.92	India	2.15
Denmark	9.88	2.22	Mexico	7.58	1.65	Côte d'Ivoire	2.12
Thailand	8.30	1.87	Brazil	5.81	1.26	Spain	1.93
Malaysia	7.65	1.72	Switzerland	5.21	1.13	Colombia	1.89
Ireland	6.95	1.56	Singapore	4.83	1.05	Hungary	1.62
Mexico	6.30	1.42	Indonesia	4.67	1.01	Belgium-Luxembourg	1.54
New Zealand	6.17	1.39	Saudi Arabia	4.58	0.99	Costa Rica	1.46
Indonesia	5.54	1.25	Denmark	4.53	0.98	Chile	1.40
Total		**78.17**	**Total**		**73.69**		

Source: Authors' calculations are based on FAOSTAT (2000)

Structure of trade by products. Three types of products currently dominate agricultural exports from developing countries: fruits and vegetables, oilseeds and products, and coffee-cocoa-tea. Their combined shares represent more than half of total agricultural exports from developing countries (1996-99 average). Next, cereals, sugar and honey, and meat, account together for another 20 percent of agriculture export earnings.

The current composition of agrifood exports from developing countries reflects important changes during the period from 1961-65 to 1996-99, notably with the emergence of fruits and vegetables, and oilseeds and products, as the more dynamic export products. These two categories jumped from about 20 percent of total agricultural exports in the 1960s, to slightly more than 35 percent during the 1990s. They displaced traditional export crops such as sugar and coffee-cacao-tea, which declined from about 35 to 40 percent of agricultural exports during the 1960s-1980s to about 25 percent during the 1990s (Table 3). Although cereals exports constitute nearly 10 percent of total exports, developing countries, as a group, are net importers of cereals (Tables 3 and 9).

Within that general structure, there are important regional differences across Africa, Asia, and Latin America and the Caribbean (LAC): African agricultural exports are still dominated by coffee-tea-cocoa, although the share in total agricultural exports has declined from above 40 percent in the 1980s to 33 percent in the 1990s. Exports of sugar and honey have been steadily increasing until the late 1980s and early 1990s but dropped in the late 1990s. Africa made a fundamental shift from net exporter of oilseeds and meat products until the mid-1970s, to net importer afterwards. Oilseeds exports dropped from nearly 15 percent of total agricultural exports in the 1960s to just above 6 percent in the 1990s. Still, these products cover more than 60 percent of total Africa's agricultural exports. Among the three regions, Africa also has the larger incidence (about 10%) of textile fibers in total exports (Table 4).

Similarly, developing Asia shows increasing export shares of fruits and vegetables as well as oilseeds and products, although the region is still a net importer of the latter. In spite of decreasing export shares from 16 percent in 1961-65 to 11 percent in 1996-99, the region is a next exporter of coffee-tea-cocoa. Compared to other regions, Asia has a larger incidence of cereal exports, with about 13% of total exports (Table 5).

While all three regions are net exporters of fruits and vegetables, and coffee-tea-cocoa, LAC has a stronger net export position than the other regions in those products. In fruits and vegetables, LAC currently exports about 3.5 times the value of its imports, Africa a little more than twice, and Asia about 1.5 times. Coffee-tea-cocoa, and sugar and honey have lost their dominant shares in agricultural exports, from 30 and 19 percent in 1961-65 to 17 and 9 percent in 1996-99. Of the three developing regions, LAC has the larger incidence of meat exports, with around 6% in total exports (Table 6).

In Net Food Importing Developing countries (NFIDC) and Least-Developed countries (LDC), the importance of exports of coffee-tea-cocoa, and fruits and vegetables has increased from a combined share of 31 percent (1961-65) to 55 percent (1996-99) for NFIDC, and from 29 percent to 39 percent for LDC in the same periods. Sugar and honey

exports have dominated NFIDC agricultural exports until the 1990s, with a share ranging from 30 to 45 percent of total agricultural exports. In 1996-99, the share dropped below 14 percent and this sector is now third in rank after coffee-tea-cocoa, and fruits and vegetables (Table 7). Textile fibers account for 20%, the larger share, of LDCs total exports (Table 8).

Table 3—Structure of agricultural exports—DC

	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-99
Cereals and Prep	9.12	9.21	8.72	7.57	9.31	6.58	8.22	9.42
Coffee+Tea+Cocoa+Sp.	22.94	23.84	20.16	28.29	22.29	20.42	13.91	15.22
Fruit + Vegetables	9.43	12.21	11.52	12.18	14.59	18.15	20.35	19.26
Meat and Meat Prep	3.53	4.78	4.96	3.98	4.42	4.72	6.00	5.46
Natural Rubber	7.14	5.81	4.95	5.43	4.38	4.54	4.18	3.64
Oilseed & Products	10.40	9.55	11.21	12.26	14.11	13.97	15.61	16.65
Sugar and Honey	10.79	9.58	16.85	12.73	12.26	9.65	6.71	6.24
Textile Fibres	14.74	13.23	10.63	7.27	6.56	6.72	4.29	3.29
Tobacco	3.13	2.73	3.01	2.78	3.37	3.88	6.58	6.36
Other	8.78	9.04	7.98	7.52	8.70	11.36	14.15	14.47
Total Agricultural Products	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 4—Structure of agricultural exports--Africa

	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-99
Cereals and Prep	5.01	5.18	5.58	4.27	4.26	3.99	4.38	4.20
Coffee+Tea+Cocoa+Sp.	23.23	28.77	29.77	43.67	40.53	38.95	28.24	32.93
Fruit + Vegetables	11.50	11.99	11.56	10.68	11.87	13.07	17.44	16.28
Meat and Meat Prep	1.74	2.30	2.65	1.92	1.50	1.43	2.11	1.72
Natural Rubber	1.85	1.51	1.26	1.13	1.36	1.73	1.73	1.83
Oilseed & Products	14.95	12.68	10.73	7.40	5.72	4.95	6.20	6.08
Sugar and Honey	4.57	4.48	7.70	7.01	6.81	8.22	7.83	7.15
Textile Fibres	19.46	17.49	16.13	11.35	12.95	12.58	10.82	10.04
Tobacco	3.72	2.13	2.67	2.59	4.02	4.44	7.29	7.16
Other	13.97	13.46	11.97	9.99	10.97	10.64	13.98	12.62
Total Agricultural Products	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 5—Structure of agricultural exports—Developing Asia less china

	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-99
Cereals and Prep	13.04	11.08	10.30	11.42	13.30	10.82	11.60	13.35
Coffee+Tea+Cocoa+Sp.	15.61	14.74	10.40	13.92	12.98	13.69	10.14	11.17
Fruit + Vegetables	9.10	12.36	14.03	16.10	18.16	20.62	20.21	17.42
Meat and Meat Prep	0.31	0.42	0.94	1.21	1.89	2.16	2.46	2.74
Natural Rubber	20.25	18.36	16.10	17.21	12.85	12.87	10.65	9.10
Oilseed & Products	11.85	11.77	14.78	15.83	16.24	14.33	17.27	18.63
Sugar and Honey	5.12	4.02	9.68	5.61	5.17	3.69	4.68	4.37
Textile Fibres	14.36	15.01	11.66	7.14	5.54	5.11	2.81	2.40
Tobacco	4.45	4.99	4.79	4.11	4.19	3.97	6.07	7.07
Other	5.92	7.25	7.32	7.44	9.69	12.73	14.11	13.76
Total Agricultural Products	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 6—Structure of agricultural exports—Latin America and the Caribbean

	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-99
Cereals and Prep	8.62	9.33	8.52	6.87	9.16	4.54	6.36	8.16
Coffee+Tea+Cocoa+Sp.	29.69	28.78	22.20	31.60	24.30	23.48	17.01	16.55
Fruit + Vegetables	8.18	10.61	8.93	9.35	12.56	18.33	23.28	22.10
Meat and Meat Prep	7.49	9.40	8.41	6.04	6.22	5.90	7.40	6.23
Natural Rubber	0.16	0.13	0.07	0.03	0.02	0.06	0.08	0.08
Oilseed & Products	4.48	4.55	9.23	12.83	15.77	17.71	20.19	20.81
Sugar and Honey	19.14	17.89	28.92	21.32	21.31	18.13	9.60	8.96
Textile Fibres	14.63	11.34	7.06	5.35	3.89	3.27	2.42	1.48
Tobacco	1.60	1.55	2.00	1.92	2.54	2.63	4.08	4.35
Other	6.01	6.42	4.67	4.68	4.24	5.97	9.60	11.28
Total Agricultural Products	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 7—Structure of agricultural exports--NFIDC

	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-99
Cereals and Prep	3.98	5.61	4.19	3.73	3.80	3.16	6.34	7.67
Coffee+Tea+Cocoa+Sp.	20.53	20.68	17.17	27.16	23.43	24.79	27.75	37.13
Fruit + Vegetables	10.13	12.80	10.39	9.80	10.82	13.52	18.58	17.37
Meat and Meat Prep	0.67	1.01	1.27	1.08	1.03	0.95	1.65	0.92
Natural Rubber	2.09	2.21	1.48	1.37	1.21	1.16	1.32	1.22
Oilseed & Products	7.25	6.21	5.53	3.82	2.56	2.71	5.43	4.55
Sugar and Honey	30.63	28.47	41.09	41.23	44.25	39.03	20.65	13.80
Textile Fibres	18.25	16.32	13.12	6.97	7.98	9.01	7.17	4.88
Tobacco	2.04	2.48	2.01	1.53	1.65	1.53	2.98	3.91
Other	4.44	4.21	3.76	3.33	3.28	4.14	8.13	8.55
Total Agricultural Products	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 8—Structure of agricultural exports—LDC

	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-99
Cereals and Prep	14.96	9.15	4.64	4.36	5.57	2.71	4.14	2.03
Coffee+Tea+Cocoa+Sp.	22.80	29.78	32.51	43.31	38.75	37.14	27.39	27.44
Fruit + Vegetables	6.08	6.77	8.60	6.89	9.05	9.53	10.50	11.30
Meat and Meat Prep	1.04	1.24	1.67	0.64	0.42	0.42	0.53	0.84
Natural Rubber	3.50	2.91	2.36	2.39	2.41	2.96	1.48	2.00
Oilseed & Products	12.77	11.80	12.93	8.26	6.44	5.50	6.72	7.88
Sugar and Honey	1.79	1.62	2.08	1.58	1.76	2.09	2.44	2.45
Textile Fibres	26.49	24.31	21.51	17.25	15.34	18.08	20.71	20.71
Tobacco	1.67	2.07	2.80	3.17	3.77	5.20	8.13	9.24
Other	8.90	10.36	10.89	12.15	16.50	16.36	17.97	16.10
Total Agricultural Products	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

In developing country, the combined import shares of cereals, oilseeds, dairy, and meat products together ranged between 50 to 57 percent of total agricultural imports during 1961-1999. In the 1960s and 1970s, developing country imports of cereals and dairy products made up more than 40 percent of their total imports, but while the import share of cereals slowly decreased to below 24 percent, dairy products maintained their share between 6 and 7 percent (Table 9). Imports of oilseed and products, historically a main export, reached 16 percent of total agricultural imports in the second half of the 1990s, but represented in the same period also nearly 17 percent of total agricultural exports (Tables 3 and 9).

Although all the regions are net importers of cereals and dairy products, Africa, where exports of these products combined represented only 9 percent of imports on average for the period 1995-1999, is the largest. In LAC, net imports of cereals and dairy are more than compensated by net trade surpluses in other agricultural products. Asia-developing oscillates around positive and negative balances in agricultural trade, while Africa, however, is a net agricultural importer, where net trade surpluses in coffee, cocoa, fruits and vegetables, and some other items, do not compensate for trade deficits in other products. Overall, agricultural exports and imports have also become more diversified in the regional groups.

The structures of agricultural imports of NFIDC and LDC have changed overtime. Clearly, cereals are still the main agricultural imports, covering more than a third of total agricultural imports, but their shares have declined since the 1970s, when they were at an all time high, by more than 20 percent. Oilseeds, on the other hand, have been increasing their share in total imports for both NFIDC and LDCs (Tables 10 and 11).

Table 9—Structure of agricultural imports—DC

	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-99
Cereals and Prep	38.28	38.19	39.15	32.48	32.43	26.08	23.70	23.96
Coffee+Tea+Cocoa+Sp.	5.49	5.57	3.92	4.78	4.09	4.12	3.62	3.39
Dairy Products+Eggs	6.61	6.65	6.27	6.97	7.60	7.47	6.73	6.02
Fruit + Vegetables	7.65	8.47	7.34	8.21	8.26	8.83	9.59	9.38
Meat and Meat Prep	3.01	3.46	3.49	5.10	6.12	5.97	5.93	5.92
Natural Rubber	2.33	2.10	1.60	1.62	1.20	1.71	1.41	1.36
Oilseeds&products	5.97	6.12	7.73	10.12	11.03	11.39	12.48	16.05
Sugar and Honey	7.15	4.85	8.74	7.32	6.38	5.73	5.39	5.23
Textile Fibres	8.30	7.62	7.11	6.91	5.70	7.44	7.24	6.20
Tobacco	3.09	3.16	2.54	3.16	3.31	4.39	5.76	5.26
Other	12.13	13.81	12.10	13.33	13.87	16.87	18.16	17.23
Total Agricultural Products	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 10—Structure of agricultural imports--NFIDC

	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-99
Cereals and Prep	37.63	37.69	42.79	38.65	37.67	34.63	32.56	33.04
Coffee+Tea+Cocoa+Sp.	7.32	8.01	4.29	4.83	4.34	5.36	5.01	4.32
Dairy Products+Eggs	8.15	7.59	6.99	7.61	7.97	8.44	8.18	6.83
Fruit + Vegetables	8.22	8.11	5.69	5.70	5.49	5.09	6.83	7.09
Meat and Meat Prep	4.08	3.85	3.06	4.61	5.69	5.67	3.53	3.17
Natural Rubber	0.80	0.76	0.61	0.63	0.51	0.69	0.72	0.61
Oilseeds&products	7.39	8.69	11.85	13.11	14.09	15.47	17.68	19.62
Sugar and Honey	7.83	5.19	7.74	6.57	6.60	6.33	6.86	7.18
Textile Fibres	2.96	3.28	3.12	2.92	2.72	3.60	3.74	3.22
Tobacco	2.99	2.30	1.89	2.67	2.60	2.42	2.99	3.08
Other	12.63	14.53	11.97	12.70	12.32	12.29	11.91	11.84
Total Agricultural Products	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 11—Structure of agricultural imports—LDC

	1961-65	1966-70	1971-75	1976-80	1981-85	1986-90	1991-95	1996-99
Cereals and Prep	30.63	34.79	46.24	38.34	41.23	37.24	37.87	36.66
Coffee+Tea+Cocoa+Sp.	5.72	5.85	4.47	4.60	3.43	3.53	2.89	3.12
Dairy Products+Eggs	7.36	7.21	6.23	8.64	9.64	9.68	7.03	5.70
Fruit + Vegetables	5.83	5.68	4.12	5.75	5.43	5.75	6.65	6.86
Meat and Meat Prep	2.91	3.10	2.24	3.98	4.74	4.56	3.77	3.14
Natural Rubber	0.14	0.21	0.23	0.27	0.21	0.24	0.18	0.18
Oilseeds&products	9.52	8.56	5.73	8.08	8.67	10.99	13.14	16.36
Sugar and Honey	10.68	7.72	11.87	10.67	7.99	7.98	7.98	8.87
Textile Fibres	4.91	4.57	3.04	2.65	2.52	2.39	2.75	4.37
Tobacco	5.62	6.11	3.91	4.96	4.23	4.55	5.20	4.19
Other	16.69	16.19	11.92	12.06	11.90	13.08	12.52	10.56
Total Agricultural Products	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Author's calculations based on FAOSTAT (2000) database.

Direction of trade. In Table 12, it is clear that developing countries export their larger share of agricultural exports to developed countries, in most cases the shares reached over 75%. Transitional economies, the Middle East, and Africa, export mostly to the EU. In Morocco, Zambia, and Uganda, more than 60 percent of agricultural exports goes to the EU. Most Asain developing countries export to Japan and Korea with the exception of Malaysia and Sri Lanka, which favor Australia and New Zealand.

The export partners of Latin American developing countries are mostly the EU and US/Canada. Less than 10 percent of their agricultural exports go to Japan/Korea and Australia/New Zealand (with the exception of Chile). Among these countries of Latin America, Mexico's agricultural exports to US/Canada are exceptionally high (70 percent). Latin American countries, like other developing countries, tend to export their agricultural goods to developed countries. However, there are some exceptions. When we look at the share in Argentina and Uruguay, only 37percent and 35percent respectively of their exports go to developed countries (Table 12).

Similarly, the majority of developing countries imports over half of their agricultural products from developed countries. Zimbabwe is one exception with just below 30 percent of its imports of agricultural products coming from major developed regions.

Table 12. Direction of Trade: Shares of Agricultural Exports to Major Developed Countries, in percent.

countries/regions	EU	US/Can	Japan/Kor	Aus/Nzl	Total
China	12.70	4.00	36.40	18.20	71.30
Indonesia	23.50	19.20	22.50	6.00	71.20
Malaysia	9.70	4.70	8.70	53.80	76.90
Philippines	16.00	34.20	24.90	9.80	84.90
Thailand	15.20	24.20	28.90	11.90	80.20
Viet Nam	18.60	13.00	24.90	17.70	74.20
Bangladesh	27.50	29.30	11.20	2.90	70.90
India	18.10	12.20	13.20	5.80	49.30
Sri Lanka	29.10	6.30	15.80	42.40	93.60
Rest of South Asia	22.90	6.80	6.50	5.10	41.30
Mexico	12.40	69.90	5.90	1.30	89.50
Central America and Caribbean	35.00	37.80	5.90	0.80	79.50
Colombia	41.80	36.80	7.80	0.70	87.10
Peru	26.50	18.90	9.20	5.10	59.70
Venezuela	26.20	26.20	4.30	2.10	58.80
Rest of Andean Pact	25.20	35.80	4.90	2.30	68.20
Argentina	23.20	6.60	4.80	2.30	36.90
Brazil	39.20	12.10	8.20	2.90	62.40
Chile	25.10	30.50	22.60	3.30	81.50
Uruguay	24.40	7.60	1.90	1.20	35.10
Rest of South America	47.60	9.30	18.50	0.20	75.60
Hungary	42.10	3.70	1.60	0.70	48.10
Poland	40.10	3.60	7.00	0.50	51.20
Rest of Central European associates	33.30	5.70	2.50	1.00	42.50
Former Soviet Union	25.90	7.80	12.50	0.90	47.10
Turkey	46.60	10.90	1.70	1.40	60.60
Rest of Middle East	42.20	11.10	5.60	3.40	62.30
Morocco	60.80	4.80	19.20	0.30	85.10
Rest of North Africa	55.00	9.30	5.80	1.80	71.90
Botswana	50.70	10.20	10.30	4.50	75.70
Rest of SACU	49.30	9.80	9.70	4.40	73.20
Malawi	48.20	19.60	7.60	0.90	76.30
Mozambique	52.20	17.00	12.00	3.00	84.20
Tanzania, United Republic of	37.80	4.10	10.10	6.60	58.60
Zambia	66.90	3.70	2.80	3.30	76.70
Zimbabwe	45.70	3.10	4.60	4.20	57.60
Rest of southern Africa	84.40	7.00	4.60	1.20	97.20
Uganda	69.00	9.50	1.10	2.30	81.90
Rest of sub-Saharan Africa	61.60	7.80	6.20	1.50	77.10
Rest of world	41.30	9.30	8.90	6.80	66.30

Source: Authors' calculations based on GTAP (1998)

Table 13. Direction of Trade: Shares of Agricultural Imports to Major Developed Countries, in percent.

countries/regions	EU	US/Can	Japan/Kor	Aus/Nzl	Total
China	15.60	23.30	8.40	10.50	57.80
Indonesia	10.10	22.60	3.80	23.80	60.30
Malaysia	12.50	16.20	2.70	22.30	53.70
Philippines	17.70	29.00	3.20	19.70	69.60
Thailand	21.90	18.40	7.90	16.10	64.30
Viet Nam	19.00	11.30	6.80	22.50	59.60
Bangladesh	8.00	14.40	0.70	15.60	38.70
India	9.90	10.80	2.60	21.30	44.60
Sri Lanka	14.00	9.50	1.40	20.90	45.80
Rest of South Asia	6.20	20.60	0.80	17.10	44.70
Mexico	11.80	73.80	2.10	2.90	90.60
Rest of central America and Caribbean	19.90	46.60	2.00	2.90	71.40
Colombia	8.00	44.40	1.20	2.30	55.90
Peru	10.40	25.70	1.30	4.90	42.30
Venezuela	17.40	41.20	1.30	3.50	63.40
Rest of Andean Pact	10.30	32.60	1.10	2.70	46.70
Argentina	20.40	23.70	2.30	2.90	49.30
Brazil	16.20	14.10	1.30	2.70	34.30
Chile	13.50	17.00	2.10	3.00	35.60
Uruguay	24.30	7.10	3.10	1.80	36.30
Rest of South America	17.00	15.00	0.50	0.60	33.10
Hungary	51.70	7.60	4.20	1.40	64.90
Poland	53.00	7.30	1.40	0.90	62.60
Rest of Central European associates	49.40	4.70	2.50	1.70	58.30
Former Soviet Union	40.20	10.30	1.70	1.80	54.00
Turkey	31.10	25.40	3.20	6.90	66.60
Rest of Middle East	33.80	20.10	1.40	5.90	61.20
Morocco	31.00	24.00	2.10	3.30	60.40
Rest of North Africa	34.70	28.50	1.70	5.40	70.30
Botswana	40.50	12.70	1.30	6.90	61.40
Rest of SACU	28.30	14.90	4.10	7.50	54.80
Malawi	32.70	10.10	4.90	5.60	53.30
Mozambique	15.90	31.60	1.90	9.40	58.80
Tanzania, United Republic of	17.10	8.30	2.60	12.20	40.20
Zambia	25.80	9.70	4.70	5.20	45.40
Zimbabwe	9.90	3.00	1.40	15.20	29.50
Rest of southern Africa	50.80	6.10	2.40	9.60	68.90
Uganda	44.60	31.50	3.30	2.30	81.70
Rest of sub-Saharan Africa	53.90	12.70	1.10	2.20	69.90
Rest of world	41.40	11.10	3.40	9.90	65.80

Source: Authors' calculations based on GTAP (1998)

2.4.Prices

Indicators of price volatility for agricultural commodities are lower during 1995-1999, the Uruguay Round implementation period, than those for the entire period 1960-1999 and for the 1990s (Table 14). These results suggest that real world commodity prices as a whole have been less unstable after the completion of Uruguay Round. A more complete analysis of world nominal prices, and of domestic real and nominal prices (which are generally affected by other policies, such as changes in exchange rates or modifications in domestic support policies) is needed to arrive at specific conclusions.

Table 14 Coefficient of Price Variability for Agricultural Commodities (based on real world prices)

	1960-1999	1990s	1995-1999
Cocoa (cents/kg)	0.54	0.14	0.13
Coffee Mild (cents/kg)	0.40	0.29	0.21
Coffee Robusta (cents/kg)	0.55	0.26	0.14
Tea (cents/kg)	0.20	0.19	0.21
Sugar (cents/kg)	0.81	0.16	0.17
Orange ($/mt)	0.11	0.08	0.01
Banana ($/mt)	0.11	0.12	0.11
Beef (cents/kg)	0.21	0.13	0.06
Wheat ($/mt)	0.22	0.14	0.16
Rice ($/mt)	0.34	0.13	0.07
Maize ($/mt)	0.21	0.16	0.17
Sorghum ($/mt)	0.21	0.13	0.15
Coconut Oil ($/mt)	0.36	0.29	0.15
Soybean Oil ($/mt)	0.30	0.18	0.13
Groundnut Oil ($/mt)	0.28	0.15	0.08
Palm Oil ($/mt)	0.30	0.29	0.19
Soybean ($/mt)	0.22	0.11	0.12
Soybean Meal ($/mt)	0.27	0.16	0.21
Cotton (cents/kg)	0.19	0.14	0.12

Source:Authors' calculations based on World Bank 2000

2.5.Production and consumption volatility

Indicators of food production in Table 15, show that, overall, volatility in developing countries (Asia, Africa, and LAC) is relatively larger than in developed countries (EU, US, and Japan). Africa shows somewhat larger volatility than Asia or LAC. During the Uruguay Round policy implementation period (1995 to 2000), the volatility of food production for developing countries was between 5 to 6 percent, less than half compared to the whole period 1961 to 2000.[2]

The volatility indicators for calories (Table 16) and protein consumption (Table 17) are smaller than those of food production. As before, volatility for developing areas is also relatively higher than that for developed countries. Africa shows larger volatility than Asia, which in turn, appears more volatile than LAC. Again, volatility indicators for the Uruguay Round implementation period are smaller than the entire 1990s, or last four decades since 1960 (see footnote 2).

2.6.Heterogeneity of developing countries

The description of the agricultural performance of developing countries in the previous sections already shows that those countries are a very heterogeneous group, with important regional differences. For instance, it was already mentioned that in terms of the trends of production per capita of food and agricultural products the best performers are LAC countries, while Asian developing countries are steadily improving, but Africa's situation is at best stagnant. The NFIDC and the LIFDC are also improving their production of food and agriculture, but are still performing below developing country levels. On the other hand, LDC and SSA countries continue to experience declining trends in food and agricultural production. Consumption, trade structure and trade direction were also shown to have clear differences across regions and countries.

Other studies provide further evidence of this heterogeneity. For instance, Valdes and McCalla (1999) identify, among 148 developing countries, 105 countries that are net food importers and 43 that are net food exporters (15 are from the low income group). In total agriculture, 85 are identified as net importers and 63 as net exporters (33 are from the low income group). Among the most vulnerable economic groups, over one third of LDC are net agricultural exporters, more than half of the low income food deficit countries (LIFDC) are net agricultural exporters, 19 percent are net food exporters, and 22 net food importers are net agricultural exporters. These findings are consistent with the results emerging from the classification of the top 20 traders in food and agriculture in Tables 1 and 2. There are 7 developing countries among the top 20 food exporters and half of the top 20 net food exporters are developing countries.

[2] The comparison has to be taken cautiously given the difference in the length of the periods considered. Usually over longer periods there are more episodes of drastic changes.

Table 15 Volatility for food production

	1961-2000	1991-2000	1995-2000
Asia	0.150	0.100	0.050
Africa	0.110	0.080	0.060
LAC	0.110	0.080	0.050
EU	0.060	0.040	0.030
Japan	0.050	0.040	0.030
US	0.050	0.040	0.020

Source: Authors' calculations based on FAOSTAT (2000)

Table 16 Volatility for calories consumption

	1961-2000	1991-2000	1995-2000
Asia	0.051	0.030	0.012
Africa	0.056	0.031	0.014
LAC	0.041	0.022	0.010
EU	0.023	0.016	0.007
Japan	0.012	0.004	0.001
US	0.014	0.006	0.005

Source: Authors' calculation based on FAOSTAT (2000)

Table 17 Volatility for protein consumption

	1961-2000	1991-2000	1995-2000
Asia	0.057	0.034	0.019
Africa	0.063	0.038	0.020
LAC	0.055	0.037	0.017
EU	0.024	0.017	0.008
Japan	0.020	0.007	0.008
US	0.022	0.006	0.002

Source: Authors' calculation based on FAOSTAT (2000)

Similarly, Diaz-Bonilla et al. (2000), using cluster analysis across a world sample of 167 countries encompassing all levels of income, further reinforce the heterogeneity among developing countries with regard to food security.

3. Policy Issues

In this section, the authors focus mainly on the agricultural aspects of the negotiations in the Agreement on Agriculture of the WTO, but will comment also on other issues that

may affect agriculture and that are currently being reviewed, or may be part of a larger Round.

The distinction between the legal and economic implications of WTO measures is often overlooked: a country may have the legal opportunity under WTO rules to follow a specific policy but it does not mean that such a policy benefits this country in terms of welfare and equity. In the following sections, the authors try to separate those aspects related to achieving what may be seen as a fair and balanced outcome in legal terms, and the efficiency, welfare, or equity merits of those commitments.

3.1.Is Agriculture Special?

One of the central debates relates to how (or whether) to incorporate agriculture within the general framework of the WTO, after having been subject to a separate treatment under previous GATT rules. This differentiated treatment was in part reduced during the Uruguay Round, but the current WTO legal texts do not yet reflect a full integration of agriculture within the rules for goods in general. There are two different views on what to do about this.

One view insists that agriculture should be treated like any other sectors, such as industry for example, and therefore current negotiations should complete the integration of agriculture into the WTO framework. In particular, export subsidies export subsidies, which are banned in the WTO legal framework for all goods, but are still allowed, although with some restrictions, in the current Agreement on Agriculture (AoA) should be eliminated.

Another view emphasizes the special role of agriculture and its special treatment. It is linked to the notion of the "multifunctionality" of agriculture, which has been recently presented, mainly by industrialized countries, as a new concept that must be considered in the design and implementation of agricultural policies (European Union, 1999; Norway, 1998; Japan, 1999; and OECD, 1998). This notion has received special attention in different recent conferences devoted to the issue (Norway, 1999; FAO, 1999a), and, besides references in different country proposals, it has been the subject of one of the longest documents presented in the WTO negotiations by a collection of industrialized and developing countries (WTO, 2000c).

The basic idea is that agriculture, in addition to its direct products, also generates positive externalities such as food security, environmental conservation, beautiful rural landscapes, employment, and vital rural communities and cultures. According to this view, only counting the market value of agricultural products overlooks the sector's additional contributions to economy and society, contributions that, because of different market failures, may not be generated automatically by market forces. A policy conclusion from this line of analysis is that the government could justifiably intervene to ensure an adequate supply of these externalities.

Multifunctionality has become a contentious issue in the continuation of the agricultural negotiations mandated by Article 20 of the AoA under the WTO. The European Union, Norway, Japan, and South Korea, among other countries, have argued that this concept is part of the non-trade concerns alluded in the Article 20 and the AoA Preamble, which must be taken into account during these coming negotiations. Other countries (basically the members of the Cairns Group and the United States) have opposed granting an independent role for multifunctionality in the conceptual framework of the negotiations (ABARE, 1999; USDA, 1999). Developing countries are taking differing views on multifunctionality: some appear in favor, others are opposing it, and some more are still pondering whether the idea has something to offer them in terms of their negotiating positions and policy framework.

Those opposed to the notion of multifunctionality argue that the agricultural sector has positive externalities for the rest of the society does not necessarily imply that its production should be encouraged beyond the level under no intervention. First, the sector may have negative externalities as well, such as damages to the environment. Second, subsidizing a sector to increase its production beyond its normal level will increase its use of all types of resources from the economy, at the expense of other sectors. To the extent that some of those resources are not completely idle, costs of production will increase in the non-subsidized sectors, forcing them to contract. A cost-benefit analysis would be needed to assess whether the costs of encouraging a sector beyond its "natural" level (in terms of the main products and of the externalities attached to them) may be larger than the benefits, considering the "multifunctionality" of other sectors. Even if the current level of production does not generate the desired net positive externalities for the society as a whole (considering the agricultural sector itself and the impact on other sectors), most economists would argue against trade protection as the first-best policy to foster those externalities. Even within a range of possible trade and/or production distorting policies, different ones than the ones currently applied may generate the desired multifunctional effects (Blandford, 2000). In particular, it would be better to subsidize directly the multifunctionality effect if it were clear that some of the postulated externalities did not emerge only as inseparable joint products.

Most of the discussion so far has centered on whether the benefits of multifunctionality are jointly and inseparably obtained with agricultural production (and therefore if a country wants those benefits it has to support production, possibly distorting trade in the process), or whether the benefits have a separate existence (and thus can be generated through non-distorting, "green-box" measures). This paper does not expand on either sides of the debate, which have been covered in detail in various publications (European Union, 1999; Norway, 1998; Japan, 1999; OECD, 1998; ABARE, 1999; USDA, 1999; and SJFI, 2001). Rather, the authors highlight two other issues also related to multifunctionality and the special role of agriculture, but which have been less analyzed although their implications for developing countries may be more significant: whose multifunctionality and what multifunctionality. [3]

[3] A more detailed discussion of multifunctionality from the perspective of developing countries can be found in Diaz-Bonilla and Tin, 2002

Whose multifunctionality? If for the sake of argument we accept that multifunctionality is a joint product with agricultural production, the immediate question is whose agricultural production levels are being supported and whose may be hurt in the process. Simulation models for the Uruguay Round (Sharma, Konandreas, and Greenfield, 1996; and Goldin and van-der-Mensbrugghe, 1995), as well as preliminary projections of possible scenarios for the current negotiations (Hertel, et al., 2000; OECD, 1999; USDA/ERS, 2001; and ABARE, 1999), all show increases in agricultural production in developing countries, if the distortions in world agricultural policies dominated by those of the industrialized countries are reduced.

Given some level of demand for food and agricultural products determined by income, prices, population, and tastes, any attempt at expanding production in a group of countries because of the multifunctionality effects would result in production reductions in other groups of countries that may not have the resources to expand agricultural production through such subsidies. To the extent that the notion of multifunctionality has been suggested mainly by industrialized countries, which have the resources to implement subsidies, the result of such an approach may be more production and multifunctional effects in richer countries, and less of both in developing countries, which cannot afford such policies.

What multifunctionality? Related to the distributional issue is the question of what multifunctionality is being considered. The fact that different concepts, such as multifunctionality, or non-trade concerns, are put together under a same name, does not necessarily imply that they have strong similarities, that important distinctions may not be needed among them, or, even more complicated from a policy perspective, that there may be trade-offs among those concerns.

One important point about non-trade concerns is that they seem to have completely different meanings for industrialized countries, on the one hand, and for the variety of developing countries, on the other. For example, it has been argued that in industrialized countries subsidies are predicated in part on the need to support a choice of life style such as rural employment and vitality of rural communities. , But in developing countries, the situation is very different: most of the population is in agriculture, not because that is where they want to be, but because the development process has not offered them other alternatives (comments by Abhijet Sen in FAO, 1999a, p.65; and India, 2001).

The notion of food security appears also to have different meanings for different countries. In a study using cluster analysis, Diaz-Bonilla et al. (2000) classify 167 countries (including industrialized and developing ones) according to their food security profiles. The authors identify 12 distinct groups characterized by similarities and differences according to various food security indicators. The analysis shows that developing countries are scattered across all clusters, from food insecure to food secure, while, unsurprisingly, all developed countries are included in food secure categories. . These results suggest that the notion of food security introduced as part of the "multifunctionality" of agriculture, or, more generally, among non-trade concerns has a very different meaning in developed and developing countries. Maintaining the same

label for altogether different situations in industrialized and developing countries (with further differentiations among the latter) may only obscure the issues being negotiated.

Environmental problems also differ across countries, appearing mostly as pollution of land and water, due to excess use of agrochemicals in industrialized countries (in part, a consequence of generous production subsidies) and degradation and overuse of natural resources in developing countries (resulting mostly from poverty and lack of financial support to improve technology). Finally the issue of maintenance of rural landscapes in industrialized countries, as a way of allowing urban dwellers scenic vistas and the possibility of country-side relaxation, does not seem to have an obvious equivalent in impoverished developing countries.

Implications for the negotiations. In summary, the previous discussion stresses the need to differentiate between the sets of issues of interest for industrialized countries and those that mostly affect developing countries, specially the poorer ones. Rather than talking about multifunctionality as a single notion, it would be better to separate non-trade concerns and then analyze them separately for different categories of countries. The case for an economic strategy in developing countries that ensures the full contribution of the agricultural sector can be based on traditional arguments linked to growth dynamics, poverty alleviation, food security, and environmental issues, as they apply to developing countries. The several components involved in the notion of multifunctionality assume very different forms in industrialized and developing countries. By mixing all of them, the negotiations risk losing sight what is important for developing countries, particularly the poorest ones.

Moreover, the notion of multifunctionality may be not only unnecessary for developing countries to support the policies needed for rural development, but may also be harmful. This would be the case if it leads mostly to expand the production of industrialized countries more than what would have been the case without the additional support. In this case, agricultural production in developing countries (and the multifunctional effects linked to it) would be encroached upon, and contract, because of the excess of subsidized production in industrialized countries. Through the linkages of world markets, agriculture is affected globally, and if the agricultural sector in industrial countries expands beyond certain level, given some world demand that grows with income and population, it will prevent the expansion of production in developing countries affecting the potential beneficial externalities from agricultural sector on the economies of developing countries.

The following section addresses the issue of how adequate the framework of the AoA is in dealing with the challenges faced by developing countries, before discussing trade's relationship with growth (section 3.3), poverty, and food security (section 3.4).

3.2. Is the Framework of Policies and commitments of the Agreement on Agriculture Adequate for Developing Countries?

The AoA has been subject to several criticisms. A valid criticism is that there are imbalances in the AoA because industrialized countries have been able to secure

exemptions for some of their policies (like the Blue Box) and were allowed to continue using significant amounts of expenditures for domestic support and export subsidies. Rich countries have the legal room and the resources to implement the variety of policies allowed under that legal text, while developing countries, although having legal room of maneuver, lack the needed financial resources.

However, other criticisms of the AoA are less persuasive. For instance, some have suggested that the WTO legal texts tightly constrain developing countries in legal terms, not allowing them to implement policies needed for their economic development, to combat poverty or to attain food security. In a similar vein, it has been argued that the legal exemptions allowed for developing countries are of no use to them, mainly because the policies permitted are very difficult to implement due to the financial, technical, and human resource requirements (Solagral, 1999; Murphy, 1999; and UNCTAD, 2000). Usually, this line of analysis has led to the conclusion that developing countries need additional "flexibility" mainly in terms of the levels of protection allowed. Some of those arguments appear to suggest that trade protection measures are simpler to implement institutionally and have no costs to the economy.

A counter argument sees no significant legal constraints in the AoA for developing countries to adopt a variety of interventions to support agriculture, particularly regarding policies and programs that really improve competitiveness and equity, given the financial and human resources those countries possess. Also, the argument that legal exemptions allowed for developing countries under the AoA have a cost while protection is cost free, focuses only on the impact of budgetary outlays paid by the citizens as taxpayers, but ignores that tariff and non-tariff barriers to trade are equivalent of taxes paid by the citizens as consumers. Trade protection not only has concrete costs, but also the distributive implications may be regressive to the extent that import taxes have larger impacts on poor consumers, and mostly benefit larger producers and processors.

A common mistake is to view import taxes as revenues paid by foreigners and collected only by governments. In fact, economic analysis shows that consumers usually pay the larger percentage of the sum of government revenues and associated transfers, and producers generally collect the larger percentage of those payments. Only a fraction of total consumption of food products is imported in developing countries (typically not more than 10-15 percent, and in many cases less than that on average; see Diaz-Bonilla, 2001). However, border restrictions increase prices for the total amount of the consumed product, which includes the other 85-90 percent in domestically produced food resulting in a direct transfer from consumers to producers. Only in special cases (such as when more than 50 percent of the consumed product is imported) would the government be the main direct recipient of the revenues generated by border protection.

This same fact limits also the suggestion of using the receipts from import taxes to subsidize food consumption of the poor (FAO, 1999b; paper 6; footnote 4). To the extent that the volume of taxed commodities is only a fraction of total domestic consumption, and that the poor population may represent, as a whole, even though not necessarily per capita, a sizable percentage of that domestic consumption, government revenues from

taxing imported commodities would typically not be enough to compensate poor consumers. The case of developed countries, where the incidence of poverty is smaller and which have additional fiscal resources, is different. They can tax consumers in general with border protection for food, but then, at the same time, are able to subsidize poor consumers through different targeted policies financed by general revenues. However, even if the negative impact on equity from the consumption side can be compensated and corrected, that would still leave untouched the unequal distribution of revenues on the production side, where by the nature of border protection, the bulk of the implicit tax is collected by larger producers who have more production to sell.

In summary, the proposals to increase border protection for food security or rural development reasons are equivalent to implementing a sales tax on food, with most of the revenues redistributed to larger farmers and processors.

Also it is not necessarily true that the institutional requirements to run efficient and honest customs administrations that can adequately manage those border measures are less exacting than organizing, for example, an efficient system of agricultural research and extension. Whatever the institutional requirements, it is obvious that the interventions allowed under the AoA without restrictions, such as research, extension, infrastructure, and irrigation, to name a few, are the real foundations for increases in production, productivity, and competitiveness. Trade protection measures, on the other hand, are mostly internal transfers (and largely regressive in the case of food), without any direct link to the real sources of agricultural productivity growth.

A related issue is the argument for increased flexibility. In trade, and other, negotiations the parties usually try to limit other peoples' options while attempting to retain flexibility for oneself. However, it seems dubious that developing countries be granted ample flexibility, while industrialized countries renounce theirs. Of course, in any balanced negotiation, all parties would become committed to some mutually agreed common rules, including the possibility of "special and differential treatment" for developing countries. These countries, as weaker players in the global arena, need an international legal system that limits the ability of larger countries to act unilaterally. The argument that the WTO is completely dominated by industrialized countries and by transnational corporations, fails to recognize the fact that the latter would have even more power without an international legal framework.

Moreover, there are arguments why some lack of flexibility may be beneficial to developing countries (Oyejide, 2000). First, the implementation of internationally negotiated rules may limit the power of special interests and arbitrary government measures within developing countries, helping to strengthen domestic legal and institutional frameworks (Diaz-Bonilla, 2000). Second, it has been shown that investment can benefit from the stability and certainty of the policy framework (Campos, Lien and Pradhan, 1999; and Solimano, 1989). A legal framework internationally sanctioned, that limits government flexibility and, therefore, uncertainty about possible economic policies should help investment.

A separate issue (discussed later in this section) is whether developing countries should take a more deliberate and slow approach to reduction of trade barriers, particularly until the glaring imbalances between industrial and developing countries are substantially reduced. There is a compelling argument to be made that the AoA—with the legal possibilities allowed to industrialized countries to subsidize exports, to provide trade-distorting domestic support, and to otherwise engage in protectionist agricultural policies—still leaves developing countries at a disadvantage in world markets. Therefore, an important issue is whether Green Box and other domestic support measures should be further tightened because industrialized countries, with their financial, human, and institutional capabilities, would abuse them.

Still, this does not detract from the main issue that to achieve the objectives of agricultural development and poverty alleviation, developing countries must design adequate domestic policies and investment programs in human capital, infrastructure, technology, regularization, and expansion of land ownership by small producers and landless workers, and, in general, promote the adequate functioning of product and factor markets. The AoA does not restrict all those policies. The problem for developing countries is not the lack of legal room for the implementation of efficient and equitable policies, but the need for funds (at the national and international levels) to be able to implement those policies, and the existence of still high levels of subsidization and protection of the agricultural sector of industrialized countries.

This discussion has implications for the negotiating positions of the developing countries. Those countries can adopt an "offensive" strategy, such as trying to open up markets in industrialized countries and limit their ability to use funds from the Treasuries to compete against farmers in non-subsidizing countries; or a "defensive" strategy, such as asking for equivalent levels of protection and the possibility of utilizing subsidies that now industrialized countries have (Konandreas, 2000). Each approach (or a combination of both) has its merit, but developing countries must keep in mind at least two considerations: First, they would need to be realistic about the resources they have to carry out the policies they are seeking in the negotiations. If in adopting a defensive strategy developing countries are asking more legal room to apply subsidies that they will not be able to use later for lack of money, their negotiating position may be very weak. Industrialized countries will only be too happy to grant developing countries concessions that will have no effective implications, while, in return, extracting a price for the "concessions" granted. For instance, proposals that suggest a de minimis of 20 percent (a doubling of the current 10%) of total agricultural production for developing countries should be compared with the total budget of the Ministries of Agriculture or similar agencies (after discounting salaries), to see if enough fiscal resources to implement the concessions requested exist. Second, developing countries should consider the substantial legal room they already have under the AoA before asking for exemptions, alone or under the name of a Development Box or Food Safety Box, as if they were new concessions. The objective should be to avoid paying a negotiating price for clauses that are similar to existing ones but have been repackaged as new boxes for developing countries. In many cases, small changes in the language may accommodate the key concerns of developing countries. In their negotiating position, developing countries

should ask for these clarifications in the current texts rather than getting in a position, which industrialized countries might exploit by requiring concessions in return.

In any case, food insecure and vulnerable countries will need adequate transition times to adjust to the new conditions, and simplified and streamlined instruments to confront unfair trade practices and import surges.

3.3.Agriculture and Growth in Developing Countries

In the 1970s, developing countries came to question the wisdom of adopting an import substitution industrialization (ISI) development strategy (Little, Scitovsky, and Scott, 1970; Balassa, 1971; and Krueger, 1978). With that shift, there was wide agreement on the importance of achieving a healthy agricultural sector to support any successful development strategy. This was, and still is, especially important for poor developing countries where currently 2/3 of the population is in rural areas, and agriculture generates about 1/4 of the GDP, and a substantial percentage of employment and exports (World Bank, 2001). An adequate economic strategy should include not only the elimination of the bias against the agricultural sector in the general macroeconomic and trade policy framework, but also, and as important, increased investments in rural development, agricultural productivity, and poverty alleviation. Different studies have shown that an agricultural-led growth strategy may have larger dynamic multipliers for the rest of the economy than other alternatives in poor developing countries (Delgado et al., 1998). Even in the success stories of the newly industrialized countries of East Asia, a common characteristic is that they invested strongly, and very early, in rural and agricultural development (McCalla, 2000).

However, in the context of the WTO negotiations, the question is the likely contribution of trade to agricultural growth and the overall development strategy. In several industrialized countries some farmers' organizations have been asking for support to the sector in an inward-oriented strategy, criticizing for instance changes in the CAP (such as reduction in support prices) that have been predicated on the need to become competitive in export markets (see for instance, Coordination Paysanne Européenne, 2001). In general, however, inward-orientated strategies tend to be associated with lower growth (Sachs and Warner, 1995). Conversely, Scandizzo (1998) shows, in a sample of 71 developing countries, covering the period 1969-1991, that agricultural exports are strongly and positively correlated with overall economic growth. Therefore, if development of the agricultural sector is very important in developing countries, particularly the poorest ones, and agricultural exports appear an important component of that development, then for those countries a key concern should be access to competitive international markets (McCalla, 2000).

Of course, differences in agrifood export performance by developing countries depend on several factors, such as income and population growth, natural resource base and climate, and technological progress. But economic policies, both in industrialized and developing countries also have major impacts. The importance of the WTO legal framework and the current negotiations is, precisely, the likely impact on trade and agricultural policies

worldwide. From the point of view of the developing countries, it is important to distinguish their own policies, from those of the industrialized countries.

Different studies before the beginning of the Uruguay Round in the mid 1980's aimed at quantifying the impact of agricultural protectionism in industrialized countries. They usually predicted substantial positive effects on developing countries incomes, production, and exports of agricultural and agro industrial products from an eventual reduction of tariffs and other forms of agricultural protection in industrialized countries (Valdés and Zietz, 1980; and Goldin and Knudsen, 1990).

Other studies during the Uruguay Round negotiations concluded that agricultural and agro industrial production in developing countries, as well as their net welfare, would increase if agricultural protectionism in industrialized countries was reduced. But some of the studies also raised the possibility of negative welfare effects for a subset of developing countries, mostly in Africa and net importers of agricultural products, due to adverse changes in the terms of trade (Sharma, Konandreas, and Greenfield, 1996). Other analyses, though, have argued that even for those countries suffering adverse trade effects, the domestic policy framework is still more relevant for general welfare results (Ingco, 1997). Also, simulations of gains by developing countries resulting from agricultural trade liberalization have usually lumped fruit and vegetables together with other subsectors, and may have underestimated the benefits, considering the growing importance of these products in LDC exports. For instance, Islam (1990) found significant gains for developing countries of liberalization of world trade in fruit and vegetables. Yet, even after the Uruguay Round negotiations, production of fruit and vegetables remains highly protected in several industrialized countries, mainly on a seasonal basis, allowing entry with lower levels of tariffs only when there is no domestic production (Swinbank and Ritson, 1995).

The combination of domestic support, market protection, and export subsidies by industrialized countries, depressed world prices and reduced market opportunities for a variety of food products. This hurt developing countries that were net exporters but it has also been argued that such outcome may have helped the balance of payments position of developing countries that were net importers of those products (Koester and Bale, 1990; Sarris, 1991). This view, however, omits the distributional impact within developing countries between consumers and producers, and across various types of households. Simulation models used to evaluate world agricultural liberalization have not disaggregated household and farm sectors in ways that would have allowed better understanding of the distributive implications of the policies suggested. This issue should be analyzed in detail in current WTO negotiations.

Moreover, even though agricultural trade policies in industrialized countries may have reduced the import bill of net importing countries, those same policies may have had a stifling effect on agricultural and agro industrial production in developing countries, regardless of their net trade position. Considering that those sectors are the main economic activities in many developing countries, particularly poor ones, and that such activities usually have significant growth multipliers for the whole economy (Delgado et

al., 1998), the level of non-realized dynamic benefits for those countries may have been substantial.

Given that framework, then, there are different areas of the negotiations that appear important for agricultural growth in developing countries.

Export subsidies. The use of export subsidies has been widely criticized as unfair and disruptive of international trade. In complete contrast with industrial goods, this practice has not been eliminated for agricultural products, many of which are processed products. Therefore, the differential treatment of export subsidies, under the current agreements of the World Trade Organization (WTO), is between primary agriculture and industry, and between those industries based on agricultural raw materials (for which export subsidies are allowed) and the rest of the manufacturing sector (for which those unfair trade practices have been banned) (Diaz-Bonilla and Reca, 2000). Industrialized countries have been the main source of subsidized agricultural exports over the years: from 1986-1997, those export subsidies amounted to about 135 billion US dollars (see Leetmaa and Ackerman, 1999, for European and US export subsidies). That is the equivalent of almost 13 percent of the value of all agricultural exports by the developing countries of Africa, LAC and Asia (excluding China) combined, during the period (Diaz-Bonilla and Reca, 2000). Agricultural export subsidies have proved very disruptive both for developing countries that are net agricultural exporters, but also for the agricultural producers in net importing developing countries, which may be displaced in their own markets by this unfair competition. An important percentage of those export subsidies do not go to the poorest countries, and some of the products covered are not necessarily those that may be more directly linked to the alleviation of food security problems.

A related subject is the operation of state trading enterprises, which may require increasing disciplines and transparency on practices that may be equivalent to subsidies or dumping on the export side, or hidden trade barriers, on the import side. Finally, it is important to integrate in a unified framework the trade disciplines involving agricultural products related to export subsidies, export credits, and food aid.

Developing countries are asking that the special and differential treatment exempting subsidies in developing countries related to marketing costs and internal transport and freight charges in Articles 9.d and 9.e be maintained.

At the same time, developing countries have an interest in stricter disciplines on export taxes and export controls, practices that may exacerbate price fluctuations in world markets and limit access to food.

Market Access. The opportunities for expanded market access will depend on several undertakings:

- Increasing the volume of imports allowed under the current regime of tariff-rate quotas (TRQ);
- More transparent and equitable administration of those TRQs;

- Simplification of some complex tariff structures that include combinations of normal and ad-valorem tariffs, complexity which is compounded by seasonal adjustments in some cases;
- Further reduction of tariffs, particularly those still very high in some key products, such as fruits and vegetables, sugar, meat and dairy products, among others; and
- Completing the process of tariffication in the cases where exemptions were granted.

Within market access, the elimination of tariff escalation is an important subject for developing countries: this practice by importing countries, of applying higher tariff on processed agricultural imports than on raw products, undermines their possibilities of generating local employment and increasing the value added of the exported products. Tariff escalation has been discussed at least since the Kennedy Round (Yeats, 1974). Although this characteristic of the tariff structure has diminished somewhat, significant levels of tariff escalation will remain even after the full implementation of the Uruguay Round (Lindland, 1997; and OECD, 1997). In particular, OECD (1997) documents important tariff escalation in coffee and cocoa products, which can in part explain the larger share of industrialized countries in the international trade of processed goods using those raw materials (Diaz-Bonilla and Reca, 2000).

Another issue of market access is the allowance of the Special Safeguard established in the AoA for products that underwent tariffication. Sixty percent of the 39 countries, which have established SSG for more than 6100 tariff items, are industrialized countries (WTO, G/AG/NG/S/9, 2000a, and updates). Most developing countries resorted to binding commitments as an alternative to apply the tariff equivalent of the existing border measures, and therefore could not invoke the SSG.

As another manifestation of the offense/defense dichotomy, while some developing countries want the SSG terminated, others are asking to be able to use it. In general, the SSG acts as a variable levy, is not transparent, and it has the potential of being very disruptive of trade. Probably for developing countries it would be more adequate to ask for the termination of the SSG, while reserving the possibility of a streamlined safeguard for a very limited number of products for food security reasons only, or when important components of the rural population are affected.

A final and delicate matter related to market access is the erosion of preferences for a number of developing countries that have special market access arrangements with industrialized countries. For poor income developing countries, the preferential access usually represents a large percentage of agricultural exports and sectoral value added. Some have argued that the continuation of those preferences is already under threat for products such as sugar, both in the US and the EU. In the US market, Mexico has expanded access under NAFTA, reaching total liberalization by 2007/8, while in the EU market, the inclusion of Eastern European countries, will reduce the margin of preferences (ABARE, 1999).

Yet, whatever the uncertain prospects for some of those preferential arrangements, other options could compensate poor countries for the erosion in preferences. In some cases,

changing the way TRQs operate could compensate the erosion of preferences for some time. The most obvious changes would be granting the licenses to the exporting countries instead of giving them to importers, and reducing to zero the *in quota* tariff for those countries. Another possibility is to calculate the value of the trade preferences and transform them into an annual payment to the exporting countries. This means extending to the poor developing countries affected the logic applied to compensate domestic producers in industrialized countries for the reduction in direct support. Considering that a policy of liberalization acts as a tax cut for consumers in the liberalizing countries, recapturing part of those funds may serve to finance the compensations to poor developing countries for the lost access.

Domestic Support. The final agreement reached at the Uruguay Round was weakened when the measure of support was transformed from a product-based one to an aggregate value for the whole agricultural sector, and when the main domestic subsidies of the European Union and the US (at that time) were kept outside the disciplines in what was called the "blue box". With the changes in the 1996 Farm Bill in the US, the most important user of Blue Box measures was the European Union. However, the current version of the US Farm Bill brings back domestic subsidies to American farmers without the constraints of previous set-asides (Orden, 2002).

On the other hand, many developing countries have dismantled or significantly reduced their own domestic support for agricultural producers, mainly because of fiscal constraints and concerns about inefficient policies, usually as part of structural adjustment programs supported by financial international organizations and aid donors. However, the possibilities that these countries, and the world, benefit from following their comparative advantages are drastically thwarted by the subsidies of developed countries. To discipline these subsidies, some proposals include the tightening of the criteria for the Green Box, the reduction of the measure of support by product, and the elimination of the exemptions considered under the Blue Box.

Some countries have suggested a cap to all, or a specially defined subset, of domestic support measures as a percentage of the total value of agricultural production (WTO, 2000a and 2000b). The argument is that a uniform cap defined in percentages would contribute to level a playing field that is now heavily tilted in favor of industrialized countries, which have the legal room under the WTO and the money to distort production and trade in their favor.

Least developed and low-income developing countries should still be allowed special and differential treatment in this regard. In general, the negotiations of the Uruguay Round allowed developing countries to maintain the great majority of agricultural and social policies linked to poverty alleviation and agricultural development. Low-income developing countries should be concerned with the provision of adequate levels of technical assistance and financial support to help develop their agricultural sector, as indicated in the Ministerial Declaration on the subject.

Sanitary and Phytosanitary Measures. These measures, as well as other technical, quality, and environmental standards, can be, and have been, used as barriers to trade. Concerns about the possibility that the liberalization of agricultural trade achieved with the Agreement on Agriculture could be negated by manipulation of those regulations led to the negotiation during the Uruguay Round of two separate documents. The first was the Agreement on Sanitary and Phytosanitary (SPS) Measures, directly related to human, plant and animal health issues linked to trade in agricultural products. The second was the Agreement on Technical Barriers to Trade, which covered technical regulations and standards, and conformity assessment procedures.

Developing countries have complained over the years about SPS measures and inspections that tend to become stricter when there are agricultural surpluses in the domestic markets of industrialized countries. They have also criticized the long periods required by industrialized countries to complete the pest and disease studies needed to allow the import of new agricultural products from developing countries (see Matthews, 1994, for other SPS issues). Since the Uruguay Round Agreement, and in the preliminary discussions related to the continuation of the negotiations mandated in Article 20 of the Agreement of Agriculture, some developing countries have argued for greater flexibility in the implementation of their obligations under the SPS Agreement. Finger and Schuler (2000) have calculated the relatively important budgetary costs that some of the operational requirements of different WTO commitments (and not only the SPS Agreement) may impose on low income developing countries. The issue is whether those WTO regulatory issues should be aligned with the real developmental needs of developing countries, as separate from just complying with WTO legal texts.

For instance, SPS issues related to human health should be approached as part of the improvements needed to protect the local population from food-borne diseases and not only as a way to comply with trade regulations. Similarly, tackling animal and plant health problems must be seen as part of SPS requirements to increase production and productivity in developing countries. If the costs to implement the administrative machinery needed to deal with SPS issues are seen by developing countries as simply "how best to allow agricultural imports from industrialized countries," then the complaints about the need of flexibility appear justified.

As a general proposition, it seems imbalanced to ask low-income countries to devote to the administrative machinery required to implement WTO obligations resources that represent, as a percentage of the GDP, a larger share than what industrialized countries assign to similar functions.

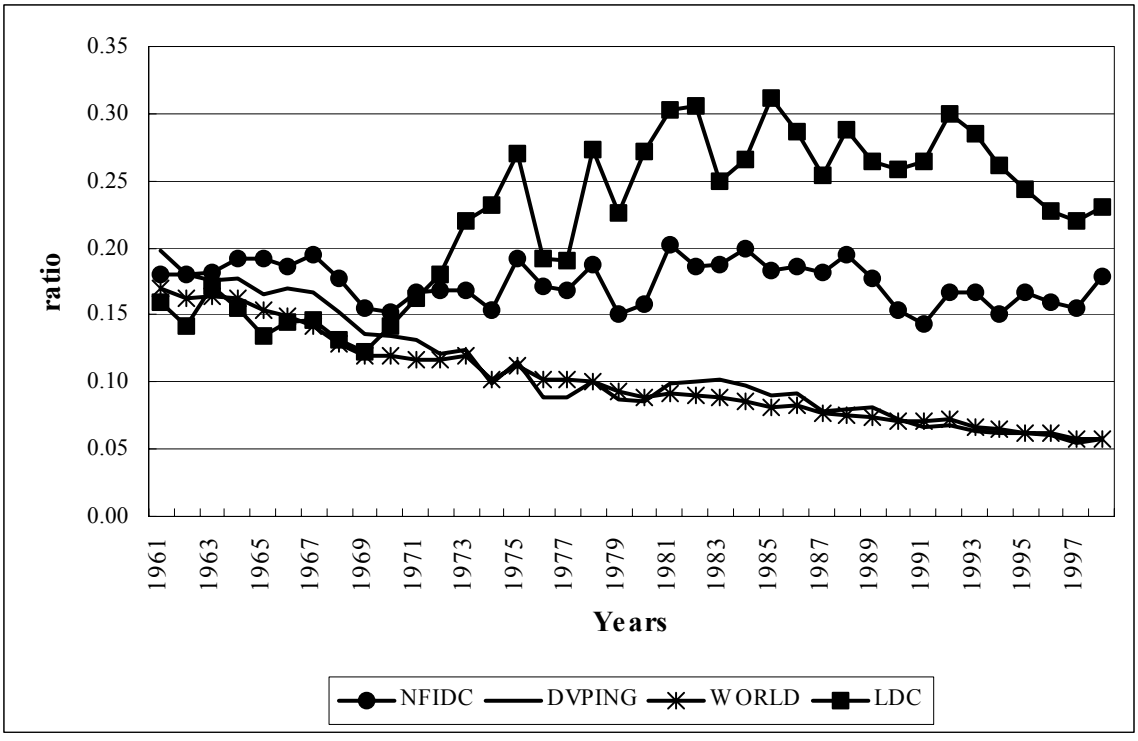
However, a strong SPS framework may be important for developing countries, not only because a competitive export position requires establishing and maintaining the sanitary and quality requirements for their products, but also as a way of improving health conditions in the developing countries, to the extent that best practices and standards would then be more widely applied in those countries. Probably the most adequate approach for developing countries is to insist on receiving the technical and financial assistance considered in the SPS Agreement (Articles 29 and 30) to build and improve

their own systems of quality control and health and safety standards. These systems should be centered on their own needs to improve health and sanitary domestic conditions, and the regulatory burdens of compliance should not represent shares of the GDP that are disproportionate compared to what industrialized countries devote to similar functions.

3.4.Agriculture, Poverty, and Food Security

Introduction. Increased access to international trade opportunities is usually associated with higher growth rates for the economy, in general, and for the agricultural sector in particular. Vice-versa, closed economies relying on the dynamics of small domestic markets have tended to show slower and halting growth rates. In turn, high and stable growth rates have been commonly associated with reductions in poverty rates (see Lipton and Ravallion, 1995; the recent reviews in Eastwood and Lipton, 2001; and Osmani, 2001). In particular, if countries are following their comparative advantages, international trade by labor-abundant poor developing countries, should help increase employment and wages, further alleviating poverty. To the extent that poverty is the main cause of food insecurity, then international trade opportunities should also help with food security concerns. The expansion of trade in goods and services over the last decades, along with the decline in food prices resulting from technological advance, has led to sharp reductions of the incidence of the total food bill of developing countries as percentage of total exports (Figure 4). Variability for food consumption in individual countries is also far smaller than food production variability, an indication that trade has contributed to food security (Tables 15 and 16).

Figure 4. Ratio of food imports over total exports
Source: Author's calculations from FAOSTAT 2000 database.



Yet, it is always possible to construct scenarios under which trade may have less benign effects on poverty and food security. Much depends on the level, inclusiveness, and stability of the growth rate. While the developing world can experience rapid declines in poverty with distribution-neutral growth, deviations from neutrality may wipe out those gains (Lipton and Ravallion, 1995). Even with neutral growth at higher rates, the poor may face significant additional downside risks. If variability increases generating a greater likelihood of crises and the prospect of long-lasting damage to their low levels of human and physical capital: crises may force poor families to sell productive assets, increase the possibility of illness, or have their children drop out of school (see for instance, Addison and Demery, 1989; Lipton and Ravallion, 1995).

Within the agricultural sector, criticisms to different developments such as the Green Revolution, the increase in commercialization, and now the expansion of international trade, and more generally the process of globalization, centered on the possibility of negative effects on the welfare of poor producers and poor consumers, through diverse channels. A moderately negative scenario would point out to the limitations of the poor to have access to the technology and other resources that would allow them to participate profitably in expanding domestic or international markets. This exclusion may lead to the possibility of worsening income distribution, but not necessarily to increases in absolute poverty.

A more worrisome situation would be if the poor became, not only relatively, but also absolutely worse off. Usually the arguments in this regard suggest that the process of technological innovation or expansion of market opportunities may reinforce the power of already dominant actors (large landowners, big commercial enterprises) allowing them to extract further incomes from the poor or to expropriate their assets. In terms of food security, the claims of negative effects usually revolve around the possibility of cash or export production displacing staple crops, and/or that women, usually the anchor for households' food security, may end up with less decision-making power and less resources due to the technological or commercial changes.

Different studies of the Green Revolution, and domestic and international commercialization, paint a more positive view of the process, usually showing advances for the poor, due to production, employment and food price effects, although recognizing that uniform attainment of benign outcomes is by no means guaranteed (Hazell and Ramaswamy, 1991; von Braun and Kennedy, 1994; and IFAD, 2001, among others). Usually complementary policies are needed to increase physical and human capital owned by the poor, to build general infrastructure and services (roads, communications, transportation), to ensure that markets operate competitively, and to eliminate institutional, political or social biases that discriminate against the poor (IFAD, 2001).

The question in the context of the WTO negotiations is whether the current AoA and its possible future modifications would allow or limit the range of policies needed to make sure that increased trade opportunities lead to adequate rates of inclusive, sustainable and stable growth, contributing to reductions of poverty and improvements in food security.

Answering this question requires first a brief review of some policy discussions related to the role of agriculture in the development process.

Agricultural policy dilemmas. There is a permanent tension in agricultural policies between the desire of maintaining high prices for producers and keeping low prices for consumers. Industrialized and developing countries have tried to solve this old policy dilemma rather differently. Rich countries have used transfers from consumers (through border protection) and taxpayers (through budgetary outlays) to maintain high prices for producers. For instance, according to the OECD, in 1998 for the products considered in those calculations, producers in Japan received equivalent prices that were 172 percent above world prices, the European Union 83 percent, and the United States 28 percent. For OECD countries as a whole, equivalent domestic prices exceeded world prices by about 60 percent, with the largest difference corresponding to Norway (229 percent above world prices). In the case of Japan, more than 90 percent of the transfer was paid by consumers through border protection and the rest by taxpayers as budgetary outlays, while in the case of the EU and USA the shares were about equal for consumer and taxpayer transfers (OECD, 1999).

Developing countries, on the other hand, followed historically policies of low agricultural prices to help urban populations and further the process of industrialization. Agriculture role in development was conceived as supporting the needs of industrialization in four ways (Johnston and Mellor, 1961). First, by the transfer of labor surpluses: workers supposedly unemployed in agriculture would be transferred to industry (see especially Lewis, 1954). Agriculture would also provide food ("wage goods") and raw materials to keep salaries and other costs low in the industrial sector. Savings from the agricultural sector would be taxed away to sustain investment in industry and infrastructure. Finally, the agricultural sector had to generate foreign currency to pay for the importation of capital goods and industrial inputs.

But by the mid-1960s, several concerns arose about the adequacy of a development strategy that discriminated against the agricultural sector. Schultz (1964), in an influential book, argued that farmers in developing countries were "poor but efficient," reacting with economic rationality to changes in prices and incentives. If agricultural resources were efficiently utilized, no gains could be made by transferring labor and savings to other sectors. A better strategy would be to support the agricultural sector through investments in technology and physical and human capital formation in rural areas. The idea of a technological solution to the rural problem came to infuse the Green Revolution of the 1970s.

Other studies in the 1970s evaluated critically the development strategies and trade regimes based on import substitution industrialization (ISI) in a number of developing countries (Little, Scitovsky, and Scott, 1970; Balassa, 1971; and Krueger, 1978). They argued that ISI had a negative impact on economic efficiency and growth. Also, arguments about inelastic international demand ("elasticity pessimism") and deteriorating terms of trade began to be challenged (for an overview of those debates see Balassa and Michalopoulos, 1986).

It was also clear that poverty alleviation in developing countries was impaired by policies that protected capital-intensive industrialization and discriminated against agriculture, negatively affecting employment and income distribution. The obvious realization that the poor in developing countries were concentrated mainly in rural areas, led to the conclusion that if poverty alleviation was to be an important objective of economic policy, then greater attention should be given to agricultural and rural development. Chenery et al (1974) presented the case for an investment program centered on the poor, especially in rural areas (see also Lipton, 1977, who argued against the urban bias in common development strategies since the 1950s).

During the 1980's, rather than continuing the investment approach in rural areas and the poor, the emphasis shifted to the need for changes in the framework of development and macroeconomic policies. In particular, the combination of overvalued exchange rates, protection of domestic industry, and (often) explicit taxation of agricultural exports, were criticized for severely hindered agricultural growth, especially in very poor countries. If those were the main problems, then faster and more equitable growth would not happen until the general policy framework was revised. The policy recommendation was to eliminate inefficient industrial protectionism, to avoid the overvaluation of the exchange rate, to phase out export taxes on agriculture, and to reduce government's involvement in agricultural markets through inefficient and many times contradictory interventions (World Bank, 1986). At the macroeconomic level, policies underscored the need of having domestic absorption in line with production (eventually expanded by sustainable external financing). These policies, when implemented, have usually been part of IMF stabilization programs and World Bank structural adjustment programs.

The results in terms of growth and equity of those programs continue to be debated (see Dorosh and Sahn, 2000), but recent research indicates that the effects of such policy reforms have been to greatly reduce or, in some cases, eliminate the past policy bias against agriculture in many developing countries (Bautista, Robinson, Tarp, and Wobst, 1998). Although developing countries need to improve further their domestic policies, they should turn their focus again to investment policies and projects in the agricultural sector, focusing on human capital, land, water, property rights, management, technology, infrastructure, strengthening organizations of small farmers, and other forms of expansion of social capital and political participation for the poor. Such an agricultural focus was largely abandoned during the period when improvements in the overall development strategy emphasizing economy-wide trade and macroeconomic policies appeared paramount (Diaz Bonilla and Robinson, 1999).

In the context of the current negotiations, should developing countries develop policies to protect the agricultural sector, after discriminated against it, instead of adopting a more neutral stance focusing on investments in physical and human capital. Some proposals, implicitly or explicitly suggest taxing consumers in developing countries to support producers, through higher levels of border protection. An extreme form of the argument in favor of producers and against consumers is presented in Madeley (2000, p.8), who argues, "Consumers may appear to gain from cheap food imports. But they only do so if

they have money to buy, which many people in developing countries don't have." This way of wishing away the policy dilemma mentioned above basically ignores the reality of the poor as a consumer. Poor households spend a large part of their incomes in food (above 50 percent for a large number of poor developing countries; see FAO, 1999b). Even when they are small farmers, the poor ones tend to be net buyers of food, and together with landless rural workers, may be affected by higher prices, although the net effect will depend on the strength of employment effects (IFAD, 2001).

At the same time it is also important to notice the steady shift in the locus of poverty in developing countries, where food insecurity, and malnutrition are moving from rural to urban areas (Ruel et al., 1998, Ruel, Haddad, and Garrett, 1999; Haddad, Ruel, and Garrett, 1999; and Garrett and Ruel, 2000). Urbanization in developing countries is posing new questions regarding economic and social policies in general, and also in relation to the impact of trade and trade policies on poverty and food security. A similar profile of trade protection (or trade liberalization) will have different implications for developing countries with important contingents of urban poor affected by food insecurity, than for other poor countries where a majority of the population affected by poverty and food insecurity lives in rural areas and works in agricultural production. Of course there are also vulnerable rural groups, which are net consumers of food, and for which taxes on food imports may have impacts more comparable to food-insecure urban groups, depending on the balance between possibly higher incomes and larger food costs (Diaz-Bonilla et al, 2000). In fact, Fan, Hazell, and Thorat (1999) have found that higher agricultural prices are positively correlated with rural poverty in India (i.e. poverty goes up when agricultural prices increases), while Fan, Zhang, and Zhang (2000), found the opposite for China. An interpretation is that even poor farmers in China are net suppliers of agricultural products, while most of rural poor in India are net buyers (Fan, Zhang, and Zhang, 2000). The impact of prices then depends on the structure of farming system and the nature of poverty and food insecurity (see also IFAD, 2001).

Most developing countries are concerned about food insecurity in the countryside and the impact of agricultural imports on poor agricultural producers. However, in developing countries with larger urban populations, and where an important percentage of poor and food insecure groups may be urban dwellers, there is a clear trade-off for policies aimed at agricultural trade protection. These policies may maintain higher incomes for poor producers, but they may also act as a tax on poor consumers (both effects depending on other policies and the interaction of markets and institutions). As mentioned before, the case of vulnerable rural groups that are net consumers of food must also be considered. In general, as it was also argued before, an import tax has a bigger incidence on poor consumers (who spend a greater percentage of their incomes on food), and is received mostly by bigger agricultural producers, which have larger quantities of products to sell.

This issue is further complicated by dynamic considerations, which may affect rural-urban migration. A policy completely tilted towards low prices for the consumer would damage the rural sector and exacerbate migration to the cities. Therefore, the point is to have a balanced rural-urban policy, which includes but goes beyond food prices, and which considers the short and long-term implications of those policies.

Several developing countries have indicated their concern that further liberalization of agricultural and trade policies may create problems for their large agricultural populations, where poverty is still concentrated (WTO 2000a, and 2000b). There may be some valid arguments for holding temporarily the line on current levels of protection in poor developing countries. One is not to reduce them until the higher levels of protection and subsidization in industrialized countries are substantially reduced in parallel. The World Bank report on agriculture (1986) advised developing countries to live with those subsidies, taking advantage of lower prices for their consumers. However, as argued before, even though export and domestic subsidies in industrialized countries may reduce the import bill of net importing countries, those same policies would hamper the full dynamic benefits that a sustainable agricultural sector and agro-industrialization process can have on the whole economy, given a proper framework of domestic economic policies in developing countries.

Another argument for holding the line on current levels of protection in poor countries may be related to fiscal matters: the importance of trade taxes as an important source of government revenues should be taken into account. Yet, some forms of trade liberalization (such as moving from quotas to non-prohibitive tariffs), or as the result of increases in international trade, may lead to larger government revenues.

In summary, the policy dilemma between high prices for producers (which would help poor, small farmers, but also big ones, and the latter proportionally more) and low prices for consumers (which would benefit poor consumers, but not only them) cannot be wished away, and has to be faced by every developing country. Given the important growth multiplier effects of agriculture especially in poor developing countries, policies that ignore or, even worse, discriminate against agriculture must be avoided. The best approach for developing countries is to eliminate biases against the agricultural sector in their general policy framework and to maintain a neutral trade policy that reduces protection over time. At the same time, they should use the transition periods negotiated in the WTO to increase investments in human capital, land tenure, water access, technology, infrastructure, non-agricultural rural enterprises, organizations of small farmers and other forms of social capital and political participation for the poor and vulnerable. None of these policies is constrained under the WTO Agreement on Agriculture. Developing countries can negotiate possible reductions from the higher bound tariffs rather than utilizing the lower applied tariffs, as some industrialized countries have suggested. Also food insecure and vulnerable countries need a) longer transition times that must be utilized to implement adequate rural development and poverty alleviation strategies, and b) simplified and streamlined instruments to confront unfair trade practices and import surges that may irreparably damage the livelihoods of small farmers.

Food Security and Poverty. Food security concerns have been raised in the current WTO agricultural negotiations by both industrialized and developing countries. For richer countries that are net food importers, the discussion centers, in part, on whether there exists some “adequate” proportion between food imports and domestic food production,

and whether the continuation of the negotiating process may place undue constraints on attaining the desired ratio of imports over domestic production. Those ratios may be linked to some notion of insurance in a changing world, and/or national autonomy to be able to confront outside pressures. It is much less clear what would be the basis for claiming food security concerns in the case of industrialized countries that are net exporters of different food products. In the case of developing countries, they must consider whether important policy objectives such as elimination of poverty and hunger (as cause and consequence of food insecurity) have been helped or hindered by the current Agreement on Agriculture. Will further negotiations improve upon the existing text or further compromise the attainment of those objectives in poor countries (Diaz-Bonilla et al., 2000)?

For the coming negotiations to consider in detail food security concerns under WTO rules, there are two issues that need to be addressed. The first is the relevance of the current classification of countries (developed/developing, NFIDCs, and LDCs) with respect to their food security status. The second issue is whether the current legal texts, which define WTO commitments according to those categories of countries, really address the issue of food security through that differential treatment. Both questions are related: if the categories are badly defined to capture food security concerns, then it is unlikely that the differential treatment under WTO rules will deal with those concerns in a meaningful way. Even if these categories capture the variety in the situations of food in security, the question regarding the adequacy of current and future WTO rules and commitments to adequately treat those differences must still be answered. Both issues are discussed in the following paragraphs.

Are the WTO categories adequate? This concern is borne out by the cluster analysis in Bonilla et al. (2000), which classifies 167 countries into 12 clusters according to their level of food security (cluster one being the most food insecure while cluster 12 is the most food secure). According to the study, some of the categories utilized by the WTO appear inadequate to capture food security concerns. The most obvious case is the category of "developing countries." Concerns about the wide variety of countries that have self-identified as developing countries, with special treatment, have existed for some time in GATT and now in the WTO. Developing countries appear scattered across all levels of food (in) security, except in cluster 12, a very high food secure group.

The category of NFIDCs, in turn, is split between food insecure and food neutral groups: eleven out of the 19 countries appear in clusters 1 to 4 (including Kenya which appears in cluster 1, the most food insecure, and Botswana, Cuba, the Dominican Republic, Honduras, and Peru, in cluster 2). The remaining eight countries are classified in clusters 5 and 7, with intermediate levels of food security.[4]

[4] Although classified as a "food neutral" country, Egypt can be considered food insecure because of a very high food bill of almost 20 percent of total exports. Including Egypt, this analysis will classify as food insecure 12 out of 19 countries within the NFIDCs, or about 63 percent of the cases. Still more than one third of the NFIDCs will not be in the food insecure category (for more details see Diaz-Bonilla et al., 2000).

Being a net food importer appears to be only a weak indicator of food vulnerability. Some countries may be net food exporters but still have a larger percentage of their total exports allocated to buy food, and vice-versa (for example Mali, is a net food exporter but its food bill is about 15 percent of total exports, while Venezuela, and NFIDC, spends about 5 percent of total exports on imported food). Additionally, some countries may be net food importers just because of a dominant tourist industry (like Barbados, which also has the highest income per capita of the NFIDCs, about US$7,000). Other NFIDCs have important levels of oil exports (such as the case of Venezuela, and Trinidad and Tobago) and therefore imports of food only reflect the comparative advantages of their production structure. In any case, the seven NFIDCs considered here in the food neutral group (excluding Egypt), have food imports that represent about nine percent of total exports, higher than the developing countries' average of six percent, but much lower than the food insecure NFIDCs' (including Egypt) average of 16 percent.

The category of LDCs, on the other hand, correspond more closely to countries suffering from food insecurity, even though this issue is not explicit in their definition. Only three (Cape Verde, Maldives, and Myanmar) of the 43 LDCs covered in that study, are not among the vulnerable countries in clusters 1 to 4. According to UNCTAD data, the first two have incomes per capita of US$990 and 1,255 (1997), respectively, which represents four to five times the LDCs' average of US$235. For Myanmar, UNCTAD reported an income per capita of US$3,657 (1997).[5] Although 42 out of 43 LDCs considered in this study are food insecure according to the typology presented here, some countries that have a food security profile similar to the more vulnerable LDCs, are not included in this category, like Kenya. Other countries with somewhat better profiles, but still in the food insecure categories, are neither LDCs nor NFIDCs, such as El Salvador, Georgia, Mongolia, and Nicaragua (all WTO members).

The above classification suggests that LDCs (as currently defined by the United Nations) is a good starting point to identify countries for special treatment under food security concerns, but the WTO could also recognize other food insecure countries, which are neither LDCs nor NFIDCs, using some objective criteria such as those utilized in the cluster analysis. A simplified approach would be to combine an indicator of consumption vulnerability (an average of calories and proteins per capita), with an indicator of trade stress (the food import bill as percentage of all total exports) to identify countries that are food insecure. Countries may move in and out of the food insecure category so defined, depending on their performance according to the combined consumption trade measure.

Food insecure countries would receive special and differential treatment related to domestic support and their own market access. They will be considered also for food aid, financial support, and technical assistance envisaged in the Ministerial Decision on possible negative effects of the agricultural reform program on LDCs and NFIDCs. The issue of special access to other countries' markets for LDCs, and the additional benefits conferred upon LDCs because of reasons other than food security, would still be limited

[5] Like Egypt, Cape Verde and Maldives, also fall in the food insecure category because they are trade stressed, leaving only Myanmar in the food neutral group.

only to the countries specified by the United Nations. The quantitative limits suggested would help differentiate developing countries that may need special treatment in terms of food security from those that do not.

A special issue is the current definition and composition of the category of NFIDCs. This classification, negotiated during the Uruguay Round, has implications as defined in the Ministerial Decision, and constitute an acquired right. The implementation of that Decision, as discussed in the meetings of the Committee on Agriculture of the WTO, appears to have been limited mostly to exchanges of information among multilateral organizations and bilateral donors about programs already under execution. In particular, there was no special action taken during the 1995-1996 increases in agricultural prices, because the agencies providing food aid (and financial and technical assistance) considered that the rise was not related to the implementation of the Uruguay Round agricultural agreements. For that reason, many LDCs and NFIDCs have been calling for objective criteria to "operationalize" the Ministerial Decision (UNCTAD, 2000).

The use of cut off values for food insecure countries would help accomplish such operationalization, defining more precisely the group of countries that appear vulnerable to food security problems. It can be argued that the perception that the category of NFIDCs is not adequate (because it leaves vulnerable countries out, while including countries that are relatively better off) may have contributed to the lack of implementation of the Decision.

It is also relevant to ask about the food security situation of the developed countries. Several developed countries have advanced the notion of food security as part of the "multifunctionality" of agriculture. As seen in section 3.1, "food security" has a very different meaning in developed and developing countries. The discussion of food security should be limited to the vulnerability of developing countries, using a different terminology for developed countries.

Are the AoA and other WTO legal texts adequate to address issues of food security and poverty? The AoA includes different clauses that are directly or indirectly related to food security and poverty issues. The following discussion focuses mostly on the legal aspects, without necessarily analyzing the economic advantages or disadvantages of the different clauses.

Stocks for food security are the most obvious instruments available in the AoA. Annex 2 of the AoA presents the Green Box measures, which include "all support policies provided through a publicly-funded government program not involving transfers from consumers" and which do "not have the effect of providing price support to producers." They are exempted from reductions provided they comply with other specific criteria established in Annex 2, paragraph 1, of the AoA. The list of those programs and the specific policy criteria and conditions, as detailed in Annex 2, include, among others public stockholding for food security purposes. The stocks must be an integral part of a food security program identified in national legislation. The program may include government aid to private storage of products. The stocks must correspond to

predetermined targets, related solely to food security. The process of stock accumulation and disposal must be financially transparent, the products must be bought "at current market prices, and sales from food security stocks shall be made at no less than the current domestic market price for the product and quality in question" (Annex 2, paragraph 3).

A footnote in the Annex indicates that "governmental stockholding programs for food security purposes in developing countries whose operation is transparent and conducted in accordance with officially published objective criteria or guidelines shall be considered to be in conformity with the provisions of this paragraph, including programs under which stocks of foodstuffs for food security purposes are acquired and released at administered prices, provided that the difference between the acquisition price and the external reference price is accounted for in the AMS."

Emergency food stocks may have an important role to play in food security arrangements. Carrying stocks as an insurance mechanism is different from using stocks to stabilize domestic grain prices, which has proved expensive and relatively ineffective (Hazell, 1993; Knudsen and Nash, 1990). The conditions established in the AoA are that those stocks must be built based on clearly defined targets, for instance as a percentage of total consumption. Also, it would help to define a specific number of key food items (no more than three to five), for which stocks will be formed. Several studies suggested that relatively small percentages of total consumption might suffice to act as an insurance mechanism (Hazell, 1993; this study refers to McIntire, 1981, which calculates that stocks of five percent of total consumption may be enough for SSA countries). The AoA requires also transparent financial arrangements, which is a sensible requirement to avoid waste and corruption.

The key point, though, is that those stocks must be bought and sold at market prices. The language is clear on sales from the stock: those prices are "current domestic market prices" (which includes whatever level of tariff protection the country may have). But it can also be interpreted that it is the case when buying food products. For poor countries, it makes sense not to add to the costs of the food security program by using administered prices, which tend to generate losses buying high to support farmers and selling low to subsidize consumers. If a government buys at harvest time 10 percent of the production of a specific crop, paying market prices, to achieve the stock to consumption ratio, it would give some price support with respect to the counter factual of no intervention (Islam and Thomas, 1996; p 58-61). Since all the operations are conducted at market price, ideally using some sort of auction, the program would be part of the Green Box and would not be subject to any discipline under the AoA.

Any doubts about the applicability of this Green Box measure could be avoided by adding to the current text. Food insecure countries, which would be defined by objective indicators (such as the ones suggested earlier), would comply with the AoA (and also be exempted from any remedy applied under Article 13):

- When they build food security stocks for a small number of pre-specified products, and

- When the stocks do not exceed a limited percentage of domestic consumption (i.e. stocks for not more than 10 percent of domestic consumption for up to five products).

If a developing country decides to use administered prices instead of the prices prevailing in the domestic market, then, according to the footnote, the difference with the external reference price (which is not the current world price, but the 1986-88 price established for the original calculations) must be counted as part of the AMS. Yet, if the food security stock does not exceed, say, 10 percent of consumption, it would take a relatively large price subsidy (along with a large percentage of imports in domestic consumption), for a developing country to exceed the 10 percent de minimis exemption per product. In those cases though, the program would have changed from food security to price support, and it would most likely suffer from financial problems and lack of sustainability, whatever its status may be under the AoA.

Domestic food aid is a second instrument for food security, which is also included in the Green Box measures. Annex 2, paragraph 4, specifies that food aid has to be offered to population in need subject to clearly-defined criteria related to nutritional objectives. Food purchases must be made at market prices; the financing and administration of the aid shall be transparent; and food aid can be in the form of direct provision of food or the provision of means to allow eligible recipients to buy food either at market or at subsidized prices. A footnote indicates that "for the purposes of paragraphs 3 and 4 of this Annex, the provision of foodstuffs at subsidized prices with the objective of meeting food requirements of urban and rural poor in developing countries on a regular basis at reasonable prices shall be considered to be in conformity with the provisions of this paragraph."

Again, the AoA allows food security interventions, but imposes some sensible requirements, such as to have a clear plan with well-defined nutritional criteria, focusing on "population in need." Moreover, in the case of developing countries, there may be subsidized interventions for urban and rural poor. As in many instances, the issue is not legal restraints under the AoA, but rather how to design and finance adequate interventions (see Coady and Skoufias, 2001 for analysis of different interventions)

Although the formation of stocks, as indicated, can also help producers if the buying is timed adequately (Islam and Thomas, 1996), the two measures discussed so far operate mostly from the consumption, or demand, side. However, developing countries usually emphasize the production side of food security. Several of them have indicated their concern regarding agricultural and trade policies that may create problems for their large rural populations, where poverty is still concentrated and which are agricultural producers (WTO 2000a, 2000b, and2001). These concerns are related to issues of domestic support (how to provide meaningful support to agricultural producers, specially small farmers), market access (particularly the impact of further liberalization and how to manage import surges), and export subsidies (that may displace local producers).

Domestic support. As already argued, the Agreement on Agriculture allows great latitude in domestic support policies for industrialized and developing countries. Green Box measures (Annex 2), Blue box (Article 6.5), the *de minimis* exemptions (Article 6.4.b), and the Aggregate Measure of Support (AMS), which was changed from being product specific to an aggregate for all products (Article 6.1) illustrate this point. Developing countries, in addition to a *de minimis* exemption of 10 percent (as already indicated), are allowed to reduce their levels of domestic support less than non-developing members of the WTO and to implement the commitments in a period of 10 years instead of 6 (article 15.2). Least Developed Countries, as defined by the United Nations, are completely exempt from any reduction in domestic support (Article 15.2).

Additionally, Article 6.2 exempts developing countries from reduction commitments in yet other categories of domestic support. They include "measures of assistance, whether direct or indirect, to encourage agricultural and rural development" which "are an integral part of the development programs of developing countries". The article mentions investment subsidies generally available to agriculture; agricultural input subsidies to low-income or resource-poor producers; and support to eradicate illicit narcotic crops through diversification. Article 6.2 concludes saying that "domestic support meeting the criteria of this paragraph shall not be required to be included in a Member's calculation of its Current Total AMS."

A developing country is legally entitled under WTO to provide additional investment support to their agricultural producers provided that those countries show that the measures are "an integral part of development programs of developing countries", or, in the case of input subsidies (from credit to fertilizers or water) if they are given to "low-income or resource- poor producers". By extension of the Green Box, it could be argued that these interventions would be more protected from challenges, if they were part of clearly defined and publicly-funded government program (Annex 2.1 and Annex 2.5). Article 6.2 has the advantage from the point of view of equity. It compels developing countries to design specific programs for rural development or alleviation of rural poverty, instead of resorting to general and non-transparent subsidy schemes that may benefit richer farmers or be wasted in corruption.

Article 6.2 would, for example, allow the use of input subsidies to poor farmers to promote production as part of a rural development program for such producers, without having to count those expenditures under the AMS, and therefore, without having to reduce them within the WTO commitments.

The only restriction is that those subsidies, may be actionable under Article 13.b), particularly if they exceed the budgetary limit of subsidies decided (not necessarily granted) in 1992 by product (13, b, ii and iii). Some have interpreted Article 13 as prohibiting domestic subsidies in excess of 1992 budgetary limits (Solagral, 1999). Although not prohibited, those subsidies may be "actionable", meaning that the complaining WTO member must support its claim proving either "serious prejudice" (GATT, 1994: Articles 16.1 or Articles 5 and 6 of the Subsidies Agreement), or "non-

violation nullification" or "impairment of the benefits of tariff concessions" (GATT, 1994: Article 23.1.b).

Such complaints appear unlikely in the case of most, if not all, poor developing countries. First, the program must be a highly successful program that displaces imports (when in fact most of the production of such a product would go to expanded domestic consumption) or reduces prices significantly in the domestic market. Second, a significant export market must exist before the program to make it commercially worthwhile to initiate a WTO complaint. Finally, a WTO member (most likely an industrialized country or a higher income developing country, considering the origin of most food exports) must be willing to incur in the public relations costs to sue a poor country on a program aimed at poor farmers for production of food. However, to ensure that this eventuality does not materialize, the current agricultural negotiations may be well advised to clarify in greater detail the interface between the *de minimis* exemption, Article 6.2, and Article 13, particularly for poor countries with problems of food insecurity.

One possibility is to follow the same approach as for food stocks and include language in the AoA specifying that LDCs and countries that are food insecure as defined by some objectives indicators, are exempted from the 1992 limits of Article 13, not only in regard to Article 6.2, but also regarding the *de minimis* exemption. Another issue linked to Article 6.2 is the meaning of "low-income or resource poor producers". An alternative is to take the usual measure of 1 dollar a day, as the poverty line used for international comparisons, or a relative measure within the country (for instance, producers with less than 40 percent of national income per capita). In general, if food insecure countries are defined according to objective criteria, some language can be included to the effect that they are presumed in compliance with the criteria of Article 6.2.

An additional issue, raised by several developing countries, is the possibility that expenditures aimed at reconstructing the agricultural sector after natural disasters or wars be completely exempted from disciplines.

Market access. An important issue raised by developing countries is the availability of adequate instruments to protect from unfair trade practices (such as export subsidies) and from sudden import surges. If, as suggested, export subsidies were banned also in agricultural products, then developing countries would have then the full use of remedies considered in the WTO Agreement on Subsidies and Countervailing Measures (ASCM), including the possibility of applying countervailing duties. Still some poor and food insecure countries may need a streamlined version of the procedures considered under the ASCM. Regarding import surges, an alternative is to create a special safeguard for food security reasons. Some developing countries have requested the possibility of extending the utilization of the SSG also to them. As mentioned before, the SSG is available only to countries, mostly developed ones, which tariffied their border measures. Other developing countries, however, want the SSG eliminated and a new special safeguard created for food security reasons. Conceivably this can be done by adding to the common safeguard of Article 19 (Emergency Action on Imports of Particular Products) of GATT

1994 (i) streamlined and faster procedures for a limited number of designated crops for food security reasons, and (ii) exemptions from the need to offer compensations, linked to the temporary use of the safeguard (see Sharma, 2000)

Food aid. Finally, current negotiations should also consider carefully other issues of food availability and price volatility. A general concern must be the provision of adequate levels of food aid, which has declined in recent years, and the avoidance of cycles that tend to reinforce, instead of counteract, situations of oversupply and shortages (i.e. the fact that there is excess of food aid when world supplies are abundant and lack of it when supply conditions are tight). Food aid should be made available in grant form, target poor countries and social groups, and be delivered in ways that do not displace domestic production in the receiving countries. Badly managed food aid, or cheap food imports due to export subsidies, may just reinforce the bias of economic policies against the rural sector, with its negative impact on poor agricultural producers in developing countries.

Other Instruments. It is also necessary to provide *technical assistance and financial support* to develop agriculture in food insecure countries, and to maintain and expand financial facilities (both multilateral and bilateral) to help with short-term difficulties in financing food imports. *Export controls and export bans* on food items must be tightly disciplined so as not to hamper access to food by importing countries. Finally, the *volatility in agricultural prices* must be monitored carefully. While expansion of world agricultural trade should help to spread supply or demand shocks over larger areas and markets (thus limiting overall fluctuations), the decline of world public stocks as a percentage of consumption may increase the possibility of price volatility. Improvements in early warning systems of food shortages, in weather forecast, and in transportation and storage, along with an adequate programming of food aid and financial facilities for emergencies, should help net food importers.

3.5.Intellectual Property Rights, Technology, and Agriculture

Of course, issues of intellectual property rights (IPR) are not part of the negotiations of the AoA, but of Trade Related Aspects of Intellectual Property Rights (TRIPS). Yet, they have implications for agriculture, poverty, and food security in developing countries. The link is mostly through technology.

Technological change has been key to expanding world agricultural production during much of the twentieth century, especially so during the last few decades. This contrasts with previous human experience when increases in the volume of food and fiber produced depended largely on bringing new lands under cultivation. In turn, improvements in agricultural productivity were closely linked to investments in agricultural research and development (R&D), and to the policies affecting R&D decisions. Typically, the analysis of technology policies has focused on the amount and allocation of funds for that research, training scientists and their technical support staffs, and building or strengthening institutions for developing and disseminating technologies. In this regard, the main concerns over the past several decades have centered on the slowdown in growth of funding for agricultural R&D and the weakening of the

institutions linked to the generation and transmission of technology, both in developed and developing countries. Increases in private investments, and some (but by no means universal) recovery in public funding during the 1990s, do not seem to have changed the basic funding trends (Pardey and Bientema, 2001).

Meanwhile, a key technological development has been the emergence of biotechnology and genetically modified crops. These products have led to a heated debate, related to their impact on future food production, and on poverty and hunger. On the one hand, there are those who argue that GM products are not needed to feed the world in the future. In this view, there is enough food in the world; food insecurity and hunger are income distribution and employment problems, not production problems; biotech products may pose health problems because of allergens and antibiotics; they may affect the environment and biodiversity; and, for the future, there may be other better, safer and/or cheaper technological alternatives. Moreover, these technologies may increase the gap between rich and poor (be those countries, producers, consumers). In this view, even if the technology per se had some potential to alleviate poverty, malnutrition, and hunger, biotech firms, which already have monopoly powers, and have been using indigenous genetic material from developing countries without compensation, do not have any incentive under the existing IPR framework to apply the technology to those ends.

Those who advocate keeping the biotechnological alternative open point to the declining yields since the Green Revolution. They argue that biotech can help to produce better food (including products with higher vitamin and mineral content, more and better proteins, reduced content of toxins, and removal of allergens). It can help also with better crops that alleviate land and water stress, and help the environment and biodiversity through reduced application of agrochemicals and less land use. They consider that biotech can contribute to alleviate problems of poverty and malnutrition. Even if there is enough food at the world level, its global redistribution does not solve the local problem in the medium term. What is needed is that production, employment, and incomes increase in poor countries and in poor rural regions. Furthermore, biotech is well positioned to do so. First, it is scale neutral. Second, and better than the Green Revolution, it has the possibility to address problems of marginal areas (such as droughts, low fertility, salt, and acidity), and specific pests and diseases that affect poor producers. The positive view recognizes that complementary policies, as well as adequate safeguards and regulatory frameworks, are needed. They argue also that public-private collaboration is fundamental to develop applications addressing underdevelopment, poverty, malnutrition, and hunger. The question is how to align research that is mostly private with the generation of the required public goods (Pinstrup-Andersen and Schiøler, 2001).

Some have questioned the possibility of doing that, because, in parallel with the development of biotechnology, there has been a sea change in the treatment of IPR at the world level. The protection of intellectual property rights, part of the TRIPS Agreement of WTO, could provide incentives for innovation, expanding the supply of available technologies, or it may simply reallocate market power and rents among suppliers and users of technology without discernible consequences for the generation and adoption of new technologies.

In order to evaluate those claims, it is important to understand that there is no such thing as an "international intellectual property right", at least in relation to patents and plant breeders' (for other forms of IPR such as copyrights, international treaties provide a form of international protection). A patent awarded in one country does not confer property rights in the rest of the world. Patents and other IP rights are awarded by national governments, and the protection conferred extends only as far as the geographic boundaries of the country in which the rights (which also may vary from country to country) are awarded. Thus, to obtain protection in several countries, rights must be applied for, and awarded in, each one of them (Pardey, Wright, and Nottenburg Philip G. Pardey, Brian D. Wright, and Carol Nottenburg, 2001).[6]

Although aspects of IP protection may vary among countries, the TRIPs Agreement sets out minimum standards that each country belonging to the World Trade Organization (WTO) must implement. The point to be noticed, however, is that there is room for developing countries to tailor legislation to their own needs (Correa, 2000). One of the most critical provisions, Article 27.1 of TRIPs, requires member states (about three-quarters of the world's countries) to allow patents for any inventions, "whether products or processes, in all fields of technology." This Article reduced the scope of long-standing conflicts over pharmaceutical product patents, but left the issue of protection for biological matter and agricultural biotechnology open, through the exceptions to patentability allowed under Articles 27.2 and 27.3.

Because TRIPs does not define the term "invention," countries can determine that biological matter, such as genes, are merely a "discovery" and not an invention, which then cannot be patented. Some countries are implementing legislation along these lines. In addition, exceptions are allowed in order to protect public order; human, animal and plant life; and avoid serious harm to the environment.

More importantly, Article 27.3.b allows members to exclude from patentability "plants and animals other than micro-organisms as well as essentially biological processes for their production." Although members are not required to allow plants to be patented, they must nevertheless provide protection of plant varieties, either by patents, or by an "effective *sui generis* system," or by combination of both systems. Plant protection systems are relatively well established in developed countries, but many developing countries are currently struggling to comply with the implementation of TRIPs.

Developing countries are unlikely to implement patent protection for plants, and basically they have subscribed to a particular sui generis system, the International Convention for the Protection of New Varieties of Plants (UPOV). The rights accorded under UPOV

[6] International treaties and organizations play an important role in IPR. For agriculture, one of the most important ones is the International Convention for the Protection of New Varieties of Plants (known as the "UPOV Convention," after a French acronym) of 1961 (revised in 1978 and 1991). During the Uruguay Round, the Agreement on Trade Related Aspects of Intellectual Property Rights was approved (GATT, 1994: Annex 1C). The Convention on Biological Diversity (CBD) (whose aims are the conservation of biological diversity, sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources), also contains some provisions on IP rights,

extend not only to the plants but also to plant parts, harvested materials, and "essentially derived varieties." The 1978 UPOV version expressly established the "farmers' exemption" that allows farmers to save seed for re-propagation. The 1991 UPOV does not require that such exemption be implemented by member states, but it allows countries to do so, if they wish.

It should be noticed that the combination of being able to exclude from patentability but the need of *sui generis* protection applies only to plants, and not to animals. The latter can be simply excluded from patentability without alternative.

Thus, it appears that in the fields of agriculture and agricultural biotechnology the type and scope of protection will vary greatly from country to country, and especially from North to South.

One issue is whether the international proliferation of intellectual property regimes and rights may impede agricultural research conducted in, or of consequence for, developing countries. Binenbaum et al. (2000) analyzed this question in detail and conclude that the current concerns about the freedom to operate (FTO) in agricultural research oriented towards food crops for the developing world are exaggerated. Rights to intellectual property are confined to the jurisdictions where they are granted, and, presently, many of the intellectual property (IP) rights for biotechnologies potentially useful to developing-country agricultural producers are valid only in developed countries. In their opinion and for now at least, most researchers in developing countries have significant FTO with respect to food staples. Undue concern with that issue may be diverting attention from the lack of financial and technical support necessary for the effective generation, evaluation, adaptation, and regulation of newly available technologies by public and international nonprofit breeders in developing countries, given the continued inability of private-sector research to fill the gap.

A second issue is the impact on farmers. As mentioned earlier, countries appear to have enough room under TRIPS but this does not mean that developing countries may not encounter problems with TRIPS. As argued for the SPS agreement, the administrative costs of an IPR system may impose an undue burden to the economy of a poor country, when looking at the share of GDP involved. Again, developing countries should not be forced to devote a comparatively larger percentage of resources to these regulatory aspects than what developed countries are spending.

Whatever the implications of TRIPS for the process of generation and adoption of technology, it is not the only legal areas within the WTO that alone, or in their relationship with other international legal frameworks, could have significant implications for the technological evolution of developing countries.

Currently, a main issue appears to be the possible impact of consumer and environmental concerns, particularly in developed countries, on the development of biotechnology. In the case of consumers in high-income countries, benefits from biotechnology seem minor

in terms of price reductions, while the unknown dangers appear magnified by mistrust and lack of information (Pinstrup-Anderson and Cohen, 2000).

A ban of GM products in developed countries based on their own consumer and environmental concerns would not only have market access effects, but may also impede the materialization of financial support from industrialized countries to carry research and build human capital for biotechnology activities in developing countries. Another possibility is that discussions in industrialized countries may spillover to developing countries where consumer and environmental concerns may block or slow down the development of biotechnology in those countries (Paarlberg, 2001).

The WTO legal framework and environmental treaties are not the only, or even the most important components in those scenarios, mainly defined by consumers and environmentalists from developed countries. The WTO legal texts related to consumer and environmental concerns include the Sanitary and Phytosanitary Agreement and the Agreement on Technical Barriers to Trade of the WTO (TBT), and their interface with Multilateral Environmental Agreements (MEA), particularly the Cartagena Protocol on Biosafety (CPB) of the Convention on Biological Diversity. The question here is what role these legal texts may play in leaving open, or closing, the technological opportunity offered by GM products. One main issue is the role and extent of the precautionary approach or precautionary principle, i.e. the possibility of blocking the importation or domestic development of genetically modified crops or animals, in the absence of scientific evidence regarding their potential impact on health and the environment.

The CPB has not been ratified yet. Therefore the only operative legal frameworks are, for now, the SPS and TBT Agreements. However, considerations of biosafety have slowed down the advance in biotechnology in several developing countries (Paarlberg, 2001), and the WTO legal frameworks have not been invoked against those restrictions. The most basic issue is not legal though, but mostly political, emanating from the uncertainty of the consumers and the negative reactions of environmental Non Governmental Organizations (NGO) in developed countries.

If those negative reactions persist over time, a question is how world markets would adjust to different scenarios of prohibition, segmentation, and differentiation. Different simulations (Nielsen and Anderson, 2000; Nielsen and Robinson, 2001) show that segmentation in world markets is possible, with prices and quantities adjusting accordingly. The main welfare effects happen to the countries not adopting biotechnology, which lose the productivity increases of the new varieties.

Although markets may adjust to different alternatives, it is less likely, given a scenario of strong consumer preferences leading to prohibitions or strict segmentation, that public funds coming from industrialized countries to support biotechnology in developing countries may be forthcoming. In this regard some degree of convergence between the European Union and the U.S. on the issue of regulation and use of biotechnology in agriculture, a process still fraught with difficulties, is important (Diaz-Bonilla and Pardey, 2001).

4. Conclusions

The policy changes of the last years have improved the trade and macroeconomic framework in many developing countries (World Bank, 1999). But trade and other economic policies appear to have been generally more supportive of agricultural production and exports in Asia, have had a more uneven record in LAC, and seem to have been just one component in a larger array of forces inhibiting economic development in Africa (Diaz-Bonilla and Reca, 2000).

Although further strengthening of some of these policies is still be needed, the performance of agricultural production and exports from developing countries appear now more dependent than ever from the completion of the needed process of policy reform in the agricultural and trade policies of the industrial countries. Market access constraints, tariff escalation and product and export subsidies in rich countries have created significant limitations for the development of a thriving agricultural sector in developing countries. The negotiations mandated in Article 20 of the Agreement on Agriculture should complete the process of policy reform initiated during the Uruguay Round, including increased market access, further disciplines in domestic support, and the elimination of export subsidies and other forms of unfair trade competition. The agricultural sector in developing countries will not have a fair chance to contribute to the needed expansion of production and employment in those countries until the process of agricultural policy reform is completed also in the industrial world.

Food security concerns in developing countries may be linked also to policy reform in industrialized countries. For instance, to the extent that industrialized countries can utilize domestic subsidies to expand their production, and export subsidies to sell it in world markets, this may limit the possibility of food vulnerable countries to produce themselves a larger percentage of their food, and make them dependent on food aid or export subsidies. Yet, food security in developing countries is first a domestic issue, linked to food availability (which depends on domestic supply and trade), access (which requires broad-based development that reduces poverty), and utilization of (which depends on health and education investments, women empowerment, and better governance) (see for instance Smith and Haddad, 2000). For the agricultural sector, what is needed is investment in human capital, infrastructure, technology, land ownership by small producers and landless workers, community organization and participation, adequate functioning of product and factor markets, macroeconomic stability, and democratic participation.

The AoA does not appear to constrain good policies that genuinely address poverty and food security issues (such as programs aimed at poor producers or consumers, stocks for food security and domestic food aid for populations in need). Under the AoA, countries must make serious efforts to structure well-defined programs for poverty, food safety,

and environmental protection. Poor producers can be helped also by the disciplines on subsidized exports, leading to their elimination.

With regard to food security, the WTO should recognize the difference between developed and developing countries and the great heterogeneity among developing countries. This paper has suggested some specific criteria to distinguish between various situation of food insecurity, and that special and differential treatment be given to groups clearly defined as food insecure. Yet, some clarifications in the language of the AoA (such as those discussed in this paper) would certainly help to make sure that the legal texts do indeed address issue of development, poverty alleviation, and food security.

Still poor countries face the issue of its own border protection to help agriculture. The policy dilemma of high prices for poor producers or low prices for poor consumers cannot be wished away. Whether development and poverty alleviation are helped by protection that operates as taxes on food, with the greater burden falling on poor consumers and the larger revenue accruing to large producers, is a question that must be faced. Still developing countries need instruments to protect from import surges and unfair trade practices when they affect food security and large groups of poor producers. Finally, developing countries, most of which have embarked in unilateral liberalization over the last decade, must, understandably, ask that the higher levels of protection in industrialized countries be substantially reduced at an early stage of the negotiations.

To conclude, the problems for developing countries are not legal constraints, but the lack of financial and human resources and institutional capabilities. To link negotiations to development developing countries must consider the issue of funding for agricultural and rural development, food security, and rural poverty alleviation. WTO country members may ask that, as part of the negotiations, international organizations such as the World Bank, regional banks and the IMF, increase their funding and design or redesign some of their instruments to address agricultural and rural development, and food security issues (including volatility of government revenues and country exports) (see for instance Brookins, 2000). Attention must also be given to the continuation and enhancement of the reduction or cancellation of the external debt of Heavily Indebted Poor Countries (the HIPC initiative), further liberalizing trade in textiles, and adequately managing capital flows. Special and Differential Treatment should involve more than longer adjustment periods and partial exemptions. Rather, it should involve a concern with ensuring that WTO obligations foster economic and social development in developing countries

At the same time, improved international conditions should go hand in hand with a better domestic framework in developing countries. This includes stable macroeconomic policies, open and effective markets, good governance and the rule of law, a vibrant civil society, and programs and investments that expand opportunities for all, with special consideration for disadvantaged groups and especially poor women. Additional investments and policy reform efforts will be required to improve infrastructure, strengthen internal financial markets, develop institutions to manage risks and reduce transaction costs, and expand entrepreneurial and labor skills.

However, in countries affected by violence and war, and their neighbors that suffer from the spillover of conflicts, a more supportive international environment and better macroeconomic, trade and investment policies will not help ensure agricultural and rural development, substantial reductions in poverty and enhanced food security, until military confrontations stop.

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