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10

ASSESSING THE POTENTIAL
AND
DIRECTION OF
AGRICULTURAL TRADE
WITHIN THE ESCAP REGION



UNITED NATIONS

**Assessing the Potential and Direction of
Agricultural Trade within the
ESCAP Region**

**Proceedings of the Regional Seminar held in Bangkok,
Thailand from 23 to 25 November 1994**

**Prepared under the ESCAP/UNDP
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PREFACE

World agriculture has undergone substantial structural adjustments since the 1980s, and during this period the ESCAP region has emerged as one of the world's fastest growing regional markets for agricultural products.

At the global level, the future outlook for agricultural trade depends on a number of self-reinforcing factors of change. Some of these are new, such as the emergence of newly independent states and ongoing market reforms in several economies of the region while others although not new, appear new in form, such as the realignment of external debts, trade liberalization under the Final Act of the Uruguay Round of multilateral trade negotiations and regional trade arrangements.

In the ESCAP region, agricultural trade with the rest of the world has grown faster than trade among the ESCAP members and associate members, thus resulting in a decreasing share of intraregional trade. This is largely due to the asymmetry in the composition of trade. While agricultural trade within the region consists mainly of primary commodities, exports to the rest of the world have been mostly value-added agro-based products.

However, the prospects for the region's agricultural trade seem to point towards an expansion of intraregional trade, fuelled by a number of mutually reinforcing factors such as growing regional economic interdependence, increased industrialization, trade liberalization and growing economic affluence in the region. Moreover, on the supply side, increased foreign investment and relocation of production facilities from Japan, the newly industrializing economies (NIEs) and, more recently, the member countries of the Association of South East Asian Nations (ASEAN) to other developing countries within the ESCAP region are expected to impact further on production, product specialization and intraregional trade patterns of agricultural products.

Similarly on the demand side, accelerated urbanization and the growing number of people in the middle-income group in the region have led to greater diversification in food consumption patterns away from traditional staples, thereby impacting directly on the nature of trade flows in agricultural products.

However, despite this growing potential for increased intraregional trade flows, there is reason to believe that intraregional trade is being artificially restrained by policies which discriminate against particular commodities traded in the region. Increasingly, this will require a rethinking of such policies because the region could make significant gains from a new division of labour. In short, agricultural policy reforms that encourage technological progress and that increase agricultural productivity, trade, rural employment and the welfare of people have become a necessary condition to bring about economic and social development of the region.

It is against this backdrop, and with the financial support of the United Nations Development Programme (UNDP), that ESCAP organized a Regional Seminar on Assessing the Potential and Direction of Agricultural Trade within the ESCAP Region in November 1994. The Seminar sought to analyze the determinants of agricultural trade and trade flows according to commodity and geographical groupings, so as to increase understanding of the patterns of production and trade flows of the main agricultural trading nations as well as of those countries which, although not accounting for significant shares in regional trade, rely heavily on the export of agricultural products.

The Seminar also sought to gain perspective on the future outlook for agricultural trade in this region and attempted to assess the potential for agricultural trade expansion, especially for the weaker economies of the region.

Since all the material prepared for the Seminar is considered useful for any analysis of intraregional trade in agriculture, ESCAP decided to make this material available together with the proceedings of the Regional Seminar in the form of this publication. It is hoped that the information contained herein will contribute to a better understanding of how past patterns have developed and of how trends have evolved, which is essential in enhancing capacities for agricultural trade policy decision-making in the ESCAP region.

The financial support of the United Nations Development Programme which made this publication possible and the collective expertise involved in the preparation of the papers as well as in the discussions at the Regional Seminar, particularly the team led by Professor Hiroshi Yamauchi of the University of Hawaii, are gratefully acknowledged.

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PART ONE

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Part One

SUMMARY OF THE DISCUSSION AT THE REGIONAL SEMINAR ON ASSESSING THE POTENTIAL AND DIRECTION OF AGRICULTURAL TRADE WITHIN THE ESCAP REGION

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SUMMARY OF THE DISCUSSION AT THE REGIONAL SEMINAR ON ASSESSING THE POTENTIAL AND DIRECTION OF AGRICULTURAL TRADE WITHIN THE ESCAP REGION

I. ORGANIZATION OF THE SEMINAR

The Regional Seminar on Assessing the Potential and Direction of Agricultural Trade within the ESCAP Region was held in Bangkok from 23 to 25 November 1994. The Regional Seminar was held within the framework of a UNDP-funded project, "Exploitation of business opportunities/network to support trade and commerce".

The objectives of the Regional Seminar were:

- (1) To review principal production patterns and intraregional trade flows;
- (2) To analyze shifting patterns of production, specialization and trends in selected trade indices;
- (3) To discuss implications for the future potential and direction of trade flows;
- (4) To formulate recommendations for technical assistance in facilitating the expansion of investment and trade in agricultural products.

Attendance

The Regional Seminar was attended by experts from Bangladesh, China, India, Indonesia, Lao People's Democratic Republic, Nepal, Pakistan, the Philippines, the Republic of Korea, Sri Lanka, Thailand, Vanuatu and Viet Nam. The United Nations Conference on Trade and Development (UNCTAD), the United Nations Development Programme (UNDP) and the United Nations Food and Agriculture Organization (FAO) were represented at the Regional Seminar.

Three intergovernmental organizations concerned with commodities were represented, the Asian and Pacific Coconut Community (APCC), the Association of Natural Rubber Producing Countries (ANRPC) and the International Pepper Community (IPC) as well as a number of observers from Thailand. A list of participants is annexed.

Opening Statements

In the opening statement to the Regional Seminar, the Acting Executive Secretary of ESCAP observed that while over the past two decades the world market for

agricultural products had expanded, at the same time the intraregional share of trade was decreasing. One reason for the pattern was that agricultural trade within the region consisted mainly of primary commodities, while a large share of the region's value-added, processed agro-based products was exported to the rest of the world.

However, intraregional trade was expected to increase in the future as a result of several mutually reinforcing factors, such as rapid economic growth in the region, expanding markets in developing countries of the region and increased liberalization of agricultural trade policies resulting from unilateral and multilateral trade liberalization. Intraregional trade would also expand in connection with increased investment and relocation of production facilities from countries and areas in one subregion of Asia and the Pacific to another. Population growth rates, the situation in food-deficit countries and production decisions in the food-exporting countries were equally important factors influencing the potential for increased intraregional trade in agricultural commodities.

The Acting Executive Secretary took special note of the implications of the new era in trade following the agreements reached during the Uruguay Round of multilateral trade negotiations. The ESCAP region was expected to be a beneficiary of the new, more liberal trading environment, especially as a result of the Agreement on Agriculture. The Acting Executive Secretary pointed out that there was, however, grave concern about the Agreement's impact on the least developed and other low-income and net food-importing countries of ESCAP as prices were expected to rise in the short term.

In view of the historic changes taking place in the multilateral trading environment, countries in the region would face new opportunities and challenges as they reformed their domestic policies, promoted technological progress in agriculture, increased agricultural productivity, created rural employment and encouraged trade in agricultural commodities.

The Acting Executive Secretary expressed her sincere hope that the Seminar would, through the analysis of the determinants of agricultural trade and trade flows according to specific commodities and geographical groupings, lead to an enhanced understanding of existing patterns and a sharpened perspective on the future outlook for expanding agricultural trade in the region, particularly with reference to opportunities for weaker economies.

In his opening statement to the Regional Seminar, the Deputy Regional Representative of UNDP Bangkok observed that trade had been the main engine for the rapid economic growth in the Asian and Pacific region that had allowed countries to diversify their economic bases from agriculture to industry to services. However, food production, trade and food security continued to be crucial topics on the development agendas of most countries in the region.

The Deputy Regional Representative felt that the Regional Seminar would provide a timely opportunity to assess the potential and direction for intraregional trade flows and allow for the exchange of country experiences and discussion of specific

issues. He observed that there would be a contribution to institution-building and sustainability; with sustainable human development being the focus of new directions in UNDP activities. He noted that there were four main areas for intervention by UNDP: (1) elimination of poverty, (2) employment generation and sustainable livelihood, (3) protection and regeneration of the environment and (4) the advancement of women. He concluded by inviting the Regional Seminar participants to consider those issues when analyzing agricultural production, changing comparative advantage and future directions in agricultural trade.

Election of officers

The Seminar elected Mr Ravindra Singh as Chairman and Mr Douglas Malosu and Ms Maria Sheryl R. Santos as Vice-chairpersons.

Adoption of the agenda

The Regional Seminar adopted the following agenda:

1. Opening of the session.
2. Election of officers.
3. Adoption of the agenda.
4. Review of principal production patterns and intraregional trade flows.
5. Analyzis of shifting patterns of production, specialization and trends of selected trade indices.
6. Implications for the future potential and direction of trade flows.
7. Other matters.
8. Concluding session.

II. REVIEW OF PRINCIPAL PRODUCTION PATTERNS AND INTRAREGIONAL TRADE FLOWS¹

Professor Ujjayant Chakravorty from the University of Hawaii presented a paper on the principal production patterns and the direction and magnitude of intraregional trade flows for the major commodities traded among countries and areas in the ESCAP region. Empirical results for rice, wheat (including flour and meal), coffee, cocoa, tea, spices, vegetable oils and natural rubber for the period from 1976 to 1992 were presented.

The overall results of the analyzis showed that an important characteristic in the economic development of the agricultural sector in the Asian and Pacific region had been

¹ The paper presented by Professor Chakravorty is contained in part two of this publication.

a greater reliance on international trade. It was also apparent during the period that the ESCAP region had become a world leader in the production and trade of various agricultural products, and although production of primary agricultural commodities had declined in relative terms, the value of total agricultural output had not. Consequently, the ESCAP region currently produced more than 75 per cent of the world's rice, tea and natural rubber and exported more than 50 per cent of the world's rice, tea and spices.

For the period from 1976 to 1992, countries and areas in the ESCAP region traded most of their major agricultural products with each other. Although the share of intraregional trade was large, it was declining substantially for almost all the commodities examined and agricultural exports to destinations outside the Asian and Pacific region had generally grown faster than exports within the region. The overall results of the paper indicated that intraregional trade shares were greater than interregional trade for five of the commodities, namely rice, wheat meal and flour, spices, vegetable oils and natural rubber. The other four commodities, namely wheat, coffee, cocoa and tea had larger interregional trade shares. The pattern, however, was not stable, and trends over time did not consistently favour expanding intraregional trade at the primary output level.

On the basis of the above presentation, participants were then invited to exchange country- and commodity-specific experiences with a view to establishing benchmarks for the agricultural commodities traded in the ESCAP region.

Major points of the country presentations were summarized as follows:

A. Country papers

Bangladesh

Bangladesh's current level of agricultural exports was low, but there was strong potential for increasing production and promoting exports. It was noted that programmes must be systematic and well-organized in order to overcome a variety of production, marketing and processing problems.

The paper identified floriculture and horticulture as having the strongest potential for contributing to export earnings, employment and income generation. Bangladesh had achieved self-sufficiency in rice and had even exported surplus rice on some occasions. It identified neighbouring countries and countries of the Middle East as potential markets. In addition, other Asian countries with agricultural processing capacity could be potential trade partners for re-exporting Bangladeshi agricultural commodities.

China

An overview of how the outward-oriented development strategy based on developing the labour-intensive manufacturing industries that would take advantage of

China's economic strengths was presented. The paper traced the system reforms and policy measures instituted in order to expand exports and encourage foreign trade enterprises to operate on a profit-making basis.

There were still some special policies concerning exports, but only sixteen export commodities were currently considered vital to the national economy and thus faced restrictions.

In the future, it was expected that the international market would be the predominant guide to production, investment and export-oriented decision-making in China.

India

The position of India in world trade and the trade reform policies that affected agricultural exports and imports were reviewed. It was noted that India's exports of agricultural commodities were primarily in bulk and semi-processed commodities. However, most agricultural produce was intended for the domestic market owing to rising domestic demand, increased consumption and a growing population. Agricultural exports were declining as an economic activity and the structure of exports had become more diversified.

It was mentioned that India was undertaking significant trade reforms, notably the introduction of a unified exchange rate, the lowering of customs duties, easier availability of credit for exports, simplification of export-import procedures, etc. in an effort to boost trade. The results of some recent research on the export competitiveness of India were reported. It was mentioned that the Government of India undertook a study in June 1994 to assess the export competitiveness of selected agricultural commodities from India. The nominal protection coefficient (NPC) was used to identify commodities that were more or less competitive, or uncompetitive in world markets. The results showed that India had a competitive advantage in the export of deoiled cakes, raw cotton, spices, cashew and meat products.

Patterns of trade between India and other Asian and Pacific countries were described and the view was expressed that there was much unutilized potential for the expansion of intraregional trade in agricultural commodities. The future potential for Indian agricultural exports was primarily in wheat, deoiled cakes, sugar, meat and cotton as well as fruits and vegetables.

It was concluded that although most of the ESCAP members were also members of the General Agreement on Tariffs and Trade/World Trade Organization (GATT/WTO) and, therefore, accorded most favoured nation (MFN) treatment to each other, enhanced trade in agriculture would occur in cases where there was a harmonization of food laws and phytosanitary standards, creation of regional commodity exchanges with standardized contracts, improved transportation, trade promotional activities, and most

importantly, regional preferential trading arrangements so that a lowering of tariff and non-tariff barriers could be realized.

Indonesia

The presentation focused on production and export patterns of cocoa, including cocoa beans. As the country's economic structure diversified, it was necessary for the export of non-oil commodities to be strengthened. At present, exports of non-oil agricultural commodities accounted for about 10 per cent of total foreign exchange earnings.

An overview of cocoa production, one of the primary commodities of the country's agricultural exports, was presented. Cocoa was produced mostly by smallholders and since 1988 production had been increasing by an annual average of about 20 per cent, with rapid increases in exports, mostly to the the United States of America and Singapore. In an effort to increase the competitiveness of agricultural exports, the Government had been liberalizing trade and currently there were no restrictions on the quantity and prices of exports nor were there any subsidies on exports. In general, one of the major constraints facing developing countries of the Asian and Pacific region in their efforts to diversify exports and increase their competitiveness was the lack of technical and managerial skills required to respond to changing international market requirements.

Lao People's Democratic Republic

It was noted that Lao People's Democratic Republic had favourable geographic conditions for agricultural production. Agricultural activity played the most important role in economic activity employing about 90 per cent of the population. Most agricultural production was intended for domestic consumption and rice was the main commodity produced.

All ethnic groups in Lao People's Democratic Republic had a tradition and historic background in producing commodities for exchange with other goods. Agricultural export commodities consisted of coffee, cardamon, tea, sesame, groundnut, oil seeds, soybean, castor, livestock and wood products. The constraints to increased production and export marketing were also considered. Among the most serious factors that Laotian farmers had to contend with were the unpredictability of nature, poor marketing, high transportation costs and difficult access to international markets, low quality of produce and high import barriers imposed by importing countries. Policy liberalization and foreign investment, especially by neighbouring countries in the agricultural sector, were expected to help overcome the problems and constraints. The goal was to develop production and exports on a sustainable basis.

Nepal

The overall importance of agriculture for the national economy was emphasized. Past policies concerning agricultural development based on traditional crops and food self-sufficiency were reviewed. The Government's eighth development plan (1992-1997) targeted increased employment opportunities, production diversification and greater commercialization of agriculture.

Recent patterns of production and trade as well as the potential and challenges for agricultural exports were described. It was emphasized that a more open, transparent and market-oriented policy framework was one key to future success. In conclusion, a number of measures were suggested that could overcome problems and promote successful agricultural development that would be balanced in the long term.

Pakistan

It was observed that the agricultural sector in Pakistan was still important, despite success in diversifying the economy. Cotton was the most important crop while rice was also an important foreign exchange earner. The main export markets in the Asian region were Japan, the Republic of Korea, Hong Kong and Singapore. It was estimated that about 15 per cent of total agricultural exports were to countries within the Asian and Pacific region. The Middle East and the European Union, however, continued to be the country's traditional export markets. It was observed that Pakistan had tremendous potential in increasing its exports, especially of fruits and vegetables. However, Pakistan was plagued by problems in processing, packaging, shipping, forwarding and other related services. The main patterns of production and trade for the major agricultural commodities were described.

Pakistan was an important destination market for the Asia-Pacific region. With its population of 125 million people, it imported large quantities of unmilled wheat, primarily from the United States, France and Australia. Tea from China, Indonesia, Sri Lanka and Bangladesh as well as palm oil from Malaysia were other important imports.

It was observed that the prospects looked good for increased agricultural trade within the region, especially as human resources, modern technology and market reforms were catalysts for increased production and trade in agricultural products.

The Philippines

A significant share of agricultural exports from the Philippines was intraregional, but the dynamics and complementarities needed to be better understood. About 35 per cent of exports in 1993 were to the Asia-Pacific region with Japan being the primary market. The East-Asia subregion was the second most important destination. The expert reviewed patterns of production and trade for coffee, rubber, black pepper, coconut oil and rice. These commodities were chosen because of readily available data

and not necessarily because of their importance in the production and trade structure of the Philippines.

It was noted that the export market for coffee had improved over the past few years, following the recovery of coffee prices. About 45 per cent of the country's coffee exports were destined for the Asian and Pacific region, with Japan, Singapore, Malaysia, Australia, Brunei and Pakistan being the major importers. It was also expected that the blanket ban on all imports of coffee would be lifted following the successful conclusion of the Uruguay Round of multilateral trade negotiations. Coconut oil was the country's premier agricultural export product. The major markets were in the industrialized countries, such as the United States, while in the Asian region China, Japan, the Republic of Korea and Malaysia were among the most important markets. Rice was among the highest contributors to gross value added in agricultural production. However, in most crop years the Philippines was not self-sufficient in rice and had to import from Thailand, Viet Nam and China.

Republic of Korea

Three aspects of agriculture in the Republic of Korea were considered: (1) trends in production and consumption, (2) patterns of trade and (3) policy changes and their effects on the trade flows of agricultural products.

The effects of the Agreement on Agriculture on the country's agricultural trade policies and domestic policies were considered. It was observed that following the Agreement, agriculture would, for the first time, be brought within the disciplines of the competitive market. Many members and associate members of ESCAP would be able to share in the benefits from improved market access and new rules of competition. The Republic of Korea was committed to phasing out restrictive trade policies gradually. All non-tariff barriers would be converted to tariff barriers for all agricultural commodities, except rice. In addition, increased market access commitments were expected to benefit all agricultural producing countries of the Asian and Pacific region and increases in imports of grain, beef and oranges were expected. In the case of rice, new potential suppliers would be the United States, Thailand, China and Viet Nam. China was also expected to gain from increased exports to the Republic of Korea of grain, soyabean and some fruits and vegetables.

In an effort to cope with increased liberalization in the post-Uruguay Round period, the agricultural sector in the Republic of Korea would need to undergo restructuring, leading to increased specialization and new opportunities for export-oriented food processing industries.

Sri Lanka

Participants were informed about the importance of the country's liberalization of the economy in 1977, which affected not only the manufacturing sector, but also the agricultural sector.

A review was undertaken on the patterns of production and trade for agricultural commodities, especially for the major plantation crops of coconut, rubber and tea. Other minor agricultural crops, such as spices, were also considered. It was noted that the destinations for Sri Lanka agricultural exports had been changing and were becoming more diversified. Countries such as the United Kingdom of Great Britain and Northern Ireland, countries of Eastern Europe, Australia and Canada had decreased in importance as trading partners of Sri Lanka, while countries such as the United States, the European Union, Japan and the Middle East had emerged as major export markets. Moreover, countries of the Asia-Pacific region, especially Japan and the newly industrializing economies (NIEs) had become major sources of Sri Lanka's imports.

The issues and potential for increased intraregional trade among the South Asian Association for Regional Cooperation (SAARC) members were analyzed in terms of possible preferential trading arrangements. It was thought that the benefits to be gained from preferential trading arrangements proposed under SAARC to promote intra-trade in South Asia were limited as intra-trade in South Asia was less than 3 per cent of world trade. Preferential trading arrangements would achieve better results if they involved all countries of the ESCAP region.

It was concluded that expanding agricultural exports from Sri Lanka would require a coordinated strategy for smallholder development, a shift to higher value added products and mechanisms to help producers respond effectively to price fluctuations.

Thailand

The paper's focus was a review and analysis of the patterns of production and trade for seven agricultural commodities.

Following the conclusion of the Uruguay Round negotiations, it was expected that Thailand would open up its rice market somewhat to imports of high quality Japanese and Basmati varieties. At the same time, Thailand would benefit from the gradual opening of markets around the world. Wheat and wheat product imports had also increased considerably over the last few years in Thailand as food consumption patterns were changing towards ready-to-eat and fast foods. While some local production was taking place in north-east Thailand, it was minimal in comparison to the quantities imported annually. Consequently, research and development efforts were being strengthened with a view to partly substituting imports of wheat as well as raising the income of people in the impoverished north-eastern region of Thailand. With regard to tropical beverages, notably coffee and tea, production and exports had been declining somewhat over the past few years and the trend was expected to continue in the post-Uruguay Round period. In 1991, Thailand became the largest rubber producer and exporter and it was expected that the area under rubber cultivation would continue to increase. Thailand's main competitor in the future would be Viet Nam and measures would be implemented to lower unit production costs while maintaining the standards required by the international market.

Vanuatu

Although agriculture did not contribute the biggest share to gross domestic product (GDP), it was still very important to the national economy because about 80 per cent of the population was engaged in agricultural activities. The importance of subsistence agriculture for Melanesian society and culture was also emphasized.

Agricultural commodities, in particular copra, made the most important contribution to export earnings. There had been some diversification of production and exports to other agricultural products, and the destinations for exports had also become more diversified.

The emphasis in future would focus on increased productivity, ongoing diversification and development of processing capacity. That included diversification of markets for exports and consideration of which agricultural commodities had strong potential in Asian and Pacific markets.

Viet Nam

An overview of recent export performance in the light of major policy changes concerning domestic and international economic relations was given. The main agricultural exports were rice, maize, coffee, tea, pepper, groundnut, cashews, beans and rubber. Viet Nam had shifted from a rice importing country to the third largest rice exporting country in the world. In addition, exports of maize and coffee had shown rapid increases. Viet Nam was currently the third largest exporter of coffee in the Asia-Pacific region after Indonesia and India. At the same time, Viet Nam would need to find new markets for a growing production of groundnuts, soyabeans and green beans. Rubber from Viet Nam was exported mainly to China, but also to Malaysia, the Republic of Korea and the Russian Federation. Hong Kong and Singapore were important transshipment points for Vietnamese exports. It was also noted that most imports of agricultural products came from other countries in the Asian and Pacific region.

In conclusion, the commitment of Viet Nam to attracting foreign direct investment in the agricultural sector, especially in processing industries, was emphasized.

B. Commodity-specific papers²

Coconut

Mr L. Taufikkurahman from the Asian and Pacific Coconut Community (APCC) informed the Regional Seminar about the principal patterns in the supply and demand for coconut oil. An overview of the industry showed that coconut was a smallholder crop and about 93 per cent of the world supply came from the Asian and Pacific region. After

² The papers presented on coconut, pepper and rubber are contained in part two of this publication.

domestic consumption, about one third of coconut production was available for export. Important producing countries were India, Indonesia, Malaysia, Papua New Guinea, Philippines, the Solomon Islands, Thailand and Vanuatu.

He considered patterns of supply and export for copra and coconut oil. On the demand side, the United States and countries of Western Europe accounted for about 70 per cent of world imports. The volume of total world imports of copra and coconut oil had not increased significantly over the past twenty years. However, coconut oil had to compete increasingly with other fats and vegetable oils, and in overall terms for the global vegetable oil market, coconut oil was declining.

Mr Taufikkurahman considered some of the problems facing coconut oil in markets worldwide and pointed out the structure of protection in many developed countries and the price competition that made palm oil more competitive. He concluded that demand, in general, was not likely to decrease, however, only as long as prices remained competitive. It was expected that as the NIEs developed further, there would be an increase in demand for coconut oil, especially for use as an oleochemical.

Pepper

Ms Ong Foo Yong from the International Pepper Community (IPC), Jakarta, reviewed the patterns of supply and demand for pepper and considered recent developments and future trends for the world pepper trade. It was observed that pepper accounted for one third of the global market for all spices, and India, Indonesia and Malaysia together accounted for a little over half of world production and about 60 per cent of world exports of pepper (1991-1993 averages). In recent years, Viet Nam had emerged as a producer and major exporter of pepper. The pattern of production in Asia and the Pacific was characterized by smallholder farming with pepper providing cash income. The international market for pepper was dominated by the United States and Europe, which together accounted for 50 to 60 per cent of imports.

Patterns of pepper use in the importing countries were analyzed and the factors influencing pepper consumption were considered. International pepper trading had been quite volatile recently owing to speculation, problems with diseases, product quality, etc.

Trade patterns showed that 30 per cent of world pepper imports occurred within the region, with Singapore as the largest importer. However, Singapore exported virtually all of its imports. Other significant regional importers were Japan, Pakistan and the Republic of Korea. Countries of the Middle East and North Africa had become important markets for pepper in recent years.

It was observed that direct trading had been developing between the pepper suppliers and the users in consuming countries so that the role of traders had been reduced. Within the international market, there was a trend towards assuring regularity of supplies, better quality products and increased value added before the pepper was exported.

Natural rubber

Mr Arumugam from the Association of Natural Rubber Producing Countries (ANRPC), gave a review of the patterns in the supply and demand for natural rubber. The review considered new developments in end uses for rubber and some possible future trends. Three countries of South-East Asia (Indonesia, Malaysia and Thailand) accounted for 73 per cent of world production. Other important Asian producers were China, India, the Philippines, Sri Lanka and Viet Nam. The structure of production was based on smallholdings and most countries had programmes to develop rubber smallholdings and encouraged group processing and marketing schemes. The effects of economic development, including the prospect for higher returns from other crops, had caused a decline in the estate mode of rubber production.

Patterns of processing into various types and forms of rubber were described for the various producing countries in Asia and the Pacific. The processing patterns were related to the changing patterns of consumption in the importing countries. World consumption of natural rubber expanded at an average annual rate of about 4 per cent, but the rate for member countries of the ANRPC was 18 per cent over the same ten-year period. Use of natural rubber for tyre manufacturing continued to dominate, but non-tyre applications were becoming increasingly important. The major consuming countries were the United States, Japan and Germany. At the same time, consumption had been growing rapidly in a number of Asian and Pacific developing countries.

He noted that trends pointed to increased consumption within the rubber-producing countries. At the same time, the number of end uses were increasing and natural rubber was considered as more environmentally friendly than competing raw materials. Rubber production could decline in some countries which would mean obvious declines in exports as well.

III. ANALYSIS OF SHIFTING PATTERNS OF PRODUCTION, SPECIALIZATION AND TRENDS OF SELECTED TRADE INDICES³

Professor John Yanagida from the University of Hawaii presented a paper which analyzed shifting comparative advantages among agricultural producing and trading countries in the Asian and Pacific region. Issues related to international competitiveness and product specialization in the major commodity categories were also discussed as well as the methodological framework for computing those trade indices.

The results obtained were consistent for all commodities in indicating the following subregional patterns of trade specialization in the ESCAP region in order of decreasing degree of specialization:

³ The paper presented by Professor John Yanagida is contained in part two of this publication.

Wheat: developed economies

Rice: developed economies, East Asia, South-East Asia, South Asia, Indo-China;

Coffee: South-East Asia, South Asia, Pacific Islands;

Cocoa: South-East Asia, South Asia, Pacific Islands;

Tea: East Asia, South-East Asia, Indo-China, Pacific Islands;

Spices: East Asia, South-East Asia, Indo-China, Pacific Islands;

Vegetable oils: South-East Asia, Pacific Islands.

The above results showed that the growth areas of trade specialization for the commodities under consideration were in South-East Asia and South Asia. In addition, the Pacific island countries' comparative and competitive advantages in the trade of certain agricultural products was an important finding for the future prospects and potential for intraregional trade. However, that finding should be balanced by the consideration that the production potential for those commodities might not match their trade potential owing to the limited resource bases of Pacific island countries.

The findings also revealed that China and Viet Nam were becoming major participants in the agricultural trade of the region, while East Asia had the greatest advantages in the production of tea and spices.

IV. ANALYSIS OF CONSUMPTION PATTERNS FOR AGRICULTURAL PRODUCTS⁴

Professor Hiroshi Yamauchi of the University of Hawaii presented a paper on the ways in which the economic dynamism characteristic of the Asian and Pacific region had resulted in changing patterns of food consumption.

An examination of per capita consumption over time and for various Asian and Pacific countries and groupings yielded the following results.

Total consumption of staples tended to increase as populations grew and incomes increased. However, income elasticities for such commodities were not constant and three different subregional consumption patterns were identified. Thus, for some of the low-income countries in South Asia, income elasticities were typically greater than or close to 1.0, implying a potential for increased rice consumption with income increases. As incomes rose the elasticities tended to decrease and eventually turned negative at higher per capita income levels. Japan, the NIEs and the higher-income member countries of the Association of South East Asian Nations (ASEAN) were experiencing a decline in per capita consumption of rice although at different levels. In Australia and New Zealand, where potatoes and wheat were the staple food, per capita rice

⁴ The paper presented by Professor Hiroshi Yamauchi is contained in part two of this publication.

consumption was very low, but highly sensitive to changes in income and other demographic factors that influenced tastes and preferences.

The consumption of vegetable oils was found to have an increasing trend in relation to increases in per capita income for virtually all countries. Similar patterns were observed for cocoa and coffee. Consumption of tea, however, seemed to increase with increases in income up to a certain level, and then to decline. In general, consumption of spices did not appear to be sensitive to changes in income levels. Pepper was the most important spice produced and imported by countries in the Asian and Pacific region, mainly by Singapore for the purposes of re-export.

As incomes continued to increase throughout the region, structural changes in agriculture sectors and food industries seemed inevitable. General changes in consumption patterns in favour of higher-quality proteins, starches and fats were likely to attract investment in the production of new mixes of food products with good prospects for increased foreign exchange earnings from higher value-added export products.

V. IMPLICATIONS FOR THE FUTURE POTENTIAL AND DIRECTION OF TRADE FLOWS

Professor Hiroshi Yamauchi discussed the implications of changing patterns of production, product specialization, and consumption patterns for the future potential and direction of agricultural trade flows of the region.

He was of the view that intraregional trade in Asia and the Pacific would continue to increase in the coming years because of rapid economic growth and the expanding markets of the developing economies of the region. The increasing outward orientation in trade policies of the developing economies, including the larger markets of South Asia and the increasing investment and relocation of production facilities from Japan, the NIEs and more recently the ASEAN member countries to other developing countries within the region, were all factors behind the trade expansion.

The changing patterns and trends in agricultural trade flows, specialization and competitive advantages in exports were related to trade policies that were reflected in their trade exposure ratios, defined as a country's total value of exports plus imports divided by GDP. The high trade ratios obtained for the NIEs and ASEAN-member countries clearly reflected the export-oriented trade policies of those subregions. The growing integration of China with the global economy was also evident from sharp increases in its trade ratio since 1990, while for South Asian countries the comparatively lower trade ratios pointed to their relative insulation from international market competition. It would, therefore, be important for developing countries to focus more on the promotion and facilitation of agricultural exports rather than on the restriction of imports and to recognize the value of external stimuli in enhancing the efficiency and competitiveness of their own domestic production bases.

The composition of merchandise exports from developing Asian and Pacific countries would continue to shift to manufactured products with higher value added as a result of national policies to diversify exports and reduce dependence on unprocessed primary commodity exports. At the same time, the trend would be strengthened by the fact that increasing incomes would bring about changes in mass consumption patterns favouring higher-quality proteins, starches and fats instead of traditional staple starches which would draw investments to mass produce new mixes of food products. That would entail major gains in the export of manufactured food products, and although it was expected that the relative share of total agricultural exports would decrease, the absolute value of agricultural exports would continue to increase.

An assessment of the future outlook should also not underestimate the contribution of agriculture to sustainable economic growth of the region through sustainable management and conservation of the agricultural resource base and through the reform of trade and price policies.

Mr Paul Morris of the Agricultural Economics Branch, Australian Bureau of Agricultural and Resource Economics (ABARE), observed that Asia and the Pacific should continue to experience rapid economic growth and that would mean increased demand and trade in agricultural commodities. He then described patterns of trade with selected Asian and Pacific countries and areas for Australia's main exports: wheat, rice, animal feedstuffs, coarse grains, beef, live cattle, dairy products, sugar, fibre products (wool, cotton, fibre), fruit and vegetables and fisheries products.

He considered the opportunities presented by the Uruguay Round to overcome barriers to trade in agricultural products based on the results of two simulation models of the likely effects from implementing the Uruguay Round agreements. Price increases and the liberalization of food and agricultural imports could result in significant increases in the value of Australia's exports to other Asian and Pacific countries. The degree of regional trade liberalization would also have a major effect on future trade. Australia had the potential to benefit from expanding intraregional trade by virtue of its location and comparative advantage in the production and trade of certain agricultural commodities.

Mr Li Weimin of the Institute of Agricultural Economics (IAE), Chinese Academy of Agricultural Sciences (CAAS), traced the historical importance of agricultural exports and noted that in 1992 they accounted for about 18 per cent of China's total exports and 11 per cent of total imports. China had become a net importer of grains, while its exports of high value added products such as fisheries products, vegetables, fruit, tea and oilseeds had been increasing.

He considered possible future patterns of China's agricultural trade in terms of implications for speeding up agricultural growth. The policy significance of increased grain imports was considered in light of national goals of food security, high levels of food self-sufficiency, the impact of reform on rural areas and the importance of manufactured exports.

Mr Cheng Zhongwen, of the China International Trade Research and Training Centre for Asia and the Pacific Region (RTC), considered the challenges which China's agricultural sector faces as a result of rapid economic growth, population increases, improved living standards and more open economic policies. He observed that the major markets for China's agricultural exports were within the Asia-Pacific region. Various trends in exports were described and it was noted that non-staple foods had accounted for over three fourths of China's agricultural exports.

Mr Cheng Zhongwen analyzed those aspects of China's agricultural development strategy. First, there was a need to guarantee sustainable growth in agricultural production. Second, import strategies related to grain supplies, sugar and rubber for the automotive industry were emphasized. The third element was the export strategy aimed at product diversification, a focus on products with high value added and improvement of the quality of agricultural exports.

Professor Yoginder K. Alagh, of the Jawaharlal Nehru University, observed that Indian agriculture would be developed in the context of regional specialization and that more reforms would have to be made to promote agro-processing, marketing and international trade. An overview of past patterns showed that exports accounted for a very small share of agricultural output, although certain amounts of rice and tea had been consistently exported. The main destinations for agricultural exports of India had been other countries and areas of the Asian and Pacific region, in addition to Saudi Arabia and Kuwait.

Since the mid-1980s, the restrictive policy environment for agro-processing and exports had been subject to policy reforms. However, he noted that there were still price controls on key inputs and certain products such as sugar. Exports of cereals and raw cotton were still controlled. It was recommended that more reforms were needed in line with development policies that encouraged diversified agricultural growth.

Professor Alagh considered the potential for future agricultural trade to be quite good, provided there were appropriate policy measures. Forecasts indicated good potential for cereal exports and strong potential for increased exports of fruit, vegetables and horticultural products. Most of the demand for India's agricultural exports was expected to be in the Asian and Pacific region.

Trends and future directions for Japan's agricultural trade were reported on by Professor Shigeyuki Abe, of the Research Institute for Economics and Business Administration, Kobe University. Patterns of agricultural trade showed that there were almost no agricultural exports, while almost all types of agricultural products were imported. Professor Abe noted that over time, Japan's capacity to import agricultural products should be greater than other developed countries.

Recent trends indicated that Japan had imported increased amounts of meat, maize and soybeans. However, since 1985, unprocessed imports had declined while processed food imports had increased.

He analyzed a number of factors affecting Japan's agricultural trade patterns, including (1) tariffs and quantitative restrictions, (2) demand and supply balances, (3) changes in consumer tastes and (4) secondary demand. The future potential of Japanese agricultural trade flows would be significantly influenced by Japan's agreement as part of the Uruguay Round to liberalize important parts of agricultural trade and production. Liberalization could be expected for rice, dairy products, wheat, beef and oranges. For Japan, heavy protection of agriculture had been related to self-sufficiency concerns. While liberalization would offer new market opportunities to Asian and Pacific exporters, it was also clear that Japan's agriculture sector would be seriously affected.

Professor Mokhtar Tamin of the University of Malaya, reported on recent developments in Malaysia's trade in agricultural commodities. The agriculture sector had shown a declining contribution to GDP and to employment. There was a strong export orientation in Malaysia's agriculture sector, especially for rubber, palm oil, coconut, pineapple and pepper.

Recent policy developments were described and analyzed with a focus on the national agricultural policy (1992-2010) which was designed to overcome the major constraints faced by Malaysian agriculture. Specific policies for particular agricultural commodities were also described. Malaysia had decided not to aim for full self-sufficiency in rice production, with the result that Malaysia could be expected to be a significant destination market for rice.

Professor Tamin presented data on the destinations for major export commodities: rubber, palm oil, saw logs and sawn timber. Other Asian and Pacific countries had been the main destinations for that set of commodities. Policies and programmes that were designed to increase the volume and value of palm oil exports within the region were described, including export credits as part of government-to-government sales.

The main sources of Malaysia's food and agriculture imports were other Asian and Pacific countries. Rice, wheat, sugar and dairy products were the main import commodities. Such imports were expected to keep growing in conjunction with increased per capita GNP.

Professor Zafar Mahmood of the Pakistan Institute of Development Economics (PIDE), noted that while Pakistan was an agricultural economy, the share of agricultural commodities in total trade had been low. In that connection, production specialization did not coincide with trade specialization. However, given shifting patterns in both production and trade specialization, it was important to study whether trade and production were compatible or could be made compatible to strengthen the prospects for intraregional trade. The composition of Pakistan's exports had been changing over time as rice exports had been declining and manufactured exports had been increasing. The pattern for agricultural imports was affected by weather conditions as well as trade through illegal channels.

Six agricultural commodities (wheat, rice, wheat products, spices, oilseeds and vegetable oil) were selected for the purpose of building two indices, the trade specialization index (revealed comparative advantage) and the production specialization index, in order to analyze Pakistan's comparative advantage for any of the six commodities. It was found that there was a comparative advantage in rice and spices. Pakistan exported oilseeds and had a competitive edge, even though the results showed that there was no comparative advantage.

Mr Douglas Jayasekera of the Marga Institute, gave an overview of policies and trade patterns related to Sri Lanka's major agricultural exports: tea, rubber and coconuts. Tea was exported mostly in bulk form to trading partners in other regions of the world. China was the major buyer for Sri Lankan rubber. There were some coconut exports to Pakistan, but most of the production went to other regions. Several other primary commodities were also discussed, such as pepper, other spices and cashew nuts.

When considering the potential for the future, he said that industrial exports already accounted for a larger share of total exports as compared with agricultural exports. However, the agriculture sector was still a major employer and the Government had subsidies under various projects to develop and diversify the sector. Sri Lanka's comparative advantage was also considered along with certain constraints that affected trade in agricultural commodities. The Asian and Pacific region was an important market for Sri Lanka's exports and it was also a source of agricultural imports. There was potential for further expansion of intraregional trade and for cooperation on agricultural trade matters.

Mr Harmon Thomas from the United Nations Conference on Trade and Development (UNCTAD) gave a preliminary assessment of the implications of the Uruguay Round Agreement on Agriculture for global markets and agricultural trade of Asian and Pacific countries. The three principal elements of the Agreement on Agriculture were presented: (1) market access commitments, (2) export competition provisions and (3) domestic support commitments. He also discussed the provisions on special and differential treatment for developing countries.

The presentation also analyzed the commitments made by member countries of the Organisation for Economic Co-operation and Development (OECD) and their implications for global trade in agricultural products. The schedules of commitments by selected Asian and Pacific countries were also analyzed in order to gain an understanding of the possible impact on intraregional trade. In a number of cases, high tariffs had been cut minimally for particular products or a range of products. The market access commitments relating to quantitative (quota) access showed varying prospects for different commodities in selected Asian and Pacific countries. Opportunities in trade expansion looked best for wheat and wheat products, rice and rice products and oilseeds.

He also analyzed the situation affecting various forms of domestic support to agricultural producers. Reduction commitments in the total level of support to producers appeared to be the greatest for Japan, followed by the Republic of Korea, Thailand and

Australia. It was noted that the analysis should be considered as preliminary until more detailed study of the schedule of commitments was made and more precise quantitative assessment of the impact could be made.

VI. RECOMMENDATIONS

Based on the discussions at the Regional Seminar, the following production, consumption and trade-related recommendations were adopted:

A. Production

1. Given the heterogeneity of the agricultural sector and the increasingly complex link between the primary and processing sectors, there was a need to deepen the understanding of emerging complementarities and shifting comparative advantage in the ESCAP region. In particular there was a need to take into account the trade liberalization in the agricultural sector following the successful conclusion of the Uruguay Round of multilateral trade negotiations. Further analysis of comparative costs of production, factor resource endowments and investment determinants in streamlining trade specialization patterns in the ESCAP region was recommended.

2. Developing countries would need to enhance their export competitiveness in international markets in order to take full advantage of trade liberalization in the agricultural sector. It was recommended that the relevant international organizations continue to strengthen their technical assistance in research and development (R and D) programmes in product and process innovations complemented by appropriate human resources development programmes.

3. Keeping in view the increasing importance of timely and cost effective exchange of information on prices and other relevant information, especially for farmers, ESCAP should explore the possibility of a regular exchange of experiences through the organization of programmes in interactive information systems, including computerized systems, for major traded commodities.

4. In recognition of the diverse historical heritage, socio-economic agro-climatic as well as agro-environmental conditions in which agricultural production took place in the ESCAP region, it was recommended that a number of national case studies be undertaken on successful agricultural strategies in the region. The emphasis should be on those cases where domestic production had successfully been integrated with international trade. Such studies should also take into account financial intermediation mechanisms and measures which had successfully linked domestic agricultural communities to global trading communities.

B. Consumption

1. Rising per capita income in most countries of the ESCAP region had resulted in diverse and dynamic changes in consumption patterns for various staple foods and other food products in the ESCAP region. Further studies should be undertaken to determine the relationships between consumption, income and other factors that affect tastes and preferences for the various staple and other food products. Such studies should also take into account the caloric and nutritional aspects of changing diets, especially for the poor people and the disadvantaged members of society resulting from skewed income distribution in many of the developing countries in the ESCAP region.

2. The ESCAP region had also seen a rapid rise in demand for non-edible products, especially rubber and natural fibre-based products and there was a general trend towards greater processing of those raw materials in the producing rather than the consuming countries. Consequently, it was recommended that the linkage between rising income levels, domestic consumption patterns and relocation of downstream processing of the raw materials be further examined.

C. Trade

1. In view of likely increases in food prices in the post-Uruguay Round period, at least over the short term, the least-developed, Pacific island countries, economies in transition and other low-income, net food-deficit countries of the ESCAP region would face particular challenges in the form of higher food import bills and pressures on scarce foreign exchange resources. It would be useful for ESCAP to make an ongoing study of the implications of the Agreement on Agriculture of the Uruguay Round on the net food-importing and low-income countries of the region.

2. Concerned international organizations should undertake studies on strengthening regional economic cooperation in the post-Uruguay Round period for greater food security in the Asia-Pacific region, keeping in view various kinds of common problems, such as exchange of information, stabilization of food supplies, environmentally sustainable growth of agriculture, etc.

3. Recognizing that domestic agricultural policies consistent with the Final Act of the Uruguay Round of multilateral trade negotiations would enhance the export capacity of agricultural producing countries in the post-Uruguay Round era, studies should be undertaken to identify domestic policy reforms needed to maximize long-term gains from trade liberalization.

4. Changes in tariff and non-tariff measures of the major countries importing agricultural commodities from the ESCAP region, should be monitored and their impact analyzed on a continuing basis.

5. There were inherent discrepancies in trade statistical data available at the national and global levels. In order to monitor trade situations properly, the availability of accurate and timely trade statistical data was imperative. Certain mechanisms, through cooperation among United Nations and other international and national agencies, should be further strengthened to ensure the quality of trade statistical data.

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I. PATTERNS AND TRENDS IN PRODUCTION, TRADE AND CONSUMPTION OF AGRICULTURAL COMMODITIES IN THE ASIAN-PACIFIC REGION¹

INTRODUCTION

World agriculture has undergone substantial structural adjustments since the 1980s, and during this period Asia has emerged as one of the world's fastest-growing regional markets for agricultural products.² Further growth in agricultural trade will depend on comparative advantage and the extent of relative trade distortions. At the global level, agriculture and its economic environment continue to face contending forces for change. Some forces are not new, but appear in new forms such as the realignment of external debts and trade liberalization under the Final Act of the Uruguay Round and regional agreements. Other forces, such as political changes in the former Union of Soviet Socialist Republics and Eastern Europe and the market reforms in China are new.

The future outlook of Asian agricultural trade will depend on assumptions concerning economic growth, population growth, changes in consumer behaviour, investment in new technology and infrastructure and policies affecting agricultural production and trade. The countries and areas of the region will play a main role in the future development of the region's agricultural production, trade and consumption.

Agriculture will continue to be the dominant economic activity for many developing countries of the ESCAP region, especially for low-income countries of South and South-East Asia where a major share of the labour force is engaged in farming, and where the agricultural sector still makes a significant contribution to gross domestic product (GDP). Table 1 presents some significant socio-economic and agricultural indicators for selected Asian and Pacific countries and areas.

In recent years, the economic performances of many countries in Asia and the Pacific have proven to be major bright spots in the global recovery of the 1990s. Economic growth in Asia and the Pacific has generally been above growth rates for other regions, even during the general economic downturn in the last several years. Despite the weak economic performance of Australia, Japan and New Zealand, which account for more than 75 per cent of the region's combined gross national product, most developing economies of the region seem to have maintained their growth rates. Some have

¹ Based on a study prepared by Hiroshi Yamauchi, Project Leader; John Yanagida; Ujjayant Chakravorty, University of Hawaii at Manoa; Xijun Tian, State of Hawaii, Department of Business, Economic Development and Tourism; and Janis Y. Togashi, East-West Center, Honolulu, Hawaii.

² William T. Coyle, Dermot Hayes and Hiroshi Yamauchi, *Agriculture and Trade in the Pacific*, Boulder CO, Westview Press, 1992.

**Table 1. Socio-economic and agricultural indicators for selected Asian and Pacific countries and areas
1992**

| | Population (million) | Per capita GDP (\$US) | Share of labour force in agriculture | Agriculture's share of GDP (percentage) | Share of agricultural trade in total trade | |
|-------------------------------------|-------------------------|--------------------------|---|--|---|-------------------------|
| | | | | | Exports (percentage) | Imports (percentage) |
| Developed economies | | | | | | |
| Australia | 17 | 16 907 | 5 | 3 | 20.0 | 4.1 |
| Japan | 124 | 27 135 | 6 | 3 | 0.4 | 10.7 |
| New Zealand | 3 | 12 545 | 9 | 9 | 47.2 | 6.8 |
| Developing economies | | | | | | |
| East Asia | | | | | | |
| China | 1 158 | 322 | 67 | 27 | .. | 5.9 |
| Hong Kong | 6 | 11 259 | 1 | 0.3 | 2.0 | 6.1 |
| Republic of Korea | 43 | 6 539 | 16 | 8 | 1.4 | 7.5 |
| Taiwan Province of China | 21 | 9 966 | 20 | 4 | 5.0 | 10.0 |
| South-East Asia | | | | | | |
| Brunei Darussalam | 0.3 | 11 990 | 52 | 2 | .. | .. |
| Indonesia | 188 | 620 | 44 | 19 | 6.9 | 7.3 |
| Lao People's Democratic Republic | 4 | 180 | 72 | 50 | 11 | 21 |
| Malaysia | 18 | 2 385 | 30 | n.a. | 9.9 | 5.8 |
| Philippines | 63 | 720 | 47 | 21 | 12.6 | 7.9 |
| Singapore | 3 | 14 486 | 1 | 0.2 | 4.9 | 5.4 |
| Thailand | 56 | 1 433 | 60 | 12 | 15.9 | 4.3 |
| Viet Nam | 70 | 200 | 61 | 39 | .. | .. |

Table 1. (continued)

| | Population (million) | Per capita GDP (\$US) | Share of labour force in agriculture | Agriculture's share of GDP (percentage) | Share of agricultural trade in total trade | |
|-------------------|-------------------------|--------------------------|---|--|---|-------------------------|
| | | | | | Exports (percentage) | Imports (percentage) |
| South Asia | | | | | | |
| Bangladesh | 119 | 185 | 69 | 36 | 11.5 | 26.1 |
| India | 850 | 315 | 63 | 29 | 12.4 | 3.1 |
| Myanmar | 43 | 200 | 47 | 57 | 80 | 2 |
| Nepal | 19 | 160 | 92 | 13 | 22 | 22 |
| Pakistan | 116 | 370 | 53 | 23 | 16.4 | 15.2 |
| Sri Lanka | 17 | 526 | 52 | 24 | 26.5 | 14.9 |
| Papua New Guinea | 4 | 1 005 | 67 | 26 | .. | .. |

Sources: World Bank, *Social Indicators of Development*, Washington, DC, World Bank, 1993; International Monetary Fund, *International Financial Statistics Yearbook*, New York, IMF, 1992; FAO, *The State of Food and Agriculture*, New York, United Nations, 1992; COMTRADE database; United States Department of Agriculture, Foreign Agricultural Trade of the United States (FATUS) database, 19 November 1993; government publications of China, Hong Kong, Lao People's Democratic Republic, Myanmar, Nepal, the Philippines and Viet Nam.

prospered to the extent of regaining their historical growth rates. The economic performance of China, which has had double-digit growth rates since the late 1980s is noteworthy. Other countries in South-East Asia and South Asia have also demonstrated new economic resilience that seems to be sustainable.

At the same time, there is growing evidence of the harmful effects of restrictive trade policies and expansionist macroeconomics policies on agriculture in developing countries around the world.³ In the Asian and Pacific region, there are reasons to believe that intraregional trade is artificially restrained by policies which discriminate against particular commodities that are traded in the region. Global and regional structural changes and increasing economic affluence require that policy-makers rethink such policies, because the region could make significant gains through a new division of labour.

The purpose of this study is to consider patterns and trends in agricultural production, trade and consumption. Since projections of future outcomes depend on the various assumptions made about expectations and techniques, a better understanding of how past patterns have developed and trends have evolved is helpful in order to specify the conditions that might hold in the future.

The first step is to identify the scope of the study. This involves selecting broad commodity categories for which there is directional trade data. These commodity categories include rice, wheat, coffee, cocoa, tea, spices, vegetable oils and natural rubber. Table 2 lists the main categories of agricultural commodities to be studied and their SITC code. At the highly aggregated SITC 3- and SITC 4-digit levels, these categories include the major commodities which will be studied in terms of production, foreign exchange earnings and consumption. The categories also include more specific products which may have the potential for increased intraregional trade. There is also the potential for new business opportunities through restructuring production to realize increased productivity and consider how to add value to the commodities.

The time period which is under study and for which data on the selected commodities are available covers 1976 to 1992. The geographical scope of the study is limited to selected countries and areas on the Asian continent and selected Pacific island countries and areas. As a result, the United States of America is not included in the statistics or the analysis of production patterns and intraregional trade flows.

In view of growing regional economic interdependence, increased industrialization, trade liberalization and growing affluence, this study reviews the principal patterns and trends in production and trade of the selected commodity categories for the seventeen-year period from 1976 to 1992. This information is supplemented with data on global trade in order to compute trade indices based on the

³ Romeo M. Bautista and Alberto Valdes, eds., *The Bias against Agriculture: Trade and Macroeconomic Policies in Developing Countries*, San Francisco, CA, ICS Press, 1993, and Maurice Schiff and Alberto Valdes, *The Political Economy of Agricultural Pricing Policy*, volume 4: *A Synthesis of the Economics in Developing Countries*, Baltimore, MD, Johns Hopkins University Press, 1992.

Table 2. Commodity categories identified for study

| | SITC code |
|---|-----------|
| Rice | 042 |
| Wheat | 041 |
| Meal and flour of wheat and flour of meslin | 046 |
| Coffee | 071 |
| Roasted and unroasted | 071.1 |
| Cocoa | 072 |
| Cocoa bean | 072.1 |
| Cocoa powder | 072.2 |
| Tea and maté | 074 |
| Tea | 074.1 |
| Spices | 075 |
| Pepper | 075.1 |
| Natural rubber | 232 |
| Vegetable oils | 42 |
| Soybean oil | 423.2 |
| Groundnut oil | 423.4 |
| Palm oil | 424.2 |
| Coconut (copra) oil | 424.3 |
| Palm kernel oil | 424.4 |

Sources: Food and Agriculture Organization of the United Nations, *FAO Production Yearbook*, various issues; United Nations UN/COMTRADE database.

concepts of comparative advantage and competitive advantage. The results help to describe concisely how intraregional trade specialization patterns have evolved over time, along with growth in incomes. The consideration of income leads to a review of the aggregate consumption patterns for various countries of the region. How consumption changes with income can provide an important indication of how demand for primary agricultural commodities in their various forms may be associated with expected changes in income and the implications for the future potential and direction of trade flows in agricultural commodities.

A. PRINCIPAL PRODUCTION PATTERNS AND INTRAREGIONAL TRADE FLOWS

Production of primary commodities in the Asia-Pacific region has generally increased during the period from 1976 to 1992. Some countries, such as China, have emerged as leading exporters of several agricultural commodities, including wheat, rice, tea, spices and rubber. Countries such as Viet Nam have also increased their production from a low initial base for commodities such as rice, tea and coffee. Papua New Guinea has emerged as a leading producer of coffee, cocoa and vegetable oils. Indonesia has become a major producer and exporter of several commodities analyzed in this study, including coffee, cocoa, tea, spices, rubber and vegetable oils.

Total exports by the countries and areas of the Asian and Pacific region have increased by several times their previous values during the period 1976-1992. However, rice, wheat, tea, coffee, rubber and vegetable oils have had their nominal export values decline during the latter half of this period. Only cocoa and wheat meal and wheat flour have shown an appreciable increase in their export values. Export values for spices and pepper have remained fairly constant in nominal terms.

Overall, in real terms, export earnings in recent years have been in general decline. Much of this decline is due to decreased export earnings by the member countries of ASEAN, in particular, Malaysia, Singapore and Thailand. Exports from Malaysia and Singapore seem to have decreased together, in view of Singapore's role as an entrepôt for exports of some Malaysian products. Indonesia's exports of tea and coffee have declined, but the country has also increased its export earnings from rice, vegetable oils and rubber. India has also contributed to the downward trend, as its export income from spices, rice, tea and coffee has fallen in recent years. Papua New Guinea has experienced a widespread decline in its export earnings from rice, tea, coffee, vegetable oils and cocoa.

This general decrease in the value of trade is mainly attributable to the real decline of commodity prices in international markets during the late 1980s and early 1990s. For many commodities, prices were at their lowest in 1990 and 1991. Domestic producer prices have been higher than world prices for some commodities, because of exchange rate variability and government policies keeping prices at artificially high levels. This has resulted in increased domestic consumption and lower export volumes.

Various projections, including those by the World Bank, indicate that world commodity prices are recovering, and demand for most commodities covered in this study is expected to increase in the near term due to faster economic growth, especially in the Asian and Pacific region. Moreover, as the demand for many commodities, notably coffee and tea, is stagnating in developed countries, this suggests that the potential for increased trade among members of ESCAP is promising over the next two or three decades. This trade potential may also be supported by large-scale adoption of new technologies (especially for rubber) that will reduce the cost of production. Growth in future export earnings could be further increased by rising demand in the countries that

were formerly part of the Union of Soviet Socialist Republics and by the opening of new markets (for example, rice) following the Uruguay Round agreements.

The value of trade in the commodities selected for this study is substantial. During 1992, export earnings in nominal terms for each commodity in the Asian and Pacific region were: \$US 3 billion for rubber; \$US 2.9 billion for vegetable oils; \$US 2 billion for wheat and wheat products; \$US 1.1 billion for rice and from \$US 600 to 700 million each for spices, coffee and cocoa. The countries in the subregion of South-East Asia are the dominant exporters for most of these commodities, except for wheat meal, flour and tea.

Intraregional trade is also dominated by the South-East Asian sub-region, where Singapore has a leading role as an entrepôt for primary commodities. The share of exports within the group of ASEAN members was about 20 to 30 per cent of total exports for most of the commodities. The share was generally lower (about 15 to 20 per cent) for East Asia and lowest (about 10 to 15 per cent) for South Asia. Trade within East Asia was dominated by two-way trade between Hong Kong and China. Hong Kong was not a dominant exporter of any commodity, which could be explained by the fact that trade statistics between Hong Kong and Taiwan Province of China are generally not reported. The major exporting and importing countries for 1992 for each commodity is summarized in table 3.

1. Production and trade patterns of selected commodities

a. Rice⁴

Rice is one of the major food grains, second only to wheat in terms of global cereal production. Over 90 per cent of world rice production and consumption takes place in Asia, and almost 70 per cent is accounted for by Bangladesh, China, India and Indonesia. Other major rice-producing countries include Japan, Myanmar, the Philippines, the Republic of Korea, Thailand and Viet Nam. Rice production in countries of the region has increased gradually from 281 million tons in 1976 to 481 million tons in 1992. China accounts for about 40 per cent of regional production, followed by India (20 per cent) and Indonesia (about 10 per cent).

Trade in rice is small relative to total production, as most rice is consumed within the producing countries. This has led to volatility in the world rice market, compounded by the fact that almost half of Asian rice production is dependent on monsoons. As a result, it is common to have short-run fluctuations in the real price of rice of about 10 to 20 per cent.⁵

⁴ For a more detailed, up-to-date report on global supply and demand for rice, see Chan Ling Yap, "Supply and Demand for rice in the Medium and Longer Term," paper presented at the Eighteenth Session of the International Rice Commission, Rome, 5-9 September 1994.

⁵ Brian Phillips, Justin Winton and Yin Mai, "Rice: Opening North East Asian Rice Markets: Implications for Australia," *Australian Commodities* 1, 2 (1994), pp. 234-246.

Table 3. (continued)

| Country/areas | Rice | | Wheat | | Meal & Flour of Wheat | | Tea | | Coffee | | Cocoa | | Vegetable Oils | | Spices | | Natural Rubber | | |
|------------------------|--------|--------|--------|--------|-----------------------|--------|--------|--------|--------|--------|--------|--------|----------------|--------|--------|--------|----------------|--------|------|
| | Export | Import | Export | Import | Export | Import | Export | Import | Export | Import | Export | Import | Export | Import | Export | Import | Export | Import | |
| Central Asia | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Azerbaijan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Kazakhstan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Kyrgyzstan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Tajikistan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Turkmenistan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Uzbekistan | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other ESCAP members | 0.7 | 9.4 | 0.0 | 0.0 | 0.0 | 6.0 | 0.2 | 13.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 4.9 | 1.1 | 0.4 | 0.9 | 0.9 |
| Afghanistan | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Bhutan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Brunei Darussalam | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 |
| Iran (Islamic Rep. of) | 0.0 | 8.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 11.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 2.2 | 0.2 | 0.0 | 0.9 | 0.9 |
| Mongolia | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 4.8 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Myanmar | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.5 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 0.7 | 0.4 | 0.0 | 0.0 |
| Developed economies | 3.4 | 4.3 | 99.1 | 24.7 | 52.9 | 1.2 | 0.7 | 32.4 | 5.2 | 75.0 | 1.3 | 46.6 | 1.0 | 20.3 | 1.3 | 32.2 | 0.1 | 34.3 | 34.3 |
| Australia | 3.4 | 2.4 | 99.1 | 0.0 | 13.7 | 0.1 | 0.2 | 5.6 | 2.7 | 10.0 | 0.1 | 12.2 | 0.3 | 5.1 | 0.7 | 2.6 | 0.0 | 2.0 | 2.0 |
| Japan | 0.0 | 1.0 | 0.0 | 24.1 | 38.9 | 0.1 | 0.4 | 25.3 | 2.5 | 63.5 | 1.2 | 32.0 | 0.7 | 13.8 | 0.5 | 28.9 | 0.0 | 32.0 | 32.0 |
| New Zealand | 0.0 | 0.9 | 0.0 | 0.7 | 0.4 | 0.9 | 0.0 | 1.6 | 0.0 | 1.4 | 0.0 | 2.4 | 0.0 | 1.4 | 0.0 | 0.7 | 0.0 | 0.3 | 0.3 |

Source: United Nations, COMTRADE database.

Among the varieties of rice that are traded internationally, *Indica* rice, which is grown mainly in South and South-East Asia and southern China accounts for about 87 per cent of world trade. *Japonica* rice, which is grown in Japan, the Republic of Korea and northern China accounts for about 11 per cent of world trade. The most important exporters of *indica* rice are Thailand and Viet Nam. Japan, the Republic of Korea and Taiwan Province of China are major producers and consumers of *japonica* rice, but they are not its major exporters. The major importers of *japonica* rice are Turkey, Israel, Jordan, Lebanon and the Syrian Arab Republic, and the major Asian and Pacific exporters are Australia and China.

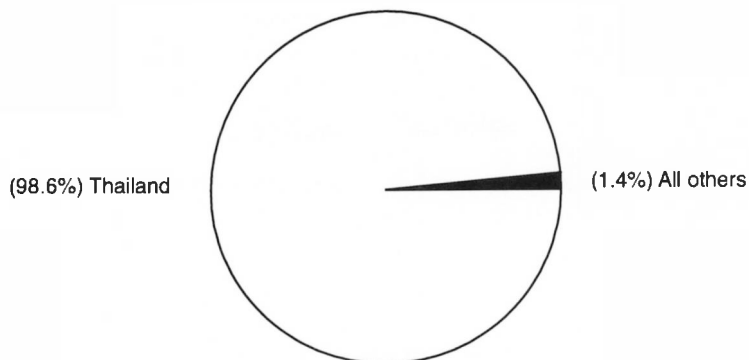
The conclusion of the Uruguay Round negotiations is expected to have a major impact on the world rice market by opening rice markets in Japan and the Republic of Korea. The impact on market prices and trade for both *indica* and *japonica* will depend on how much of each variety is imported by these two countries. Since *japonica* is the preferred variety, its demand is expected to increase in these two countries.

The total value of rice exports from Asian and Pacific countries increased fivefold from 1976 to 1984. The value was almost \$US 2 billion in 1984, but then decreased to \$US 1.1 billion in 1992. Rice exports in 1992 originated mainly from South Asia (37 per cent), South-East Asia (34 per cent) and East Asia (20 per cent). At the same time, countries and areas in East and South-East Asia were the largest importers of rice in the region, representing 32 and 41 per cent of total regional rice imports, respectively.

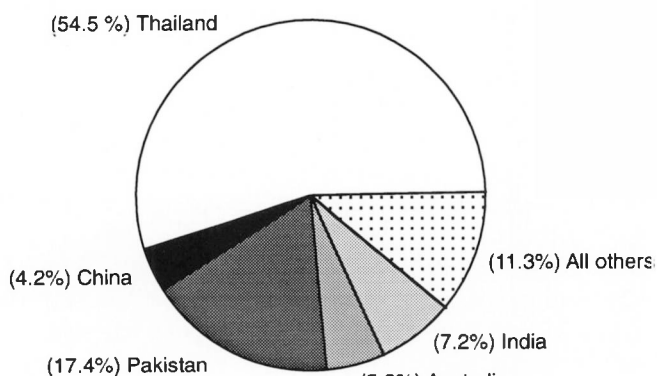
Major rice-exporting countries are China, Pakistan and Thailand. Pakistan exports more than three fourths of its rice to the Middle East and Africa, and about 15 per cent to the Islamic Republic of Iran. Thai rice is bought mainly by Australia, China, Hong Kong, Indonesia and Singapore. Chinese rice is shipped to Africa and various Western nations, with smaller quantities going to Hong Kong and Indonesia.

Figure 1 shows the major exporters of rice in the years 1976, 1984 and 1992. Thailand was the principal rice exporter with almost 99 per cent of the market in 1976. However, Thailand's share declined to about 33 per cent in 1992. The main overall trend in rice trade has been a major decline in exports from South-East Asian nations such as Malaysia, Singapore and Thailand, while other rice-producers such as India and developed countries such as Australia and Japan have also experienced declines in exports. In contrast, China and Pakistan have expanded their rice exports significantly from 1976 to 1992, with both countries accounting for a negligible market share in 1976, but jointly accounting for more than 50 per cent in 1992. More recently, Viet Nam has also shown a sharp increase in its share of the rice export market.

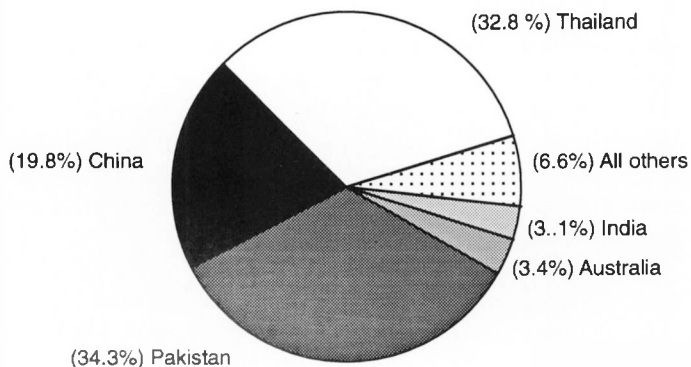
The most important rice-trading subregion was South-East Asia, where exports were valued at \$US 193 million in 1992 which was almost one half of their total exports. Thailand exported rice primarily to Indonesia and Singapore. The Philippines and Singapore also exported small amounts of rice to other countries within the subregion.



1976



1984



1992

Source: United Nations, COMTRADE database.

Figure 1. Top Asian and Pacific exporters of rice (SITC 042) for 1976, 1984 and 1992

In East Asia, the share of intraregional trade was about 10 per cent of total trade. Chinese rice was sold to Hong Kong for domestic consumption and re-export and was the only significant intraregional component. However, Hong Kong also imported rice from Australia and has been a major entrepôt for rice trade in the region. In South Asia, the proportion of intraregional trade has been small, valued at \$24 million in 1992. Pakistan exported rice to Afghanistan, Bangladesh, the Islamic Republic of Iran and Sri Lanka. There may be possibilities for India and Pakistan to export rice to Sri Lanka.

b. Wheat

Wheat is the second most important food grain in Asia and the Pacific after rice and is one of the largest agricultural imports for the region. Although wheat is secondary to rice in most Asian diets, demand for processed wheat products has been rising owing to increased incomes and changes in consumer tastes.

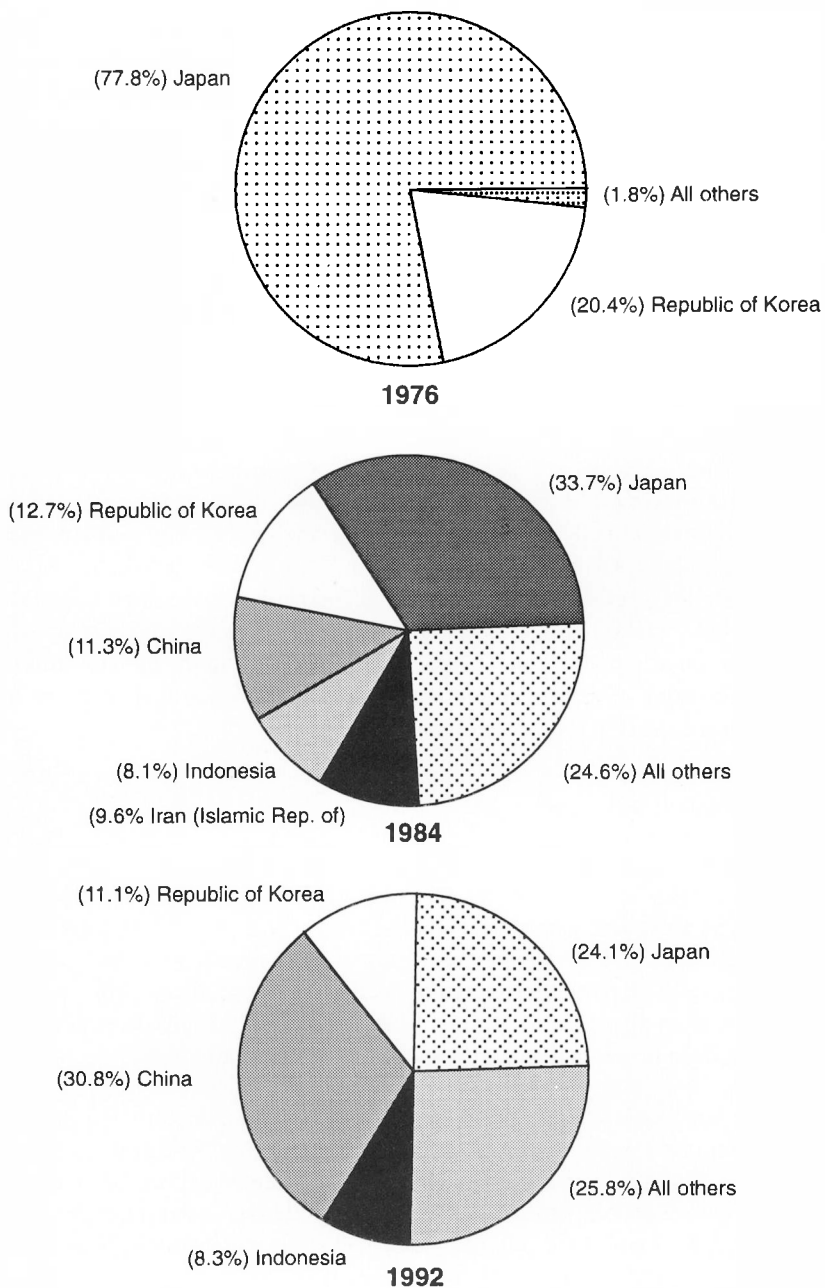
Growth in world wheat production has generally outpaced growth in consumption, almost entirely caused by an increase in yields, since total area harvested has declined. Production increases have been the result of using high-yielding varieties, but when combined with the slow down in consumption, the result has been an increase in wheat stocks and a general decline in wheat prices during most of the 1980s.

Wheat production in the region has increased steadily from 74 million tons in 1970 to about 202 million tons in 1992. China has been the largest producer with nearly 55 per cent of the region's total production, and production has almost tripled for China since 1970. India is the next major wheat producer, with a share of approximately 30 per cent of regional production. Other major wheat-producing countries are Australia, the Islamic Republic of Iran and Pakistan.

Wheat imports generally fell in the late 1980s and early 1990s in view of general increases in production, limits on foreign exchange availability and declines in wheat consumption for such uses as animal feed. This has resulted in a buyers' market, with increasing emphasis on credit facilities and other export promotion schemes. Even though prices have fallen and competition among exporters has become more intense, the volume of world wheat trade has increased only modestly, mainly as a result of growth in income and increases in population.⁶

Wheat exports by countries in the region increased tenfold during the period under study. The total value of wheat exports in 1992 was about \$US 1.8 billion, nearly all of which was accounted for by Australia. More than 60 per cent of Australian wheat was exported to countries outside the region. As shown in figure 2, the main importers of wheat have been China, Japan, the Republic of Korea and Indonesia. Pakistan and the Islamic Republic of Iran have also imported smaller shares in certain years.

⁶ International Monetary Fund, *Primary Commodities: Market Developments and Outlook*, Washington D.C., IMF, 1987.



Source: United Nations, COMTRADE database.

Figure 2. Top Asian and Pacific importers of wheat (SITC 041) for 1976, 1984 and 1992

Australia's wheat exports to other ESCAP members decreased in value from 1984 to 1992 by about \$US 500 million, mostly as a result of reduced imports by India, the Islamic Republic of Iran and Malaysia. Overall, there has been a major shift in wheat trade patterns in the last two decades. Previously, Japan was the major regional importer of wheat. In recent years, however, the regional destinations for wheat exports have become more diversified, with 30.8 per cent going to China in 1992 and 25.8 per cent to other Asian and Pacific countries.

At the same time, no other major wheat exporter has emerged within the region, although India has exported small quantities of wheat to Sri Lanka and the Philippines. Singapore also imported a small amount of wheat from Australia and re-exported some wheat to India and Malaysia.

The overall volume of wheat traded has increased substantially since 1976, but in recent years there has been a decrease of wheat exports within the region, since Australia's wheat exports to developing Asian and Pacific countries were reduced by about one half. Intraregional wheat trade has been negligible. The ASEAN countries generally do not trade in wheat, with the exception of Singapore. In South Asia, India is an exporter, while Sri Lanka, Nepal, Pakistan and Bangladesh have imported substantial quantities of wheat, mainly from Australia. Pakistan was a net exporter of wheat in earlier years, particularly to the Islamic Republic of Iran. Given the lack of intraregional trade, and the presence of several major wheat producers in South Asia, there may be opportunities for increased wheat trade in the near future.

c. Wheat meal and flour⁷

The trade pattern for wheat meal and flour products is quite different from that of wheat grain. Japan has been the leading exporter of wheat meal and flour, earning \$US 68 million in 1992. Australia, which is the main wheat grain trading country in the region, exported about \$US 23 million of meal and flour products. China, Hong Kong and Singapore are also important exporters of meal and flour products. The total value of exports has gone from about \$US 8 million in 1976 to \$US 175 million in 1992. Unlike wheat, there has been no decline in the trade of meal and flour products.

Japan has exported mainly to Hong Kong, Singapore and Thailand; while Australia has exported mainly to the Philippines, China, Viet Nam and several Pacific island nations including Tonga, Samoa and Kiribati. China's exports have gone to the Democratic People's Republic of Korea and Mongolia. Singapore exported meal and flour products worth \$US 22 million to countries outside the Asia and Pacific region in 1992.

In terms of intraregional trade, substantial trade takes place within East Asia and South-East Asia. In East Asia, Hong Kong exported meal and flour to China, while

⁷ Wheat meal and flour is a shortened term for the official designation "meal and flour of wheat and flour of meslin" (SITC 046, Rev. 2) in the COMTRADE database. Wheat products refer to flour, meal and other semi-processed products from wheat. Meslin is a 2:1 blend of wheat and rye flour.

China exported to the Democratic People's Republic of Korea. The share of intraregional exports to total exports was about 55 per cent. Within South-East Asia, nearly one third of total trade was intraregional, accounted for mostly by Malaysia's export of meal and flour products to Singapore. Trade within other regions of Asia and the Pacific was negligible.

Trade across subregions is dominated by exports from Japan and Australia to countries and areas in South-East Asia and East Asia. These two major exporting countries also export smaller quantities to the Pacific island economies.

Hong Kong has been an intermediary for imports of meal and flour products primarily from Japan to China. Singapore plays a similar role in processing for re-export to other countries within South-East Asia. Apart from East and South-East Asia, there may be potential for increased trade in meal and flour products within the Pacific island subregion.

d. Tea⁸

World production of tea has been increasing continuously, but import demand has been either stagnant or declining. Even though world tea prices have fallen in real terms, producer prices in terms of local currencies have not declined so that production of tea has increased. Consumption has declined because of competition from soft drinks and other beverages and because beverage consumption habits of younger age groups have changed.

World production of tea is based primarily in Asia (85 per cent). Another 12 per cent of production is in Africa and the balance is in Latin America. Production of tea in countries of the region has increased from about 1.0 million tons in 1970 to 1.86 million tons in 1992. India is the leading producer, accounting for about 38 per cent of regional production, followed by China with 31 per cent. Sri Lanka and Indonesia each have about 8 to 10 per cent share of production. Japan produces approximately 4 per cent of the region's tea and the Islamic Republic of Iran, Bangladesh and Viet Nam produce smaller quantities of tea. From 1970 to 1992, production has expanded most rapidly in China and Indonesia. There has also been expansion in Viet Nam and the Islamic Republic of Iran, although the initial production base was smaller.

An ongoing trend has been the changing composition of tea sold at London auctions. The share of Indian tea has declined, while the share of African tea has increased. One contributing factor is that domestic producer prices for tea are generally higher than the London auction prices. Moreover, demand for Asian tea in the United Kingdom has declined and consumers have switched to less expensive African teas.⁹

⁸ The focus is on tea only (SITC 074.1). SITC 074 includes maté which is a tea-like beverage made from the leaves of holly native to Paraguay and Brazil. It is, therefore, not an important commodity in the Asia-Pacific region.

⁹ World Bank, *Market Outlook for Major Primary Commodities*, volume II (Report 814/92), Washington, D.C., 1992.

Exports of Indian tea have declined in the international market because its prices are relatively higher and because the former Soviet Union has diversified its sources of tea imports. Sri Lanka's tea exports depend significantly on demand from the Middle East. Future tea exports are likely to depend on demand for tea in the former Soviet Union and the Middle East. Future increases in exports are expected to come from India, China, Indonesia and Kenya.

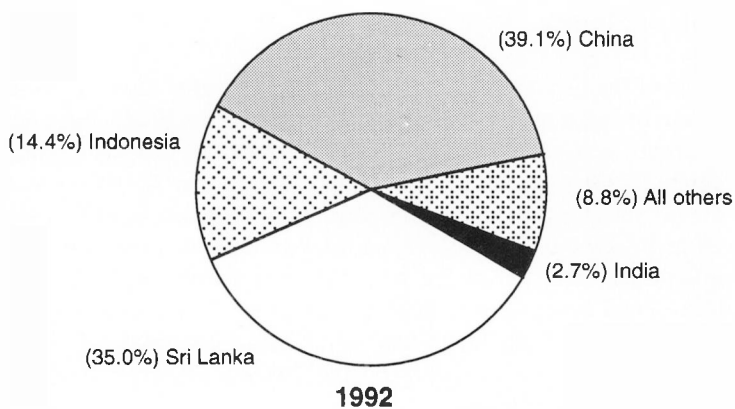
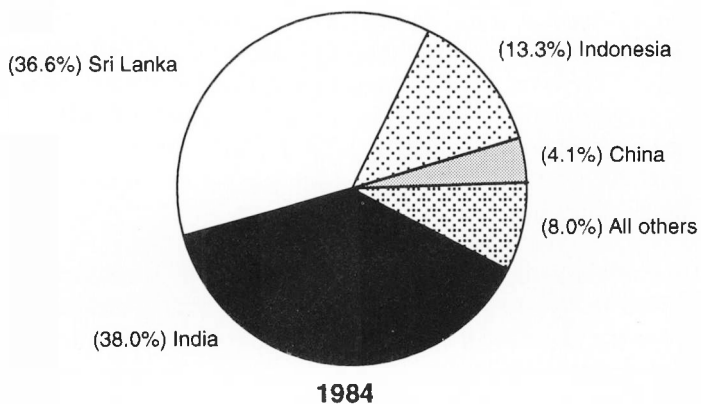
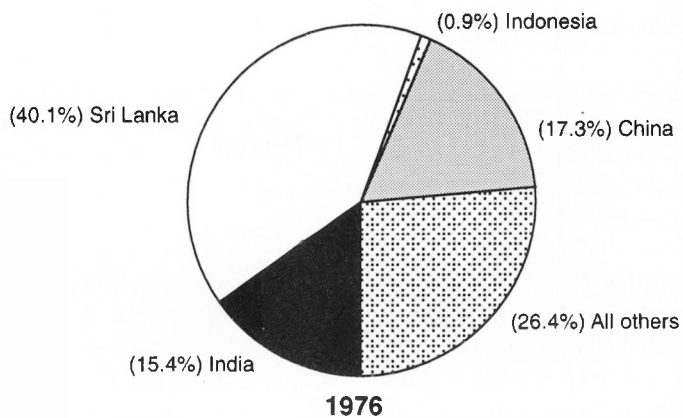
Total exports of tea from countries and areas in the region amounted to almost \$US 1 billion in 1992. Tea exports from Asia and the Pacific have declined since 1984, when exports were at \$US 1.7 billion. The main reason is the decreased tea exports from South Asia, especially India and Sri Lanka. As shown in figure 3, India's share of tea exports has declined over time from about 15 per cent in 1976 to 2.7 per cent in 1992. South Asia's exports in 1992 were less than one third of 1984 levels. Exports from Indonesia and Singapore also declined during this period.

China and Sri Lanka each have a share of about one third of the export market, followed by Indonesia with about 15 per cent in 1992. With declines in tea exports from other subregions, China has emerged as the largest exporter of tea among the countries of the ESCAP region. About 12 to 15 per cent of its total tea exports are being exported to Japan and Hong Kong. More than 60 per cent of China's exports have been to countries outside the region, mainly those in Africa, North America and Europe. Sri Lanka exported mainly to markets outside the region, but also to Japan and the Islamic Republic of Iran. Indonesia also exports tea mainly to markets outside the region, but a sizeable quantity is exported to Pakistan.

Intraregional trade in tea has been quite small relative to the total volume traded. In the two major tea-growing regions in Asia and the Pacific, intraregional tea trade in East Asia was only 13 per cent of total trade and in South Asia it was only 7 per cent. Within East Asia, China supplied Hong Kong with tea worth \$US 52 million in 1992, and this accounted for 95 per cent of the East Asian subregion's total trade. In South Asia, Pakistan purchased \$US 30 million worth of tea from Bangladesh, Sri Lanka and India in 1992.

Tea trade within South-East Asia was valued at only \$US 10 million in 1992, most of which consisted of exports from Indonesia and Malaysia to Singapore, as well as re-exports from Singapore to Malaysia, thus implying some limited tea processing activity in Singapore. In the Pacific island subregion, Papua New Guinea's tea exports were valued at more than \$US 5 million in 1992, most of which was exported to Australia, New Zealand and countries outside the region. Japan has been a major importer of tea, trading with almost all major exporters in the region.

Overall, the main regional importers of tea have been Japan, Pakistan, the Islamic Republic of Iran and Hong Kong. The main suppliers are China, India, Sri Lanka and Indonesia. There seems to be some potential for increasing intraregional trade involving Pakistan, India and Sri Lanka in South Asia.



Source: United Nations, COMTRADE database.

Figure 3. Main exporters of tea (SITC 074) for 1976, 1984 and 1992

e. **Coffee and coffee substitutes**

Robusta and *arabica* are the two major varieties of coffee traded on the global market. *Robusta* is important as a source of lower-cost blends and instant coffees. *Arabica* is the main source of fine coffees, but is more difficult to grow, since ideal growing conditions are found at high elevations and in certain jungle regions of the tropics and sub-tropics.

World coffee production has been increasing steadily because of increased productivity and despite substantial declines in real world prices in the early 1990s. Other explanations for increased production are (1) high producer prices in producing countries and (2) relatively slower responses to prices in the short run, since coffee is a tree crop.¹⁰ Brazil and Colombia are the main coffee-producing countries, followed by African countries such as Ethiopia and Côte d'Ivoire and certain Asian and Pacific countries including, Indonesia and India. In 1992, world production of coffee was expected to remain stagnant because of the low producer prices and increasing variable costs of production. However, prices have since recovered as a result of stock retention practices by the members of the Association of Coffee Producing Countries (ACPC) and expected reduced harvests because of bad weather in Brazil and Colombia. This recovery in prices is uncertain over any extended period, given past "boom and bust" cycles characteristic of the coffee industry.

Coffee production in Asia and the Pacific is primarily of *robusta*, and production more than doubled in the period from 1976 to 1992, with a bumper crop in 1989. Indonesia has been the major producer of coffee in the region, accounting for 46 per cent of the total production in 1992. India follows with 22 per cent share and the Philippines has a 12 per cent share. Other major coffee-producing countries are Viet Nam and Papua New Guinea. Some of these countries are trying to convert their production to the higher-priced *arabica* variety.

The end of the quota system under the International Coffee Agreement in 1989 led to the release of large amounts of surplus coffee by the producing countries, and world prices declined as a consequence. This has been exacerbated by a reduction in the demand for coffee by the countries that were part of the former Soviet Union and OECD members. Export revenues of major producers have declined sharply, even as major exporters such as Brazil and Colombia increased their export volumes in recent years.¹¹ Increased exports are expected in the future from countries such as Viet Nam and Indonesia, and demand is expected to grow in countries where current per capita coffee consumption is low, including Japan and other Asian countries. However, coffee consumption in Europe and the United States has levelled off, even though demand for gourmet coffees has been increasing.

¹⁰ Ibid.

¹¹ Refer to World Bank, *Commodity Markets and the Developing Countries*, a quarterly review of global markets that covers coffee and other primary commodities.

Coffee exports from the Asian and Pacific region have increased in value more than tenfold since 1976, but exports have declined by about half between 1984 and 1992. The top coffee-exporting countries have been Indonesia, India and Papua New Guinea, all three of which maintain sizeable shares of the region's export market. However, in line with global trends, all three coffee exporting countries have registered steep declines in export earnings during recent years. For example, between 1984 and 1992, the value of Indonesia's coffee exports fell from \$US 568 million to \$US 254 million; Papua New Guinea's exports fell from \$US 126 million to \$US 71 million. Their market shares have remained about the same, however.

More than 60 per cent of Indonesia's exports are outside the region, to countries in Europe, North America and Africa. Within the region, about one fourth of Indonesia's coffee exports go to Japan, with relatively smaller quantities exported to Singapore and Australia. India exports more than 90 per cent of its coffee to Europe and North America. Papua New Guinea sends 30 per cent of its coffee to Australia and the remainder is shipped to European countries. Japan and Australia are the major coffee importers within the Asian and Pacific region, as indicated in figure 4. Japan's relative share of the import market has declined since 1976 and the value of its imports has also gone down in recent years.

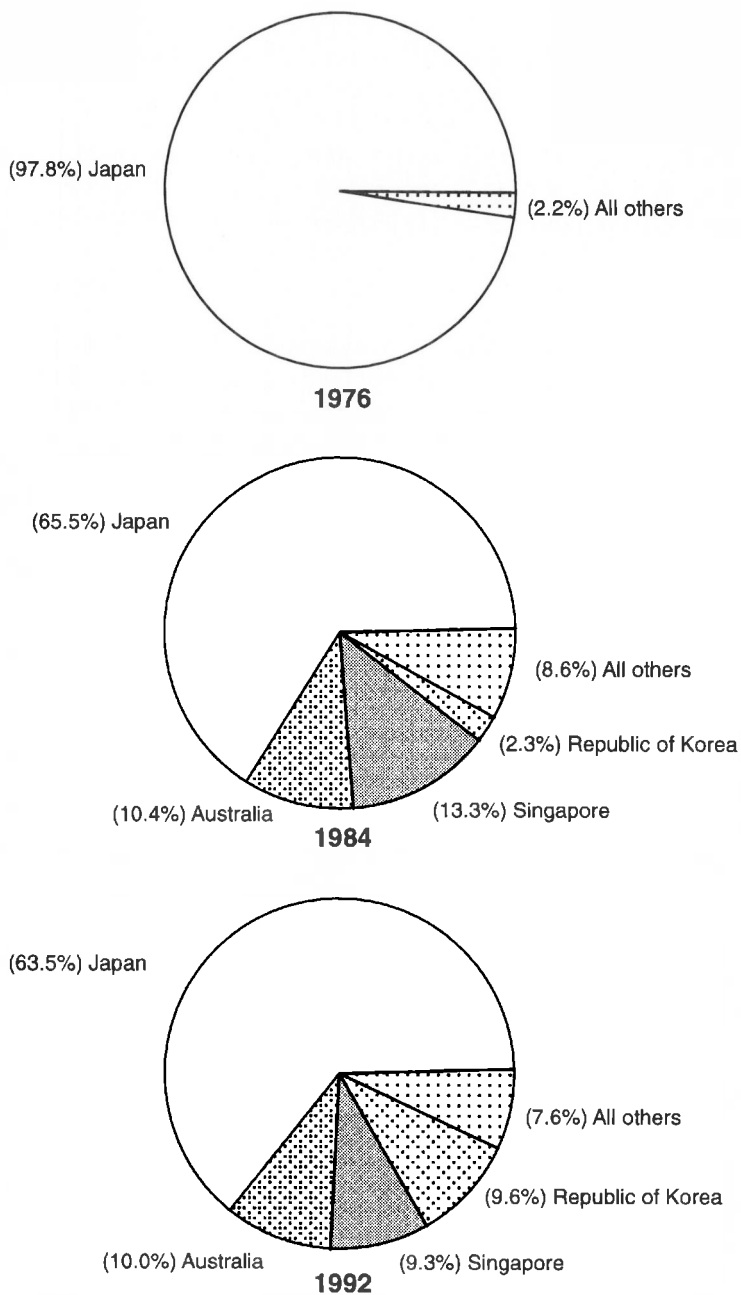
South-East Asia is the major coffee trading subregion in Asia and the Pacific. Singapore has been a major importer and re-exporter of coffee, trading with all of the other members of ASEAN. The volume of trade within the subregion is small, however, when compared with the amount exported by Indonesia and Singapore to Australia, Japan and countries outside the region. There is very little coffee traded within the South Asian subregion, although India is an important coffee exporter. A similar situation exists in East Asia.

Unlike commodities such as wheat and rice, coffee is a commodity that is processed and consumed mostly in developed countries. Most Asian and Pacific coffee trade is from the developing countries to Japan and Australia and other developed countries outside the region.

f. Cocoa

Global cocoa production has grown by about one million tons a year since 1970. The major producers have been Ghana and Côte d'Ivoire, followed by Brazil, Malaysia and Indonesia. Consumption has not kept pace with this increase in production, with the result that cocoa stocks have increased and prices have fallen in real terms. The decline in prices has not affected growth in production, since cocoa trees take several years to mature.

Asian and Pacific cocoa production increased nearly tenfold from 45,200 metric tons in 1976 to 449,000 metric tons in 1992. As shown in figure 5, the most dramatic increases took place in the 1980s in the two major cocoa-producing countries of the



Source: United Nations, COMTRADE database.

Figure 4. Main Asian importers of coffee for 1976, 1984 and 1992

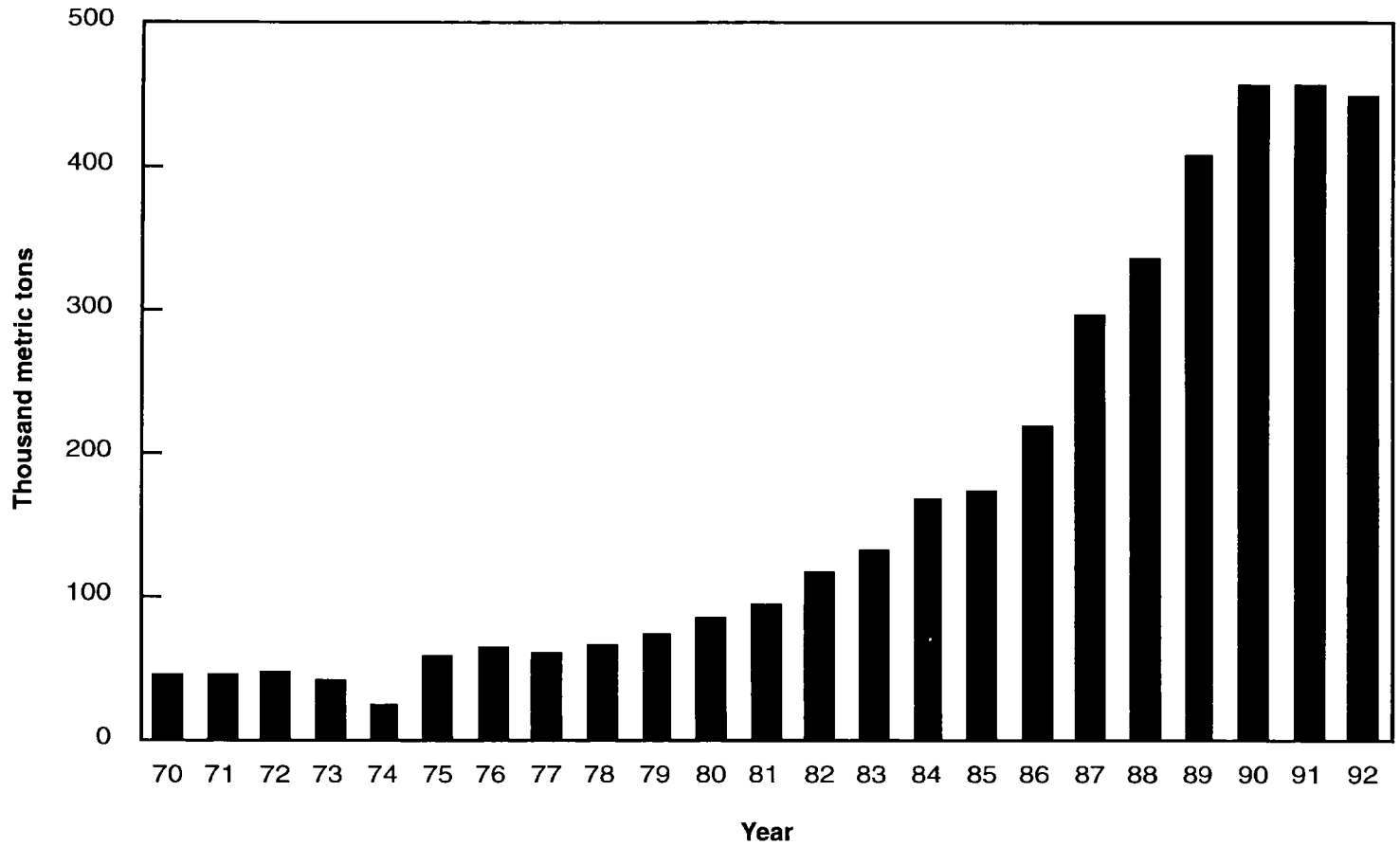


Figure 5. Total cocoa production in Asia and the Pacific, 1970 - 1992

region, namely, Malaysia which accounts for 50 per cent of total regional production and Indonesia which accounts for 40 per cent. Papua New Guinea is another major cocoa producer, although its production level remained fairly steady between 1970 and 1992.

In Malaysia, cocoa is produced mostly on large estates where overhead and other production costs tend to be high. In conjunction with low market prices for cocoa, this has resulted in a shift to other crops and a reduction of inputs used in cocoa production. As a result, production in Malaysia is expected to decline. In Indonesia, however, where cocoa is produced at low-cost on small-scale farms, the World Bank expects annual increases in production of about 6 per cent in the future.¹²

Cocoa consumption in the United States and some countries in Western Europe has increased because of declining prices. But export revenues from cocoa have gone down, especially for the cocoa-growing countries in Africa and Latin America. The ongoing excess supply in the world cocoa market has led to moves by producing countries to revive some elements of the International Cocoa Agreement, but these efforts have not achieved any measurable success. Cocoa production in the long run is expected to expand only marginally, because current low prices are a clear disincentive for investment by farmers in new cocoa plantings.

Cocoa exports by producers in Asia and the Pacific have increased significantly from 1976 to 1984, rising from \$US 8.3 million to \$US 470 million. Exports have continued to grow in recent years and were valued at \$US 581 million in 1992, a trend unlike that for most of the other commodities examined in this study.

Major cocoa exporters in the Asian and Pacific region are Malaysia, Singapore and Indonesia. Singapore imports from Malaysia, Indonesia and Papua New Guinea of which nearly three fourths is re-exported to North America and the European Union and about 12 per cent is sent to Australia. Both Malaysia and Indonesia also export significant quantities of cocoa directly to the European Union, North America and Australia, with smaller shares going to Japan and New Zealand. Papua New Guinea exports smaller quantities to countries outside the region, as well as to Australia and New Zealand. Papua New Guinea's cocoa exports in 1992 were worth more than \$US 38 million, a significant amount for a relatively small economy.

Japan was the only importer of cocoa within the region during the 1970s, but accounted for only one third of the market in recent years. Together with Singapore, Japan accounts for two thirds of all cocoa imports within the Asian and Pacific region.

Countries in the South-East Asian subregion export more than \$US 0.5 billion of cocoa annually, less than one third of which is traded within the subregion. Cocoa imported by Singapore from Indonesia and Malaysia accounted for almost 85 per cent of this figure. Thus, cocoa trade among ASEAN countries is focused on Singapore's role as a re-exporter and processing centre. Trade of cocoa in other subregions is negligible.

¹² World Bank, *Market Outlook for Major Primary Commodities*, op.cit.

However, there is potential for expanding cocoa trade to Oceania and East Asia, since Papua New Guinea is a major exporter, while Australia, New Zealand and Japan are major importers of the commodity.

g. Cocoa beans

Cocoa bean exports from the Asia-Pacific region were valued at about \$US 415 million in 1992, and this was about 70 per cent of world cocoa exports. Since cocoa beans are a subcategory of cocoa, trade patterns of the two commodities would be expected to be quite similar. In parallel with the trend for cocoa, cocoa bean exports have also grown significantly over the period from 1976 to 1992. Intraregional trade is generally confined to three ASEAN countries, Indonesia, Malaysia and Singapore. The only other major cocoa bean exporter is Papua New Guinea, which exports mainly to Singapore and to countries outside the region.

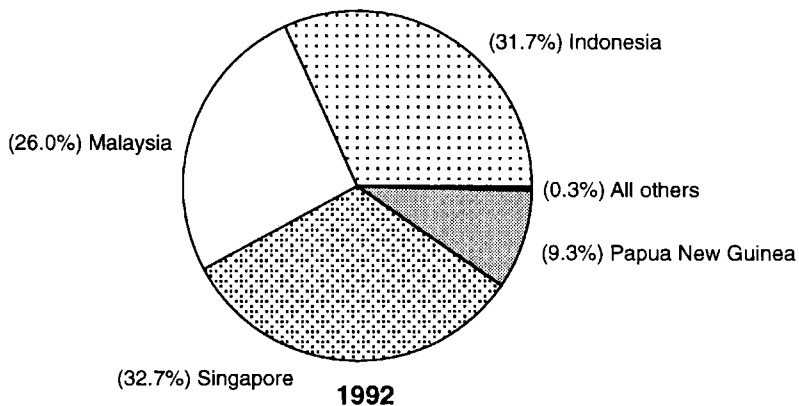
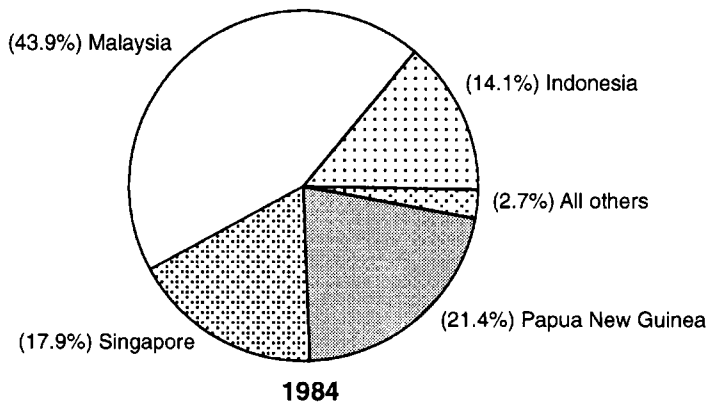
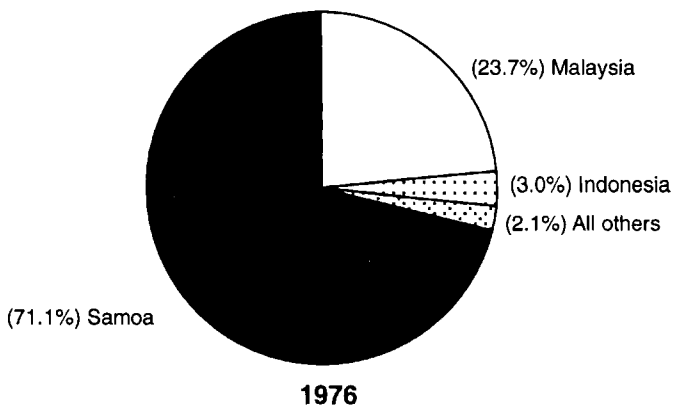
Japan is the main consumer of cocoa beans, but its imports come from countries outside the region and to a lesser extent from Malaysia and Indonesia. There may be some potential for expansion of trade in cocoa beans between Papua New Guinea and Japan.

Samoa accounted for 71 per cent of the region's cocoa bean exports in 1976, but its exports had been reduced to almost zero by 1992, as shown in figure 6. Malaysia and Papua New Guinea have held a sizeable but variable share of the export market, while Singapore and Indonesia have steadily increased their shares.

h. Cocoa powder

Export trends for cocoa powder are generally similar to those for cocoa. Total cocoa powder exports from the Asian and Pacific region increased from \$US 0.5 million in 1976 to \$US 28 million in 1992. ASEAN countries accounted for more than \$US 25 million in exports for 1992. Singapore exported \$US 16 million of cocoa powder in 1992 and accounted for more than half of the exports from the ESCAP region. Singapore imports smaller quantities of cocoa powder from Malaysia and Japan, and there seems to be substantial value added, because the aggregate value of imports is much smaller relative to exports.

In terms of intraregional trade patterns, South-East Asia accounts for about one fifth of total trade. Singapore and Malaysia also export cocoa powder to developed Asian and Pacific countries, namely Japan, Australia and New Zealand. Singapore and Malaysia also export relatively small quantities of cocoa powder to Hong Kong and the Republic of Korea. There is almost no intraregional trade within South or East Asia.



Source: United Nations, COMTRADE database.

Figure 6. Main Asian and Pacific exporters of cocoa beans for 1976, 1984 and 1992

i. Vegetable oils¹³

Vegetable oils and protein meals are derived primarily from oilseeds. The vegetable oils market is extremely heterogeneous and complex on the supply side. Some oilseeds are produced as annual crops, such as soybeans, sunflower seeds, cottonseed, groundnuts and rapeseed, while others are produced as perennial tree crops, such as coconut, palm and olives. Most annual producers of oilseed crops can adjust supply rapidly, generally within one year, but producers of tree crops are not as flexible. Tree crops require long development periods, have longer economic life spans and have low variable costs for cultivating and harvesting.

Vegetable oils production worldwide has continued to increase, and unlike most other commodities, vegetable oil production is extremely diversified geographically. Major oilseed producers are in the United States, Canada, Western Europe, Argentina and Brazil. In Asia and the Pacific, major producers are India and China. Most of future oilseed production is expected to move to countries in Latin America and Asia that are already producing.

Together, Malaysia and Indonesia dominate the production of palm oil in the world, accounting for more than 60 per cent of global production in 1991. Within the Asian and Pacific region, the main vegetable oil-producing countries are India, Indonesia, and Malaysia, with a total production of 29.25 million tons in 1992.¹⁴ The Asian and Pacific region is considered as the major growth area for vegetable oil production in the world. In 1992, the region registered an annual increase of 8 per cent in production, compared to a world average of 2 per cent.

The complexities of the vegetable oils market are compounded by the joint product nature of the commodity, which results in price competition with animal products, such as butter in the food sector and petroleum products for detergents and wood finishes in the industrial sector. These factors have contributed to frequent dramatic variations in vegetable oil prices and the export revenues of producing countries. However, vegetable oil consumption is expected to increase rapidly in the future for countries with rapid economic growth, such as China and India. The share of imports by developed countries such as Japan, Canada, the United States and countries of Western Europe is expected to decline.

Intraregional trade among countries of the ESCAP region in vegetable oils increased from \$US 98 million in 1976 to \$US 3.8 billion in 1984, and then decreased to

¹³ Two recent ESCAP publications on vegetable oils for edible use and for the oleochemicals industry provide comprehensive data: ESCAP, *Oleochemicals in the ESCAP Region: Production, Market Structures and Trade Potential*, New York, United Nations, 1994 and ESCAP, *Proceedings of the Expert Group Meeting on the Expansion of Trade in Vegetable Oils for Edible Use and for the Oleochemicals Industry*, New York, United Nations, 1994 (ST/ESCAP/1402). The manufacture of oleochemicals, primarily from coconut oil and palm kernel oil, accounts for about 20 per cent of total vegetable oil use. See also the paper in this publication by Mr. L. Taufikkurahman, "Principal Patterns of Supply and Demand for Coconut Oil".

¹⁴ UNCTAD, *Commodity Review and Outlook, 1993-1994*, New York, United Nations, 1994.

\$US 2.8 billion in 1992. South-East Asia is the leader with a share of almost 90 per cent of the market. Malaysia accounts for almost half of all South-East Asian exports, followed by Indonesia, the Philippines and Singapore. Elsewhere in the region, China, Papua New Guinea and India are major exporters of vegetable oils. Hong Kong and Japan also export smaller, but significant quantities of vegetable oil.

Malaysia exports mostly to Pakistan, China, the Republic of Korea, Indonesia, Singapore and Japan. Indonesia exports mainly to Malaysia and Singapore within the region, but more than 70 per cent of its exports are to Europe and North America. Almost 85 per cent of Philippine vegetable oil exports are to Europe and North America, with a smaller share going to Japan. Singapore re-exports vegetable oils, by importing from its South-East Asian neighbours and exporting to countries outside the region, mainly to Africa and the Middle East. Papua New Guinea exports almost all of its surplus production to Europe.

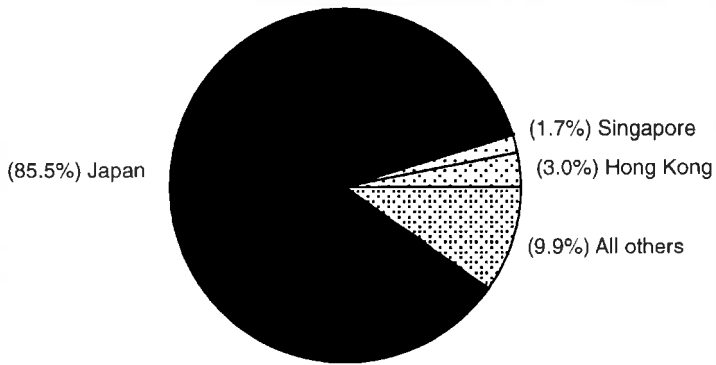
Exports of vegetable oils from most ESCAP-member countries declined steeply from 1984 to 1992. This was most significant in the case of Singapore and Malaysia, whose exports decreased by 60 per cent and 47 per cent, respectively. Exports from the Philippines, Papua New Guinea and China also declined during this period.

Japan's position as the major importer of Asian and Pacific vegetable oil changed from 1976 to 1992, as shown in figure 7. In 1976, Japan's share was 86 per cent, but this dwindled to 14 per cent in 1992. Pakistan, China and Singapore have expanded their imports significantly and have become the region's leading importers.

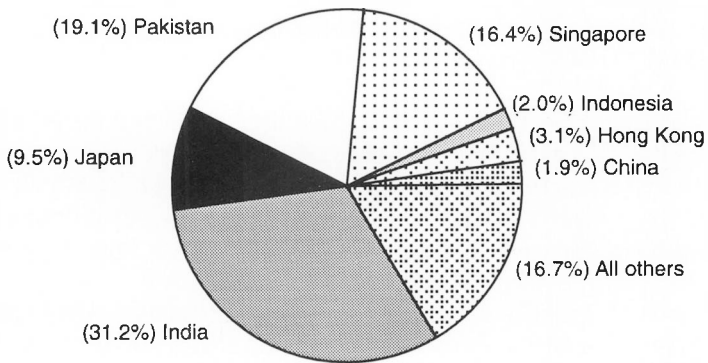
Intraregional trade of vegetable oils in South-East Asia was about one fifth of total trade in the region. Most of this trade took place between Malaysia, Indonesia and Singapore. East Asia's share of intraregional trade was relatively high at 51 per cent, although the value was only \$US 79 million. Trading was mainly between Hong Kong and China, with some exports from China to the Republic of Korea and the Democratic People's Republic of Korea. Within South Asia, the intraregional component was 10 per cent, consisting of small amounts of trade between India and Nepal and between Sri Lanka and Bangladesh. There may be prospects for increasing trade between India and Pakistan. India is a major exporter of vegetable oil to North America and Europe. Pakistan imported vegetable oils worth almost \$US 350 million from Malaysia.

j. Spices

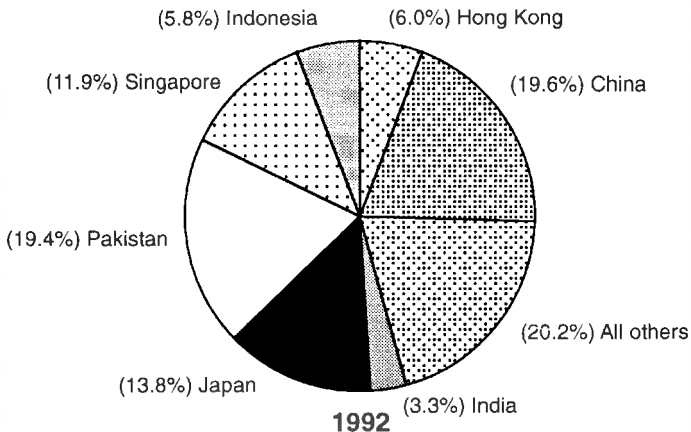
A number of Asian and Pacific countries are the world's major producers of spices. Except for pepper which is treated separately here, the other major spices are cloves, cardamom, nutmeg, mace, cinnamon, ginger, turmeric and coriander. The leading producers are: Indonesia for cloves and nutmeg; Sri Lanka for cinnamon; India and Papua New Guinea for cardamom; and China, Indonesia, and India for ginger, turmeric and coriander.



1976



1984



1992

Source: United Nations, COMTRADE database.

Figure 7. Main Asian and Pacific importers of vegetable oils (SITC 42) for 1976, 1984 and 1992

The total volume of world spice trade has increased steadily in recent years. However, export values have not risen, mainly because prices for most spices have been declining, especially for pepper which comprises from 30 to 40 per cent of global spice trade. The major global markets for spices are the United States, Germany, Japan and countries in the Middle East. Imports by these countries have had a continuous upward trend in recent years.¹⁵

The total value of spice exports from Asian and Pacific countries was \$US 683 million in 1992. The export value of spices has increased substantially since 1976 when the total value of spice exports was only \$US 24 million. The major exporters of spices are Indonesia, China, Singapore and India. Malaysia has also been a major exporter of spices, but its market share has declined steadily from 28 per cent in 1976 to about 3.5 per cent in 1992. In contrast, Indonesia's share has gone up over the same period, from about 6 per cent to 21 per cent. The Islamic Republic of Iran and Myanmar have also rapidly increased their exports over this period and export earnings in 1992 were \$US 15 million and \$US 17 million, respectively.

Japan, Singapore and Hong Kong have been the largest importers of spices in the Asian and Pacific region. However, Japan imports mainly for domestic consumption, while Singapore re-exports to markets in Europe, Africa and the Middle East. Japan imports primarily from Thailand and China, with smaller quantities coming from Indonesia and India. Singapore imports from China, Indonesia, Malaysia and Myanmar.

Singapore dominates the intraregional export market and exports variable quantities of spices to almost every major importing country in South, East and South-East Asia, as well as to the developed Asian countries and areas.

There is substantial trade in spices at subregional levels. For instance, about 32 per cent of exports within East Asia go elsewhere within the subregion. This is mainly accounted for by China's exports to Hong Kong and the Republic of Korea. About 18 per cent of South-East Asia's spice trade is intraregional, valued at about \$US 59 million in 1992. Much of this trade involves Singapore, Malaysia and Indonesia. The proportion of intraregional trade in South Asia is 11 per cent, mostly involving India's exports to Sri Lanka, Pakistan and Bangladesh.

Major spice-exporting countries such as Indonesia, India, Singapore and Sri Lanka obtain most of their export earnings by selling to countries outside the region, mainly to North America, Europe, Africa and the Middle East. The exception is China, which exports primarily to Hong Kong, Singapore and Japan. Smaller exporting countries such as Myanmar and the Islamic Republic of Iran trade within the Asian and Pacific region. Myanmar trades with China and Singapore, and the Islamic Republic of Iran trades with countries in South Asia, as well as Singapore and Japan. Fiji is also an important exporter of spices to countries outside the region.

¹⁵ Fazli Husain, "Spices: Trends on the World Market," *International Trade Forum*, October-December 1992.

k. Pepper¹⁶

Pepper production in the Asia-Pacific region was nearly 180,000 tons in 1992, according to data collected by the International Pepper Community. The leading pepper-producing countries are India and Indonesia with about 60,000 tons each, followed by Malaysia with 26,000 tons. Other countries in the region produced a combined total of 31,700 tons.

Pepper trade in the Asian and Pacific region was valued at \$US 284 million in 1992, which is about 40 per cent of total spice trade in the region. Like other spices, pepper trade has increased substantially from 1976 to 1984, but has remained mostly static in terms of value. Export earnings have dropped because of reduced export prices and lower volumes of trade.

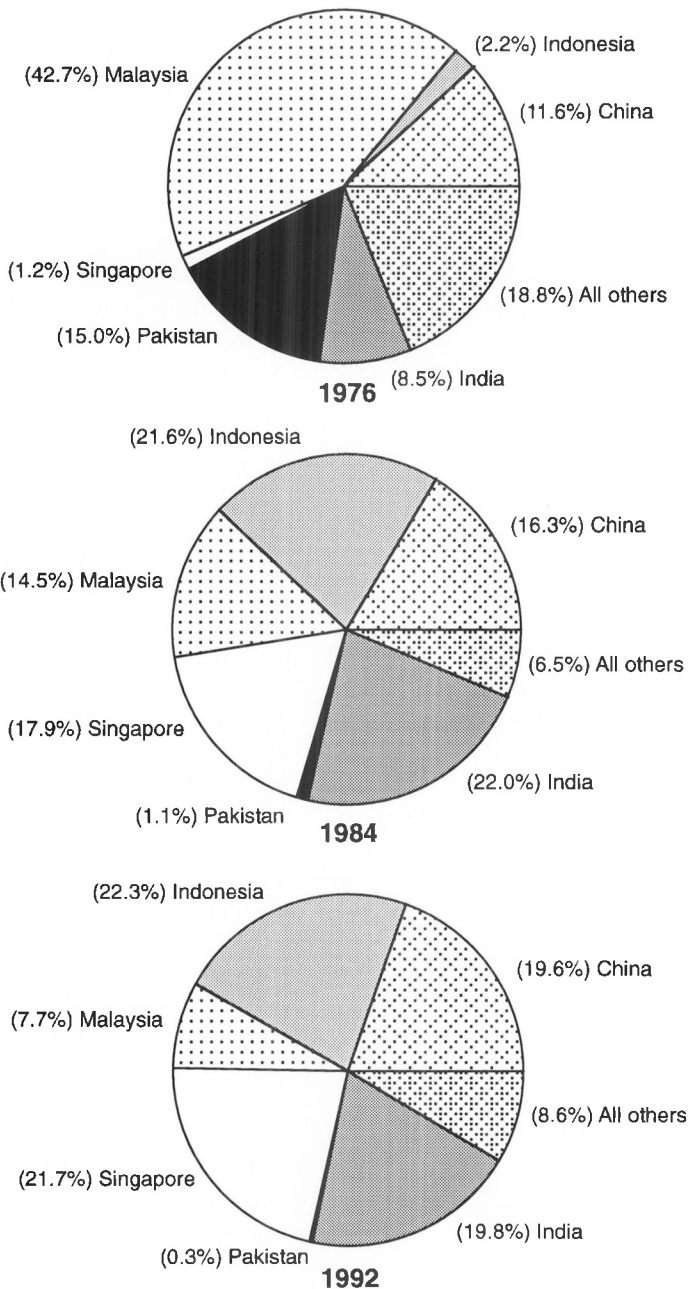
The South-East Asian countries of Indonesia, Malaysia and Singapore accounted for more than 50 per cent of total pepper exports. China, India and Myanmar are also exporters of pepper. Singapore has been the leading importer and re-exporter of pepper, accounting for more than 41 per cent of region's imports and 21 per cent of the region's exports. Singapore imports primarily from Indonesia, China and Malaysia for subsequent export of about 75 per cent of the pepper to countries outside the region, mostly to Europe. Among other major exporting countries, Indonesia's share of the market has increased over time from 2.2 per cent in 1976 to 22.3 per cent in 1992. Malaysia's share declined from 42.7 per cent in 1976 to 7.7 per cent in 1992. (See figure 8.)

China exports its pepper to Singapore, Hong Kong and the Republic of Korea. Indonesia exports mainly to Singapore and countries in other regions. More than 90 per cent of India's exports, valued at about \$US 46 million in 1992, were shipped to countries outside the region. Myanmar exported mainly to China and Singapore.

The major pepper-importing countries in the Asian and Pacific region are Japan, Singapore, Hong Kong and the Republic of Korea, as shown in figure 9. Japan's share of the market has declined considerably from 71 per cent of all intraregional imports in 1976 to about 18 per cent in 1992. Thailand's imports have decreased over time as well.

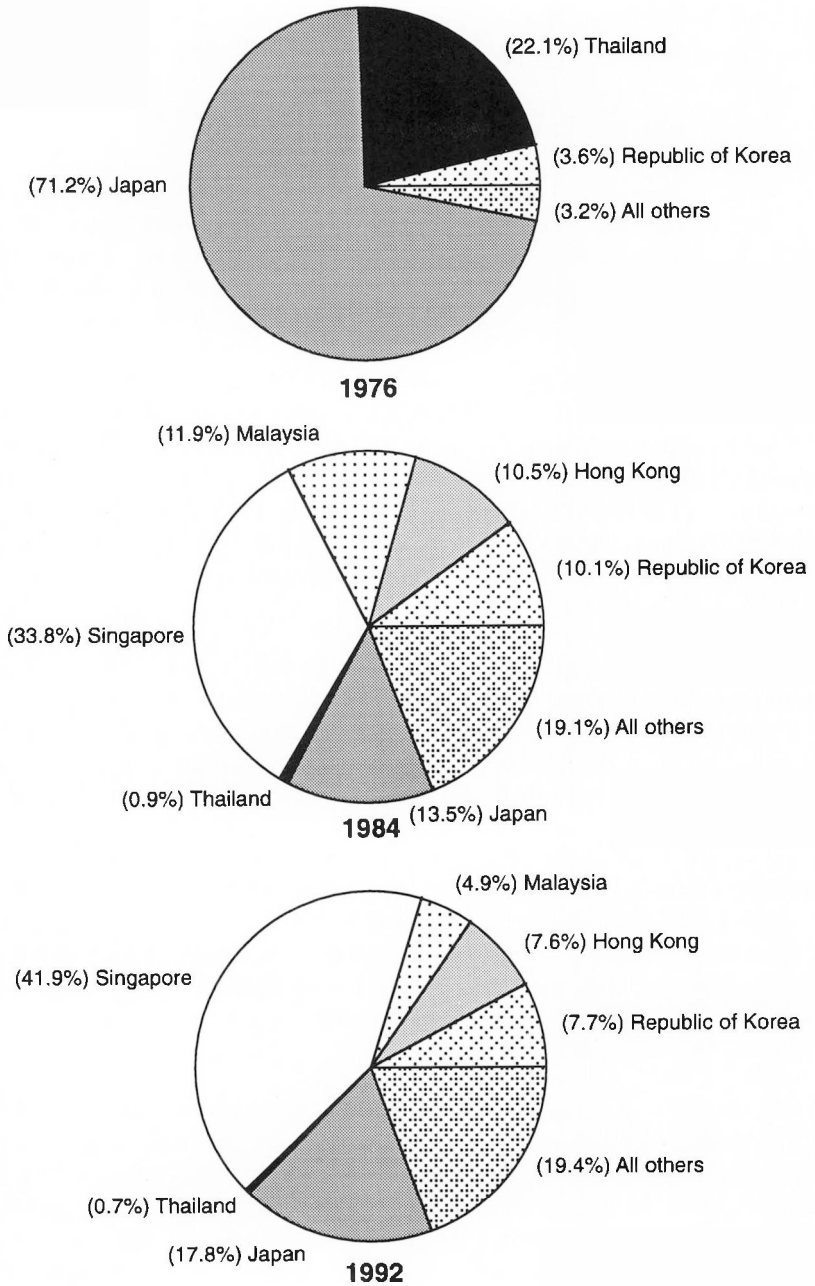
Intraregional pepper trade in South-East and East Asia is sizeable. The ratio of intraregional trade to total trade for South-East Asia is 29 per cent and for East Asia 32 per cent. The value of intraregional trade is higher in South-East Asia at \$US 42 million compared with East Asia at \$US 19 million. Exports from Indonesia and Malaysia to Singapore accounted for nearly 80 per cent of the pepper trade within South-East Asia. In East Asia, almost all of the intraregional trade was Chinese exports to Hong Kong and the Republic of Korea. Only 15 per cent of South Asian trade in pepper, worth about

¹⁶ This is an overview of all types of peppers categorized under SITC 075.1 in the COMTRADE database. The International Pepper Community focuses specifically on black and white pepper products derived from the tropical vine *piper nigrum*. For more details on black and white pepper, see the paper in this volume by Ms Ong Foo Yong, "Overview of the Principal Patterns of the World Supply and Demand for Pepper (*Piper nigrum*)".



Source: United Nations, COMTRADE database.

Figure 8. Major Asian and Pacific exporters of pepper (SITC 075.1) for 1976, 1984 and 1992



Source: United Nations, COMTRADE database.

Figure 9. Major Asian and Pacific importers of pepper (SITC 075.1) for 1976, 1984 and 1992

\$US 9 million in 1992, took place within the subregion, and 80 per cent of this was the two-way spice trade between India and Sri Lanka. Myanmar's exports to South Asia were negligible.

I. Natural rubber¹⁷

Global production of natural rubber has increased steadily at an annual rate of about 3.2 per cent, slightly faster than growth in consumption which has averaged 3.1 per cent a year. However, the growth rate of elastomers (natural and synthetic rubber) has grown at an average of 4.2 per cent in recent years.

More than 80 per cent of rubber production is concentrated in three countries, namely Indonesia, Malaysia and Thailand, with each country accounting for about one fourth of total production in the Asian and Pacific region. Rubber production has increased steadily from 2.7 million tons to almost 5 million tons from 1976 to 1992. Production has grown more rapidly since 1986. The Philippines is also a producer, but with a smaller share. India and China also produce significant quantities of rubber, as do Sri Lanka and Viet Nam. Production has increased most notably in Thailand and Indonesia.

Recent technological improvements in rubber-tapping are expected to decrease costs of production by about 15 to 20 per cent and increase world output by about 2.7 per cent a year in the future.¹⁸ Future increases in rubber production are most likely to be in Malaysia, Viet Nam and India. Production is also expected to grow in Thailand and China, although to a lesser extent because of limits in land availability.

Global trade in rubber has been characterized by increased sophistication and internationalization of the tyre industry, which accounts for about 65 per cent of rubber consumption. This has resulted in considerable product differentiation and emphasis on quality control. Rubber consumption has increased in countries with tyre manufacturing facilities, such as China, Indonesia, Malaysia and Thailand. Projections forecast that domestic demand will increase in the major rubber-producing countries which suggests a decrease in their shares of rubber exports.

The value of Asian rubber exports increased tenfold between 1976 and 1984, but declined by about 50 per cent since. Rubber exports in 1992 were valued at about \$US 3 billion. The export market is dominated by South-East Asian countries which together account for about 96 per cent of Asian and Pacific rubber exports. As shown in figure 10, the leading exporter is Indonesia with one third of the region's total exports, followed by Thailand, Singapore and Malaysia. Indonesia's exports have grown rapidly since 1976,

¹⁷ The discussion on natural rubber production and trends is primarily based on the United Nations' data from COMTRADE that were available for the period 1976 to 1992. For a more comprehensive discussion of natural rubber, refer to the paper in this publication by Mr Arumugam and Mr Sucharit Promdej, "A Review of Supply and Demand Patterns for Natural Rubber".

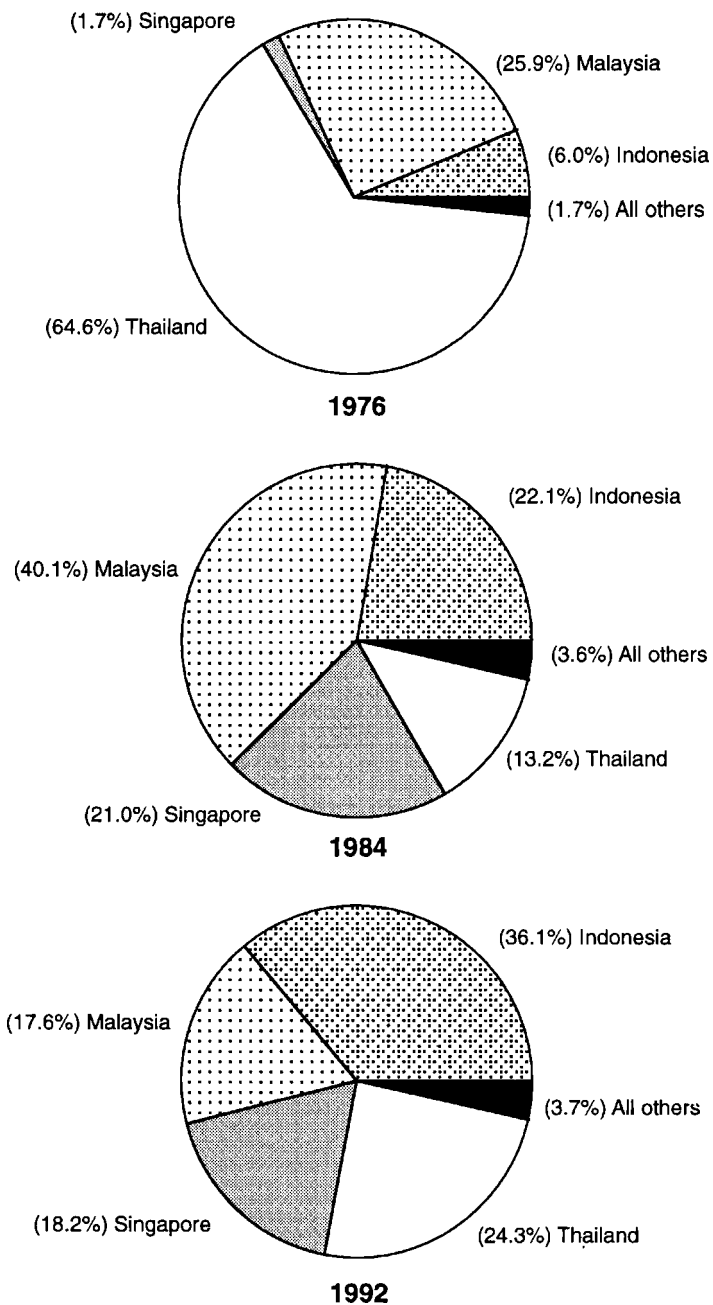
¹⁸ World Bank, *Market Outlook for Major Primary Commodities*, op cit.

when its share of the export market was only 6 per cent. Export shares of both Malaysia and Thailand have declined, although their exports have increased in value. Thailand's rubber exports have grown almost threefold from 1976 to 1992.

Exports from Singapore have shown a dramatic drop from \$US 930 million in 1984 to \$US 522 million in 1992. Sri Lanka and Myanmar are the only major rubber-exporting nations besides the ASEAN countries. Sri Lankan exports of rubber were valued at \$US 69 million and Myanmar's rubber exports at \$US 11 million in 1992.

Two thirds of Indonesia's rubber exports go to countries outside the region, primarily to North America. Within the region, major buyers are Singapore, Japan, the Republic of Korea and Australia. Singapore sells more than three fourths of its imported rubber to countries in Africa, the Middle East, Europe and North and South America. Singapore also exports rubber to other countries such as Japan, China and the Islamic Republic of Iran. Thailand is the main supplier of rubber to Japan and China. Malaysian rubber is exported to Singapore, the Republic of Korea and Japan. Unlike the other ASEAN countries, Malaysia does not export to countries outside the region.

South-East Asia is the dominant subregion in terms of intraregional trade in rubber. In 1992, trade within the subregion was worth \$US 542 million and accounted for 18 per cent of the region's rubber exports. Over 90 per cent of this trade is due to the role of Singapore as a re-exporter of rubber to countries outside the region. Rubber exports from East Asia are not significant and were valued at about \$US 8 million in 1992. East Asian rubber trade involves Hong Kong, China and the Democratic People's Republic of Korea. In South Asia, intraregional trading is valued at \$US 13 million, almost all of which consists of exports from Sri Lanka to Pakistan, India and Bangladesh. About 70 per cent of Sri Lanka's rubber exports are to the European Union.



Source: United Nations, COMTRADE database.

Figure 10. Main Asian and Pacific exporters of natural rubber for 1976, 1984 and 1992

B. ANALYSIS OF CHANGING PATTERNS OF PRODUCTION, SPECIALIZATION AND TRENDS IN SELECTED TRADE INDICES

1. Introduction

Countries of the region trade most of their major agricultural products with each other. However, during the period from 1976 to 1992, the share of intraregional trade has been declining for the primary commodities considered in this study. In the 1980s and 1990s, the trade values for most of these commodities have declined. This may be attributed to efforts by Asian and Pacific countries to diversify export markets in order to reduce dependence on traditional markets and to achieve higher export growth.

Prospects for higher growth in the Asian and Pacific region are likely to provide incentives for investment. The direction of trade and the direction of foreign direct investment in Asia and the Pacific will be linked increasingly as the higher income countries recycle their export earnings, invest their excess savings and transfer technology to the middle- and lower-income countries of the region. This relationship between income growth and trade gains and investment flows underlies the region's sustained economic development, despite occasional periods of sluggishness.

According to neoclassical economic theory, trade flows and patterns develop along the lines of comparative advantage and competitiveness. Although they are relative concepts, they can be measured in order to provide indicators of trade potential and direction. However, given their relative nature, they should be treated with caution and with an understanding of their limitations, that is, they are static in nature and serve as an *ex post* measure.

2. Overview of trade patterns

Aggregate production and trade data show that the Asian and Pacific region is a world leader in the production and trade of various agricultural products. The region produces more than 75 per cent of the world's rice, tea and natural rubber.¹⁹ The region also accounts for more than 50 per cent of the world's exports of rice, tea and spices.

As shown in table 4, for selected years during the period from 1976 to 1992, the share of intraregional trade has been large, but it has been declining substantially for almost all of the commodities considered.

¹⁹ Food and Agriculture Organization of the United Nations, *FAO Production Yearbook*, Rome, FAO, various years.

Table 4. Value and shares of intraregional trade in specific commodities for countries of Asia and the Pacific, various years (millions of US dollar and percentage share)

| | 1976 | | 1984 | | 1992 | |
|----------------|-------|-------|---------|-------|---------|-------|
| | Value | Share | Value | Share | Value | Share |
| Wheat | 168.5 | 100.0 | 2 354.8 | 54.1 | 1 810.8 | 40.2 |
| Rice | 428.4 | 69.7 | 1 961.9 | 48.3 | 1 139.5 | 57.0 |
| Coffee | 57.3 | 100.0 | 1 117.8 | 31.9 | 611.9 | 34.6 |
| Cocoa | 8.3 | 65.4 | 470.5 | 32.2 | 581.3 | 46.4 |
| Tea | 9.8 | 78.8 | 1 697.1 | 24.9 | 989.5 | 39.3 |
| Spices | 24.3 | 90.8 | 631.0 | 46.5 | 683.5 | 52.0 |
| Vegetable oils | 98.3 | 96.9 | 3 827.0 | 44.1 | 2 853.5 | 59.6 |
| Natural rubber | 406.7 | 85.7 | 4 437.7 | 41.4 | 2 971.7 | 60.2 |

Source: United Nations, COMTRADE database.

3. Methodology for analysis

When considering the trends and existing patterns of intraregional trade, there are several questions that arise. First, is there potential for further growth of trade among countries? Second, are there subregions in the Asian and Pacific region which have the potential for increased trade?

In order to answer the questions, it is necessary to examine two economic concepts: comparative advantage and competitiveness. The term comparative advantage refers to a comparative cost advantage in producing commodities and explains observed trade patterns according to differences in countries' resource endowments, investment patterns, technology, human capital, managerial expertise, infrastructure and government policies. When applied empirically, however, comparative advantage often becomes elusive because of difficulties in defining undistorted pre-trade relative prices, sorting country differences based on these factors and assuming no government intervention. Comparative advantage implies specialization in the production and sale of commodities over time and across countries and regions.

Competitiveness is usually defined less rigorously than comparative advantage and is more often used by policy makers. This term, like comparative advantage, is relative rather than absolute. Competitiveness is often viewed in terms of a given firm, sector or country and usually refers to a given point in time. Consequently, research in the area of competitiveness is often static in nature and determined from existing trade patterns after the fact.

A framework is needed which permits systematic evaluation of how these concepts are quantified, especially because comparative advantage and competitiveness are relative concepts. Recent work by a number of researchers has laid the foundation for statistical measurement of competitiveness and comparative advantage.²⁰ Research on comparative advantage and competitiveness follow the neoclassical model and is constrained by the static nature of the theory and the type of data available for empirical analysis.

Export and import data provide one measurement of international trade, but tell only part of the story. Without data on a country's cost of production over time, any analysis of comparative advantage and competitiveness can rely only on aggregate trade data. However, although the export-import trade index and Balassa's revealed comparative advantage index provide only indirect measurement of comparative advantage, they illustrate a country's pattern of trade specialization from a macroeconomic perspective.

a. Export-import trade indices

Export-import trade indices for the period 1976-1992 can be calculated as the value of exports divided by the value of imports for each of the commodities under study. Annex tables 1-9 present the trade index values for each of the nine commodities. If the export-import trade index is greater than unity (one), then the country is a net exporter of the commodity, and if the value is less than one, this implies that the country is a net importer of the commodity. The export-import trade indices clearly show the outward orientation of the countries during the period under consideration.²¹

b. Revealed comparative advantage

Balassa was the first to develop a measurement of revealed comparative advantage. He showed that observed trade patterns can generate estimates of revealed comparative advantage. The index of revealed comparative advantage (RCA) is:

²⁰ Stephen L. Haley, *Conceptual Model of Competitiveness and Comparative Advantage in Agricultural Trade*, Washington, D.C., United States Department of Agriculture (USDA), Economic Research Service (ERS), Agricultural and Trade Analysis Division, ERS Staff Report # AGES870513, July 1987; Peter R. Perkins, "Measuring Economic Competitiveness in Trade", in *U.S. Competitiveness in the World Wheat Market: Proceedings of a Research Conference*, Washington, D.C., USDA, ERS, International Economics Division, ERS Staff Report # AGES860903, March 1987; Thomas L. Vollrath, "Revealed Competitive Advantage for Wheat," in *U.S. Competitiveness in the World Wheat Market: Proceedings of a Research Conference*, Washington, D.C., USDA, ERS, International Economics Division, ERS Staff Report AGES860903, March, 1987; Thomas L. Vollrath and De Huu Vo, *Investigating the Nature of World Agricultural Competitiveness*, Washington, D. C., USDA, ERS, Technical Bulletin # 1754, December, 1988.

²¹ Refer to Paul V. Johnston, *Three Measures of Trade Dependence: A Critique*, USDA, ERS, Agricultural and Trade Analysis Division, Staff Report # AGES9213, April, 1992. Two indices that are commonly used in international trade literature are trade/GDP and export/GDP to measure trade dependence and trade openness. Johnston found these measures to be misleading and not comparable over time or across countries.

$$RCA = \frac{X_k^i / X_k^w}{X_T^i / X_T^w}$$

where X_k^i = country i's exports of good k,
 X_{iT} = country i's exports of all goods (T denotes total exports)
 X_k^w = world exports of good k,
 X_T^w = world exports of all goods.

Indices of Balassa's RCA are shown in annex tables 10-17 for wheat and wheat flour, rice, coffee, tea, cocoa beans, spices, vegetable oils and natural rubber during the period from 1976 to 1991. For all commodities other than natural rubber, X_T^w denotes world exports of all food items.²² When a Balassa RCA index has a value greater than unity, this would imply a comparative advantage or specialization of trade in that commodity by country i.

c. Implications of the export-import index and Balassa's RCA index

The export-import index provides a picture of a country's net trade situation. For example, an index value greater than 1.0 would imply that country i is a net exporter of commodity k, while an index value less than 1.0 would indicate that country i is a net importer. This index accounts for countries that re-export a portion of imported commodities. When used in conjunction with the Balassa index, computed index values greater than 1.0 for both measures more closely capture revealed comparative advantage as gauged by export trade specialization.

One explanation for observed patterns of trade is provided by the Heckscher-Ohlin theorem of factor endowments which states that a country tends to export goods in which it has a comparative advantage and import those goods in which it has a comparative disadvantage. Two measures are used in this study to analyze patterns of trade: (1) a trade specialization measure which combines the results of both the export-import index and the Balassa index of revealed comparative advantage; and (2) the revealed competitive advantage index. Table 5 lists the countries which had measurements exceeding 1.0 for both the export-import indices and Balassa's index of RCA in 1991. For the developed countries, only Australia shows a comparative advantage for trade in wheat. Several Pacific island nations appear to have comparative advantages in coffee, tea, spices, vegetable oils and natural rubber. Most countries with indices greater than 1.0 are from South and South-East Asia.

d. Revealed competitive advantage

In the literature on industrial organization and trade, there are many definitions of the term competitiveness. This study uses the definition developed by the Economic

²² In the case of natural rubber, X_T^w represents world exports of all merchandise trade.

Table 5. Countries of the region with export-import indices and Balassa's index of revealed comparative advantage greater than unit for selected commodities in 1991

| Commodity | Countries |
|----------------|---|
| Wheat | Australia |
| Rice | Pakistan, Myanmar, Thailand, India, Viet Nam, China |
| Coffee | Papua New Guinea, Cook Islands, Indonesia, India |
| Cocoa | Malaysia, Singapore, Papua New Guinea, Indonesia, Vanuatu |
| Tea | Sri Lanka, India, Bangladesh, China, Myanmar, Papua New Guinea |
| Spices | Indonesia, India, Nepal, Viet Nam, Sri Lanka, Malaysia, Pakistan, Fiji, China, Islamic Republic of Iran, Afghanistan, Bhutan, Myanmar |
| Vegetable oils | Malaysia, Philippines, Papua New Guinea, Singapore, Indonesia |
| Natural rubber | Malaysia, Sri Lanka, Thailand, Indonesia, Viet Nam, Myanmar, Papua New Guinea, Philippines, Cambodia, Lao People's Democratic Republic, Singapore |

Note: Refer to annex tables 1-9 for the trade indices and tables 10-18 for Balassa's index of revealed comparative advantage for the various commodities by country and area.

Research Service (ERS) of the United States Department of Agriculture (USDA), which broadly defines competitiveness as a nation's ability to produce and market products for international trade while earning a level of return to the resources used in production. This level of return to resources is comparable to what the resources could earn when put to alternative use, that is, their opportunity cost. Maintaining competitiveness involves a nation's ability to adjust resource mixes, adjust the prices paid to these resources and adjust the mix of products produced, given changing market conditions.

At the international level, the outcome of competitiveness is profitable trade. For a given country, profitable trade helps maintain or increase its share of the market. Using market share as a measure of competitiveness, indicators of competitiveness can be developed. This study uses a comprehensive index called the revealed competitive advantage (RC).²³ This index includes imports as well as exports, avoids the problem of double counting and takes intra-industry trade into consideration. The revealed competitive advantage index is:

$$RC = \frac{X_k^i/X_k^w}{X_T^i/X_T^w} \frac{M_k^i/M_k^w}{M_T^i/M_T^w}$$

²³ This index was developed by Thomas L. Vollrath, "Revealed Competitive Advantage for Wheat," op. cit. and Thomas L. Vollrath and De Huu Vo, *Investigating the Nature of World Agricultural Competitiveness*, op. cit.

where $M =$ imports from country i or world (w) of commodity k or all commodities (T)

The revealed competitive (RC) index as a measure of competitiveness shows how well a country's particular economic sector or industry competes abroad and at home. A positive RC demonstrates that country i has a competitive edge in producing and trading commodity k . In a world without such distortions as import quotas, tariffs, taxes and other forms of government intervention, RC is also a measurement of comparative advantage.

The resulting revealed competitive advantage index for the various countries and areas and the selected commodities for the period from 1976 to 1991 are presented in annex tables 18-25. In addition, table 6 shows countries with positive RC values for the eight commodities. Comparing results from tables 5 and 6, it is evident that countries listed in table 5 are a subset of the countries reported as having a competitive advantage in table 6. The exceptions are Myanmar in spices trade and Singapore in the vegetable oils trade. In general, countries that specialize in export trade for a particular commodity have a competitive advantage in that commodity. However, competitive advantage involves a net trade position which considers that country's imports of a given commodity.

Table 6. Countries and areas with positive values for revealed competitive advantage indices for selected commodities in 1991

| Commodity | Countries |
|----------------|---|
| Wheat | Australia and India |
| Rice | Pakistan, Viet Nam, Myanmar, Thailand, India, China, Japan, Solomon Islands |
| Coffee | Papua New Guinea, Lao People's Democratic Republic, Viet Nam, Indonesia, India, Singapore, Philippines, Thailand, Sri Lanka, Cook Islands, Islamic Republic of Iran, Bhutan |
| Cocoa | Vanuatu, Papua New Guinea, Solomon Islands, Fiji, Sri Lanka, Malaysia, Indonesia, Singapore, Samoa |
| Tea | Sri Lanka, Bangladesh, India, Indonesia, Myanmar, China, Viet Nam, Papua New Guinea, Republic of Korea, Singapore |
| Spices | Bhutan, Lao People's Democratic Republic, Indonesia, Viet Nam, Malaysia, Afghanistan, Islamic Republic of Iran, Sri Lanka, Nepal, China, India, Singapore, Pakistan, Fiji, Thailand |
| Vegetable oils | Malaysia, Papua New Guinea, Samoa, Philippines, Indonesia, Tonga, Japan |
| Natural rubber | Thailand, Indonesia, Sri Lanka, Malaysia, Viet Nam, Myanmar, Papua New Guinea, Philippines, Singapore, Lao People's Democratic Republic, Cambodia |

Note: Refer to annex tables 19-26 for the index of revealed competitive advantage for the various commodities by country and area.

4. Implications of the analysis

Rapid economic growth during the period from 1976 to 1992 was one important factor explaining agricultural trade expansion of most countries. As per capita incomes have risen, the high level of domestic savings (exceeding 30 per cent of GDP in some countries) sustained the increased domestic demand for the selected commodities. In addition, the high rates of economic growth attracted foreign direct investment, particularly in export-oriented industries. Capital fund investments from Japan and the newly-industrialized economies (NIEs) were directed to countries with comparative advantage in the production and trade of these primary products. Furthermore, the value of intraregional trade also increased due to a rising demand for products with higher value.

Growth prospects of the Asian and Pacific region as a manufacturing base and as a market for exports have helped attract investment capital from internal as well as external sources. Investment flows within Asia and the Pacific seem to mirror intraregional trade flows to a large extent. The composition of exports has been changing increasingly to capital goods or products with higher value and more technology content, and this is another indicator of investment direction.

As capital accumulates and labour productivity increases, the export-investment pattern which had been successful for Japan, the NIEs and the members of ASEAN is likely to be repeated with other developing countries such as those in South Asia.

The results for revealed comparative advantage and competitive advantage indicate the following specialization by subregion or group of countries:

- Wheat: developed economies
- Rice: developed economies, East Asia, South-East Asia, South Asia
- Coffee: South-East Asia, South Asia, and the Pacific islands
- Cocoa: South-East Asia, South Asia, and Pacific islands
- Tea: East Asia, South-East Asia and Pacific islands
- Spices: East Asia, South-East Asia, Pacific islands, and other countries of the region
- Vegetable oils: South-East Asia and Pacific islands
- Rubber: South-East Asia, South Asia, and Pacific islands

In the case of wheat, competitive advantage and comparative advantage belong solely to Australia in the group of developed member countries of ESCAP.

Competitive advantages and comparative advantages in the case of rice are spread throughout the region. The developed countries appear as a competitive force

only because of the role of Japan in the rice trade. South-East Asia and South Asia are highly competitive for rice throughout the period from 1976 to 1991. Viet Nam's rice trade has also become a significant force. In the late 1980s and early 1990s, Viet Nam became a major player in rice trade.

The coffee trade has been dominated by three subregions: South-East Asia, South Asia and the Pacific islands. The degree of competitiveness has risen most rapidly for the Pacific islands, as suggested by the magnitude of the RC index over time.

For cocoa, the major competitors are in South-East Asia, South Asia and the Pacific islands subregions. Over the period from 1976 to 1991, the Pacific islands, especially Papua New Guinea, Samoa, the Solomon Islands and Vanuatu, have obtained consistently high RC index values. Although the quantity and value of cocoa produced in this subregion is small compared with South Asia and South-East Asia, these countries have gained a competitive advantage in the cocoa trade.

For tea, subregional specialization is more dispersed geographically throughout the region, and natural rubber and spices seem to have comparative and competitive advantages throughout the region.

In the case of vegetable oils, comparative and competitive advantage are concentrated in South-East Asia and the Pacific islands subregions. Among the major vegetable oil-producing countries, that is, India, Indonesia and Malaysia, only India did not show a competitive advantage based on the RC index results. It should be noted that competitive advantage in production may not necessarily be related to competitive advantage in trade.

The emergence of the Pacific islands subregion as a potential major set of trading countries in vegetable oils is primarily seen by the rise of Papua New Guinea, Samoa, Tonga and, to some extent, the Solomon Islands over the past ten years. The potential comparative and competitive advantages of the Pacific islands in certain agricultural products is an important finding. However, the production potential for these commodities may not match their estimated trade advantage given the limited resource base of their economies. Efforts and programmes by ESCAP can play an important role in the further development of the Pacific islands.

Viet Nam and China are becoming major players in the region's agricultural trade. These two countries seem to have competitive advantages in rice, tea, and spices. Viet Nam also has a competitive advantage in coffee, vegetable oils and natural rubber.

Trade in these selected commodities is likely to increase in the near future because of several factors. First, rapid economic growth and expanding markets in the developing countries will promote trade. Second, there is a growing outward orientation of trade policies within the developing countries of the region. Third, the global commitment to trade liberalization, as evidenced by the recently concluded Uruguay Round, should provide a further expansion of trade opportunities. Fourth, the

intraregional investment and relocation of production facilities from Japan and the NIEs to the developing countries within the region will provide further stimulus to trade expansion.

Results from comparative advantage and competitive advantage indices point toward trade growth in the region being centered in South-East Asia and South Asia with expanding potential for the Pacific island economies.

5. Areas for further research

Additional research should establish linkages between the comparative/competitive advantage results and regional investment flows. These trade indices can provide only a partial explanation of the patterns in Asian and Pacific trade. Government intervention in the production, consumption and trade of these commodities will also influence the direction of trade flows in the future.

In view of their characteristics as relative measurements, the RCA and RC indices should be treated with caution and with an understanding of their limitations. As comparative advantage refers to comparative cost advantage, a more meaningful approach to this issue would perhaps be an examination of not only comparative advantage in the trade sense, but also comparative advantage in production, using cost of production data.

Further research into the factors leading to comparative advantage or competitiveness would provide greater insights into the development of trade among countries and areas of the region. Specific attention should be given to what principal macroeconomic factors, industry factors and policies contribute to comparative advantage or comparative disadvantage. One example is a simplified illustration of the relationship between a country's per capita income and its revealed competitive advantage (RC) index with RC and per capita GNP, as a proxy for per capita income, plotted for each commodity. Annex figures 1 to 8 present such an illustration. In each figure, a plotted point represents a country in a given year. The plots indicate that positive RC points occur at lower levels of per capita GNP. This implies that agricultural trade plays an important role for lower-income countries.

In the traditional development process, agriculture is the most important sector during the initial stages of development. As per capita GNP increases over time, the RC values approach zero. This result supports the switch from primary agricultural production to the production of manufactured goods as part of the development process. The plot for wheat is somewhat different, because wheat trade is dominated by Australia and positive RC points correspond to Australia over time.

A study by Zafar Mahmood on Pakistan has proposed use of competitive and comparative advantage indices.²⁴ Mahmood's study estimated a trade specialization index

²⁴ Zafar Mahmood, "Assessing the Potential and Direction of Intraregional Trade Flows in Agricultural Commodities: Case Study of Pakistan".

and a production specialization index and attempted to reconcile differences between the estimated results from the production specialization index and results from the trade specialization index for almost the same set of agricultural commodities. Mahmood concludes that Pakistan has a comparative advantage in rice and spices and his result is consistent with the findings of this study as shown in tables 5 and 6.

Similar work has been undertaken in a number of countries of ESCAP. In India, for example, the competitiveness of various fruits, vegetables and cereals produced has been estimated by using the Nominal Protection Coefficient (NPC). The results show that India is moderately competitive in wheat and highly competitive in rice. The annex tables for rice and wheat, show India's estimated RC values for the two commodities as 6.60 and 0.41, respectively. The magnitudes of these estimated RC indices seem to correspond closely to the findings of high and moderate competitiveness for rice and wheat, respectively.

This suggests that further research is needed in comparative advantage and competitiveness for the countries and areas of the region. Following the recommendations made previously in this publication, estimates to gauge competitiveness and comparative advantage can be refined to provide useful information for decision-making and for developing policy recommendations.

C. CONSUMPTION PATTERNS AND TRENDS FOR AGRICULTURAL COMMODITIES IN COUNTRIES AND AREAS OF THE ESCAP REGION

1. Introduction

The economies of many countries and areas of the region have experienced strong rates of growth during the past fifteen years. Along with rapid rates of economic growth, many also experienced significant changes in their economic structures with manufacturing and other industrial sectors increasing in importance, with changes in their population growth rates and urbanization patterns and with their governments' policies toward domestic and international trade and investment. All of these factors have had an impact on the food consumption patterns of the people in these countries and areas.

Prior to analyzing changing patterns of food consumption in the Asia-Pacific region, reference is made to Engel's law, one of the most well-established empirical relationships in economics.²⁵ Engel's law states that the proportion of a household's budget that is spent on food declines as the household's income rises. While the law relates to expenditures and not income, the correlation between income and expenditures is very high; therefore, a corollary of Engel's law has been that the income elasticity of demand for food is relatively large for low-income households and relatively small for higher-income households. However, this corollary relates to food as one aggregate commodity. In reality, a household's choice in allocating resources takes into account the different products that make up the "bundle" called food.

To this end, Bennett's law focuses on the income elasticity of demand for basic starch staples which includes most grains and root crops. Specifically, Bennett's law states that the share of calories derived from basic staples falls as income rises because the consumer will diversify within the food consumption bundle to include higher-priced sources of calories, especially with respect to protein.

The purpose of this section is to examine per capita consumption levels over time and across countries and areas. This can yield interesting insights that may at first glance appear to contradict Engel's and Bennett's laws. However, closer inspection of the data resolves and explains some of the apparent contradictions.

²⁵ C. Peter Timmer, Walter P. Falcon and Scott R. Pearson, *Food Policy Analysis*, Baltimore, Johns Hopkins University Press, 1983, p. 56.

2. Analysis of consumption

The analysis of the consumption of edible agricultural commodities draw primarily from the consumption data contained in the AGROSTAT database of the Food and Agriculture Organization of the United Nations. The analysis examines trends in consumption from 1975 to 1990, which is the latest year for which data were available at the time of this research.

In analyzing the trends of consumption, the countries and areas of the Asian and Pacific were generally grouped according to economic performance, level of development and geographical proximity. One grouping is the newly industrializing economies (NIEs) which includes Hong Kong, Singapore, the Republic of Korea and Taiwan Province of China; the ASEAN-5 countries which includes Brunei Darussalam, Indonesia, Malaysia, the Philippines and Thailand; South Asia which includes Bangladesh, India, Myanmar, Nepal, Pakistan and Sri Lanka; the Pacific islands which includes Fiji, Kiribati, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu; and other developing countries including Afghanistan, Cambodia, China, the Islamic Republic of Iran, the Lao People's Democratic Republic, Maldives, Mongolia and Viet Nam. However, in some of the discussion of particular commodities, China and the East Asian economies are considered separately.

The level of food consumption and the structure of people's diets are influenced by a number of factors, including growth in incomes, urbanization, population expansion, to name but a few.

A general observation in support of Bennett's law has been that rising incomes have been found to be correlated with rising levels of food consumption in terms of several parameters, including total calories consumed, total protein or nutrient intake and total food expenditures. A study by the World Bank noted that increasing urbanization also affected food consumption as incomes tend to be higher in urban areas and the diet of the urban population tends to be more diversified than rural populations.²⁶

Such changes in diet were noted in a recent study which found that rising income levels led to substitution between food groups. For example, consumption moved towards more dairy products, poultry, meat, edible oils and processed foods and beverages, rather than cereals. Even for low-income consumers, increases in income have been found to cause switches in the types of food consumed. In India, for example, a study found that increases in income resulted in consumption of wheat and rice rather than coarser cereals.²⁷

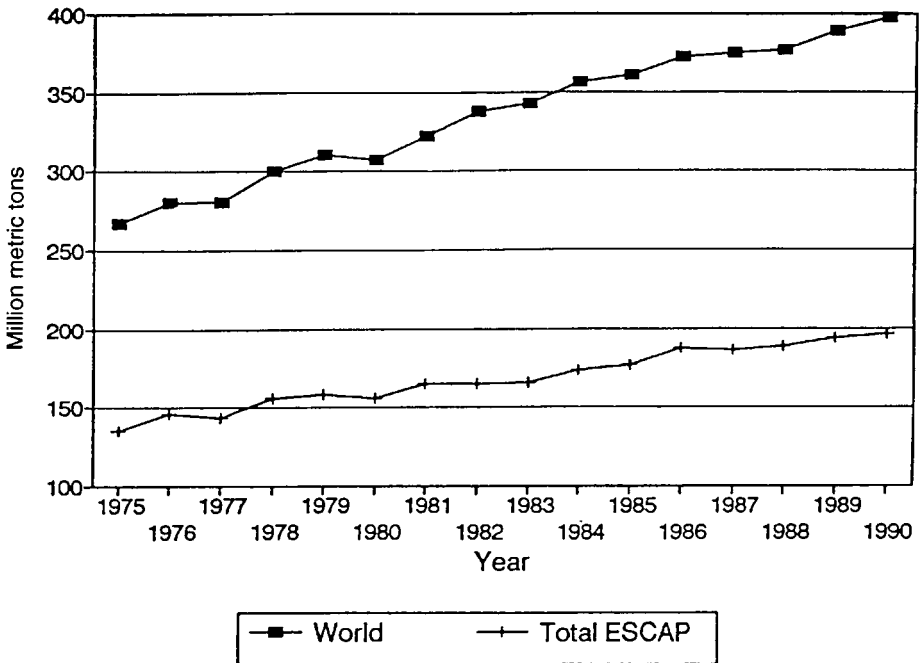
²⁶ World Bank, *Market Outlook for Major Primary Commodities*, op. cit.

²⁷ Shankar Subramanian and Angus Deaton, *The Demand for Food and Calories*, Princeton, NJ, Discussion Paper # 175, Research Program in Development Studies, Woodrow Wilson School of Public and International Affairs, Princeton University, 1994.

As a first approach to the analysis of food consumption and future changes in the Asian and Pacific region, this section examines the relationship between per capita consumption levels for various categories of food that are the focus of this study and levels of per capita gross national product (GNP) of the countries and areas of the region. Both time-series and cross-sectional data were used. Consumption data for the various commodities were obtained from the FAO AGROSTAT database, and per capita GNP data were obtained from the World Bank's data tapes. An initial examination involved plotting the two variables on a log-log scale which means that the slope of the curve can be generally interpreted to represent the country's or area's income elasticity of demand for the commodity.

a. Patterns of rice consumption

Consumption of rice in Asian and Pacific countries accounts for more than two thirds of total world consumption of this cereal. Regional consumption was about 135 million metric tons in 1975 and increased steadily to reach 196 million metric tons in 1990. This was an average annual growth rate in consumption of 2.5 per cent. Figure 11 shows the trend in ESCAP' rice consumption which can be compared to the trend for world rice consumption.



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 11. Consumption of rice, 1975-1990

Per capita consumption of rice also increased steadily over the period, rising from an annual average of 58 kilograms per capita in 1975 to 67 kilograms per capita in 1990 for the world.

In the Asian and Pacific region, total consumption of rice by the NIEs, the Pacific islands and other economies was smaller than for other subregions or groupings. The absence of any increase in total consumption levels for the NIEs since 1970 reflects a combination of moderate population growth and steady decline in per capita rice consumption. With the exception of Kiribati and Samoa, per capita rice consumption for the Pacific island countries has fluctuated within a narrow range, while the total population of these countries has increased slightly in absolute terms. In general, per capita consumption of rice in the other developing economies has been relatively unchanged for the East Asian grouping from 1975 to 1990, or increased steadily for China, Cambodia, the Lao People's Democratic Republic and Maldives.

However, for the ASEAN-5 group and the South Asian region, total consumption of rice has shown steady, strong increases since 1975. For the ASEAN-5 group, total rice consumption went from 36 million metric tons in 1975 to 54 million metric tons in 1990, an increase of almost 50 per cent, with an average annual increase of 2.7 per cent. The increase in rice consumption for South Asia has also been significant, increasing by almost 60 per cent over fifteen years, which amounted to an annual average growth rate of 3.1 per cent. For most of the countries in these two groups, the increased total consumption is due to population growth. This is evident from the relatively constant levels of per capita rice consumption in most of these countries (with the exception of Indonesia and Nepal). In fact, per capita consumption of rice has actually shown a declining trend in Thailand and Malaysia.

Among the higher-income countries, rice demand has fallen as diets have become more diversified. Japan's annual per capita consumption of rice was expected to fall to an average of 60 kilograms by the year 2000.²⁸ This is significantly lower than the world average annual per capita consumption of about 80 kilograms.²⁹ A similar decline in per capita consumption of rice was experienced in Hong Kong, the Republic of Korea, Malaysia, Thailand and Singapore. This trend is expected to continue in the future.

Rice is the most important cereal food consumed in low-income countries worldwide, which means that there have been a number of studies focusing on rice consumption patterns, usually examining different income groups in a particular country or village, often over time. One study examined the relationship between expenditures on rice and income groups for households in Java and Jakarta.³⁰ It was found that increases in monthly expenditures on rice would correlate positively with increases in household income, but were associated with declining elasticities for rice consumption.

²⁸ Chan Ling Yap, "Supply and Demand for Rice in the Medium and Longer Term," paper presented at the Eighteenth Session of the International Rice Commission, Rome, 5-9 September 1994.

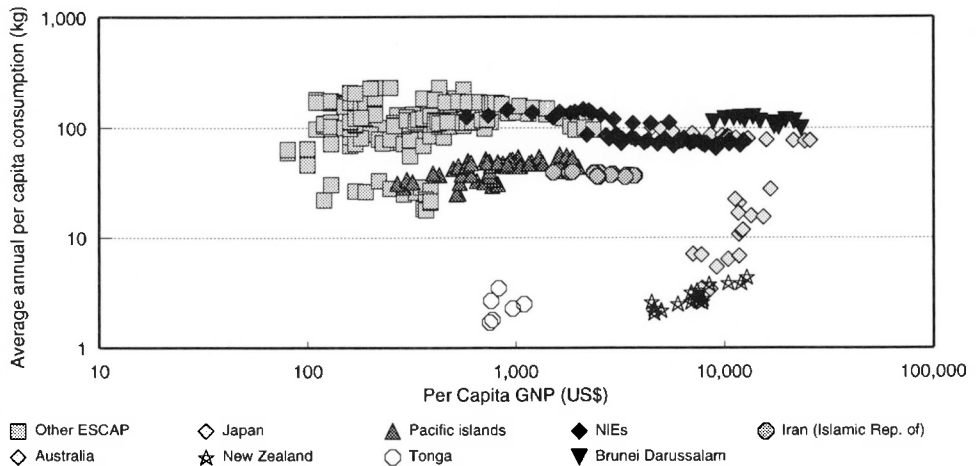
²⁹ World Bank, *op. cit.*

³⁰ C. Peter Timmer, "Estimating Rice Consumption", *Bulletin of Indonesian Economic Studies*, July 1971.

That is, as more of a household's income was spent on rice, the expenditure elasticity declined.³¹ Similar findings were found for rural households in Java, Indonesia in 1976. The income elasticity for rice was nearly one for low-income households, it declined as incomes increased, and was zero or slightly negative for higher-income households.³²

The data obtained from the AGROSTAT database for this study show that the income elasticity for rice is generally zero, with some exceptions. Figure 12 shows that the data appear to form three main clusters. Most of the data indicate zero or slightly negative income elasticity of demand for rice, with average annual per capita consumption rising above 100 kilograms as per capita GNP rises from US\$ 100 to US\$ 1,000. It then declines slightly as incomes rise further. A second cluster shows a highly positive income elasticity at relatively high levels of income (that is around US\$ 10,000). The third cluster is just below the first cluster of data points and also exhibits a positive slope, suggesting a positive income elasticity for rice that declines slightly at higher income levels.

A closer examination of the individual data points for the three clusters can be done with reference to figure 13. This tends to show how the relationship between per capita rice consumption and per capita GNP is affected by different cultural habits and diets. The first cluster was composed of the NIEs, ASEAN-5, South Asia and China.

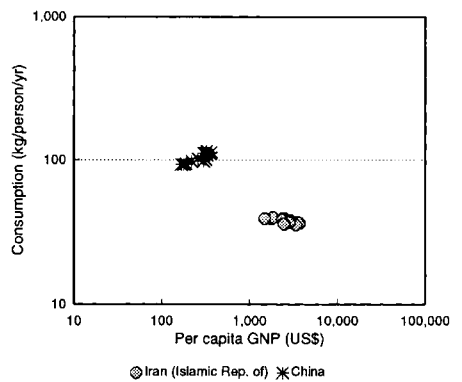
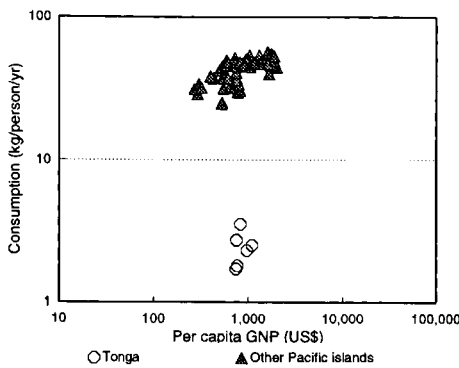
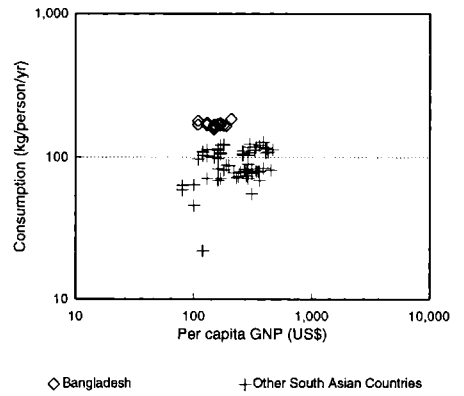
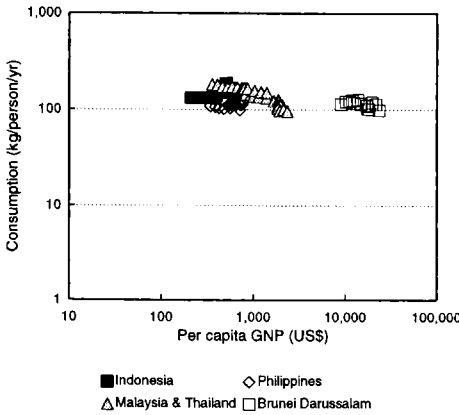
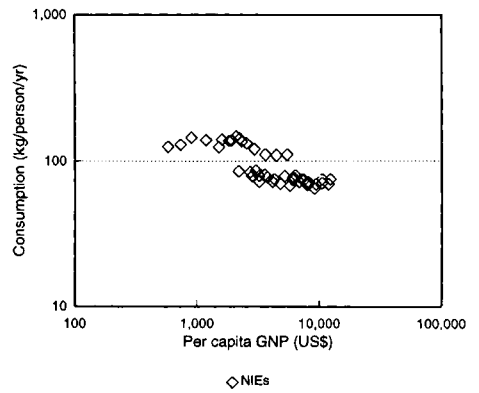
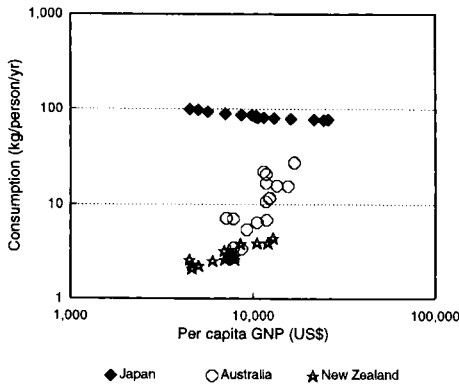


Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 12. Per capita consumption of rice related to per capita GNP for countries of the ESCAP region, 1975-1990

³¹ Timmer cautions that the derived elasticities are not income elasticities, because savings were not included in the estimates, although the level of savings for the consumers in the study is likely to have been small. Moreover, while the elasticities are not for the quantities of rice consumed, but for expenditures on rice; they therefore include a component for changes in the quality of rice purchased. Nevertheless, the study does appear to provide evidence for the Engel curve consumption pattern.

³² C. Peter Timmer, Walter P. Falcon and Scott R. Pearson, *op. cit.*



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 13. Per capita consumption of rice related to per capita GNP for selected countries and groups, 1975-1990

The third cluster was composed primarily of the Pacific island countries. For both clusters, rice is a substantial part of people's diets, and in many of these countries it is the staple food. Rice is consumed in relatively large quantities, even at very low levels of income, and as incomes increase, consumption of rice does not increase very much. In the Philippines, for example, income elasticities for rice were found to be very low or negative in some cases. This finding is consistent with another study of Philippine rice consumption in the mid-1970s.³³

In some low-income countries such as India and Bangladesh, however, the high price of rice results in it being substituted by wheat in many diets.³⁴ However, as income levels rise, the data points in the first cluster suggest a decline in rice consumption. The data points representing rice consumption in the NIEs show a clear negative income elasticity for the Republic of Korea starting in the late 1980s, and for Hong Kong and Singapore throughout the period. For Japan, the income elasticity of rice was also determined to be negative at all income levels during the period. These findings are consistent with other reports of declining consumption levels for rice in Asia.³⁵

The second cluster where rice consumption rises as per capita incomes increase from their already high levels represents the patterns of Australia and New Zealand. In these two countries rice is not the primary staple and is less available. For these two countries, the increased rice consumption at higher levels of per capita GNP is believed to be the result of diets being diversified away from wheat.

b. Consumption of wheat

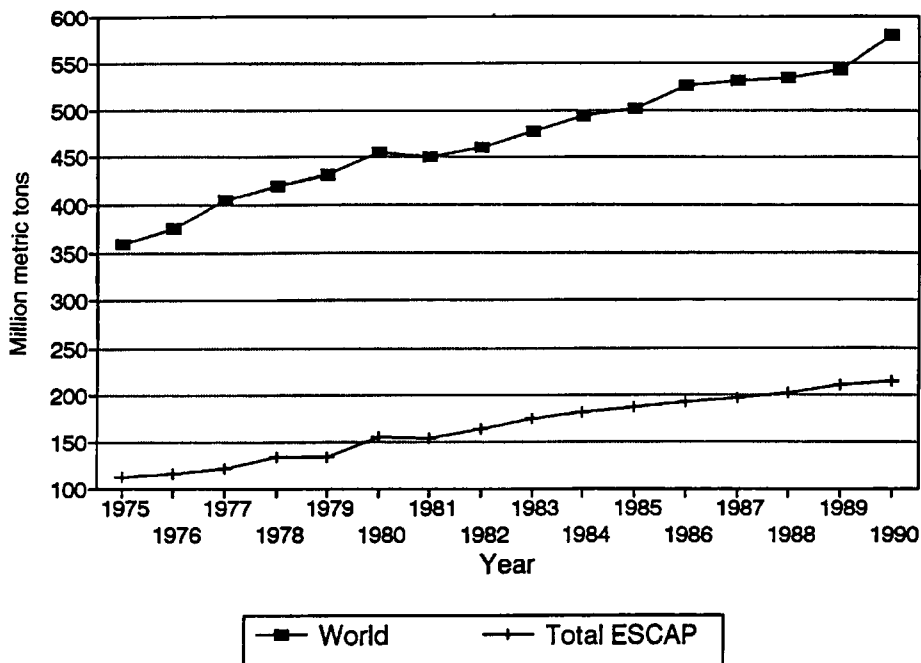
The countries of the region did not account for as large a proportion of total world demand for wheat (37 per cent) as they did for rice (49 per cent) in 1990. (Refer to figure 14.) It is interesting to note that while only about 65 per cent of wheat consumed in the world is for food, in Asia and the Pacific, the proportion of wheat consumed for food is about 85 per cent. In fact, wheat as food typically is more than 85 per cent of the total wheat consumed in almost all of the countries, with the exception of Australia and Mongolia.

The amount of wheat consumed as food has generally increased for all groups and for the region overall. For the NIEs, total wheat consumed as food increased by almost 70 per cent, rising from 1.5 million metric tons in 1975 to 2.5 million metric tons in 1990. The increase was even more dramatic in the ASEAN-5, which showed an increase of 137 per cent, from 1.9 million metric tons to 4.6 million metric tons. South Asia increased by 80 per cent, from 35.8 million metric tons to 64.6 million metric tons.

³³ Gil R. Rodriguez, Jr., *The Demand for Agricultural Commodities in the Philippines: A Brief Review*, Honolulu, Hawaii, Working Paper WP-80-5, Food Systems Project, Resource systems Institute, East-West Center, 1980.

³⁴ Chan Ling Yap, *op. cit.*

³⁵ World Bank, *op. cit.*



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 14. Consumption of wheat, 1975-1990

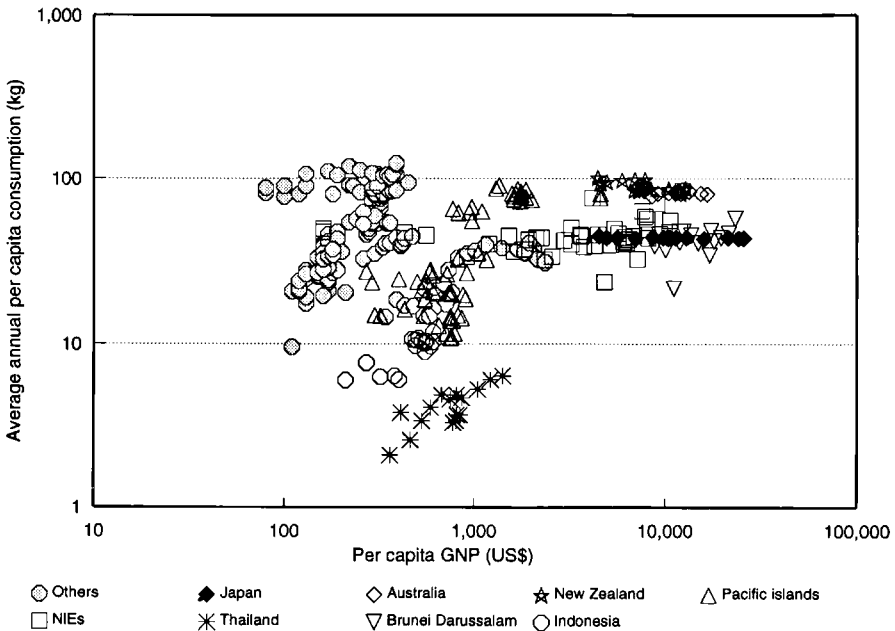
The Pacific islands increased by 71 per cent, from 112 to 191 metric tons. In the group of other ESCAP countries, the increase was by 185 per cent, from 49.2 million metric tons to 107.5 million metric tons from 1975 to 1990.

Trends in per capita consumption of wheat for food during the period varies widely. For the developed countries, Japan, Australia and New Zealand, average annual per capita consumption of wheat for food generally has showed a declining trend since 1975. In contrast, the NIEs experienced increases in the amount of wheat consumed per person. Among the ASEAN-5 countries, per capita consumption had begun to decline in recent years for Malaysia and Brunei Darussalam, the latter exhibiting the highest levels of per capita income. For the other ASEAN-5 countries, per capita levels increased slightly over time, but the Philippines has showed a more dramatic expansion in wheat demand during the past few years. In South Asia, wheat consumption per capita did not change significantly over the period, except in Pakistan which has had increased levels of per capita wheat consumption since 1988. Among the Pacific island countries and the other developing countries, wheat consumption per person was generally constant with increases occurring recently in Papua New Guinea, the Islamic Republic of Iran and China. Afghanistan was the only country where per capita wheat consumption actually declined over the period.

Studies on wheat consumption have shown that as incomes rise, the share of wheat in overall food consumption tends to increase, while the share of other staple cereals such as rice tends to fall. As noted in the section on rice, this trend was found at higher levels of income for Asian and Pacific countries. At the same time, the demand for meat increases as incomes rise and this means an increase in derived demand for coarse grains and wheat used as animal feed.³⁶

An examination of the relationship between per capita consumption of wheat and per capita GNP is shown in figures 15 and 16. Both figures give a clear general picture showing that the income elasticity of wheat is relatively high at lower levels of income and declines as incomes increase. As with rice, the scatter diagram relating income and wheat consumption appear to cluster into three or four main groups. In general, at levels of per capita GNP less than US\$ 1,000, the income elasticity appears to equal or exceed 1.0. Beyond this level, consumption of wheat appears to be income inelastic. That is, as incomes rise further, consumption of wheat appears not to rise.

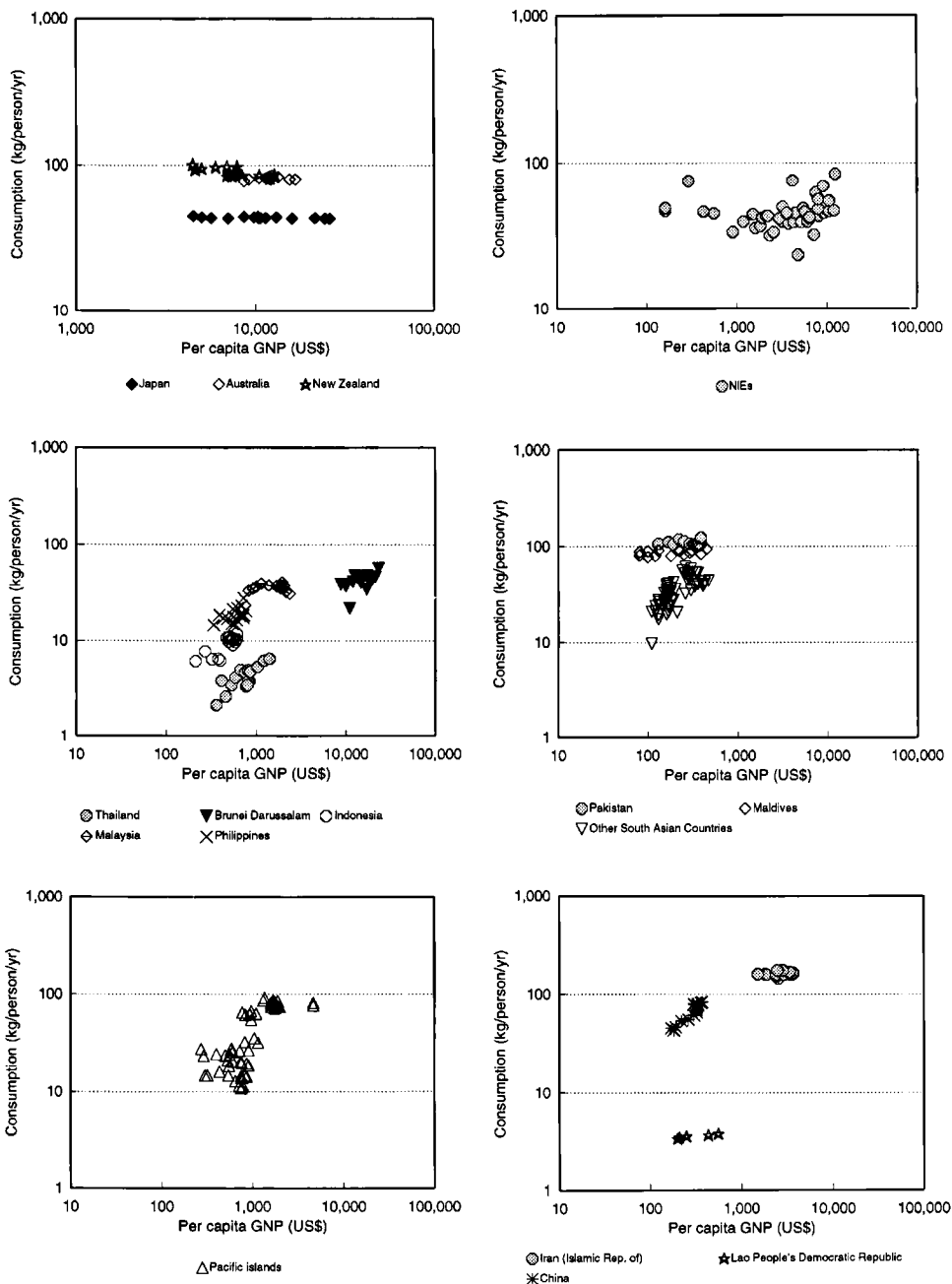
In Australia and New Zealand, wheat rather than rice is the basic cereal, so income elasticity of wheat demand in these countries is negative. For the NIEs and ASEAN-5, income elasticity of wheat demand is positive, and for the NIEs, Indonesia and the Philippines, it is greater than one. Among the group of South Asian countries,



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 15. Per capita consumption of wheat related to per capita GNP, 1975-1990

³⁶ Ibid.



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

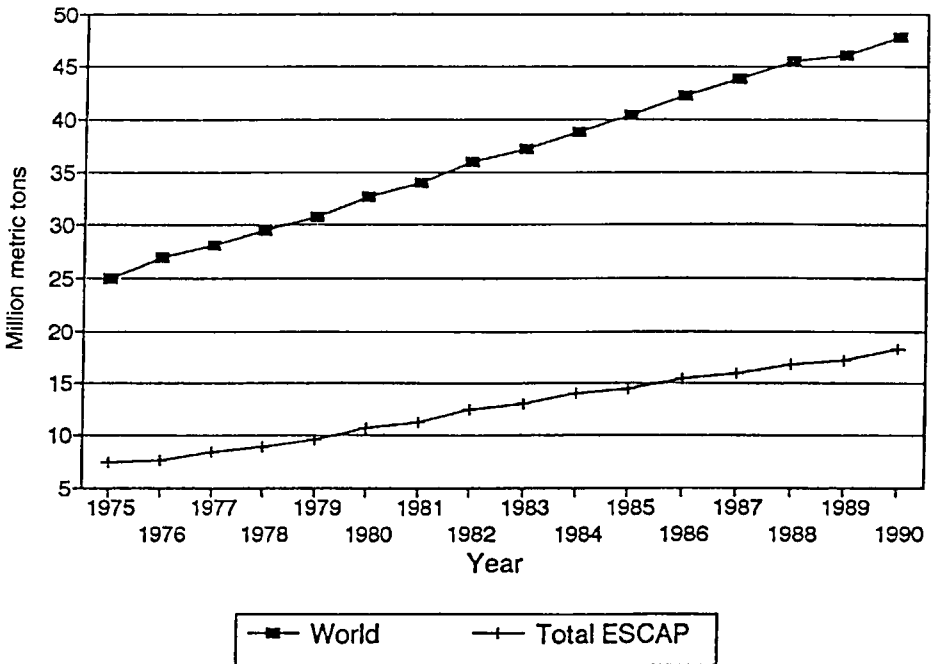
Figure 16. Per capita consumption of wheat related to per capita GNP for selected countries and groups, 1975-1990

income elasticity is rising and positive for India, but near zero for most others. For the Pacific islands, the results are mixed. In Papua New Guinea and the Solomon Islands, a 1 per cent increase in per capita income leads to a greater than 1 per cent increase in per capita wheat consumption. In Fiji, the income elasticity is zero or negative. In the case of China, income elasticity of wheat demand increased when income was lower, but then began to taper off at higher income levels, though it remained positive.

It can be anticipated that world wheat consumption will increase, coinciding with the increase in incomes worldwide, particularly in many Asian and Pacific countries. In fact, the World Bank forecasts that wheat is expected to be the fastest-growing export crop over the next decade.³⁷

c. Consumption of vegetable oils

Compared with total world consumption of vegetable oils, the total consumed in countries of the ESCAP region is not large. However, the countries as a whole consume about 80 per cent of vegetable oils as food. Moreover, vegetable oils consumed as food have exhibited a consistently rising trend throughout the study period and for the region as a whole, as shown in figure 17. In several countries the share of vegetable oils used



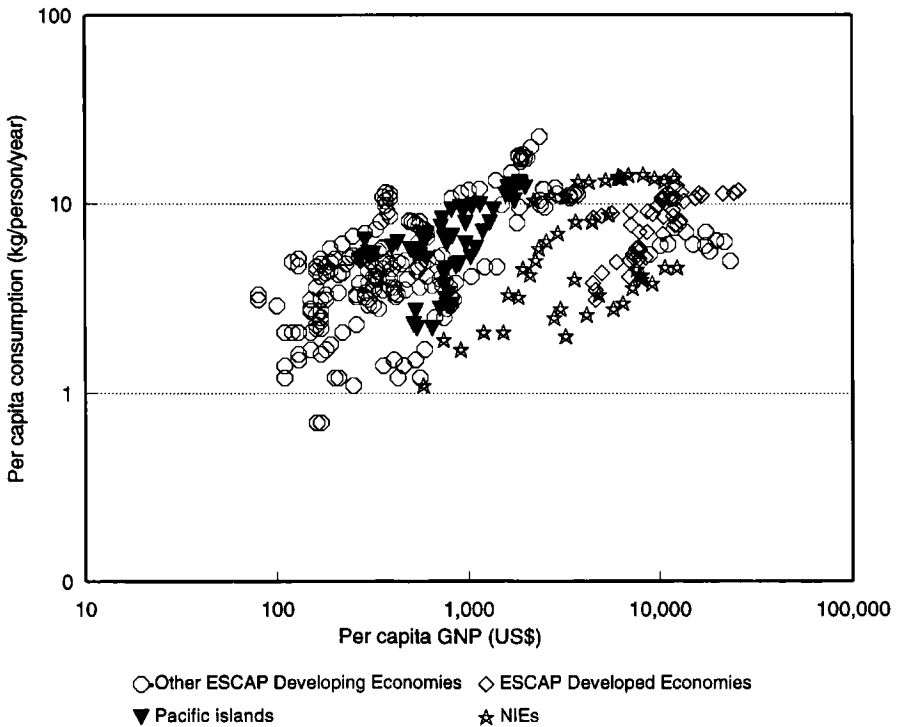
Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 17. Consumption of Vegetable Oils

³⁷ Ibid.

for direct human consumption has been low, because a significant share is used in manufacturing processes for non-edible use. Among these countries are the developed countries and the NIEs, particularly Singapore, where the share of vegetable oils consumed as food was 22 per cent.

Regional vegetable oil consumption has been growing at an annual rate of 6.2 per cent, compared to annual growth in world consumption of 4.4 per cent. For the various countries and groups shown in figure 18, per capita consumption of vegetable oils has followed a consistently rising trend. High rates of consumption growth were found for the NIEs (11.3 per cent annually) and the ASEAN-5 (8.0 per cent annually), rising from 775,000 metric tons to 2.5 million metric tons. Consumption of vegetable oils in the Pacific islands also had strong growth with an annual average of 7.4 per cent. The Pacific islands' initial aggregate consumption level in 1975 was low, although in per capita terms, their consumption exceeded that of the ASEAN-5. In South Asia, consumption of vegetable oils for food expanded from 3.4 million metric tons to 7.3 million metric tons from 1975 to 1990, which was an annual average increase of 5.1 per cent. In the developed countries, consumption rose from 1.1 million metric tons to 1.7 million metric tons, an average annual increase of 3.1 per cent.



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 18. Per capita consumption of vegetable oils related to per capita GNP, 1975-1990

These consumption trends are affected significantly by population growth in some countries. In all of the countries for which data were available, per capita consumption of vegetable oils increased during the period. Per capita consumption of vegetable oils increased from an average of about 8 kilograms a year to 11-12 kilograms a year in Japan and Australia. In New Zealand, per capita consumption increased several-fold, rising from an average of 3 kilograms a year in 1970 to just over 8 kilograms a year in 1990.

Among the countries and areas which are NIEs, consumption of vegetable oils was already high, averaging more than 10 kilograms a year per person in Hong Kong. Average per capita consumption increased further to more than 14 kilograms a year in the late 1980s, but has declined slightly since then. For the Republic of Korea, per capita vegetable oil consumption has risen from an average of 1.0 kilograms in 1975 to almost 9 kilograms in 1990, and from 2.5 kilograms a year in 1975 to almost 5 kilograms a year for Singapore.

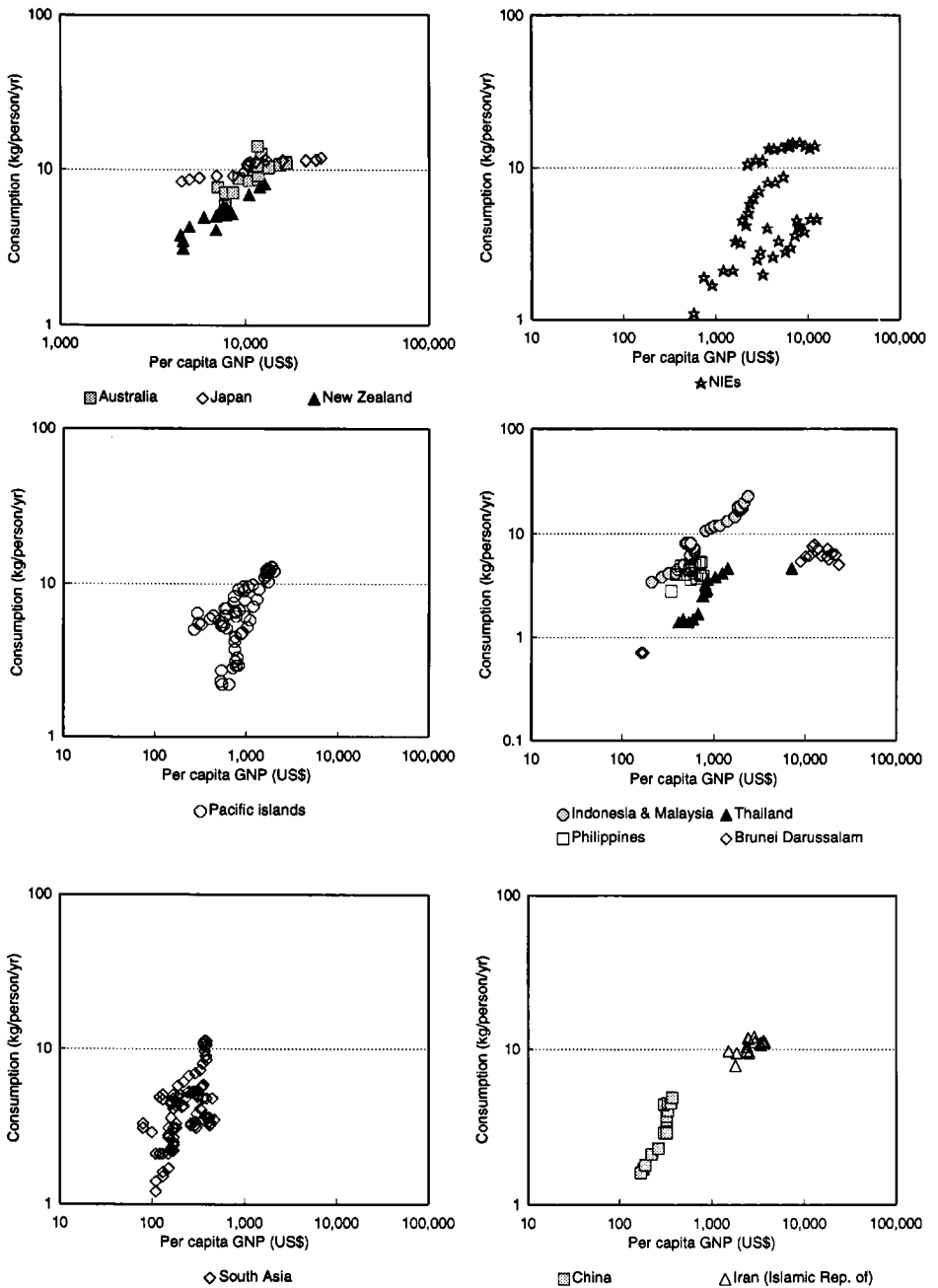
Average per capita consumption of vegetable oils increased in the ASEAN-5 group of countries, most dramatically for Malaysia which already had a relatively high consumption level. From an average of 10 kilograms per capita in 1975, the average grew to more than 22 kilograms per capita in 1990.

South Asia is similar to the ASEAN-5 group, where per capita levels of consumption have been rising in all countries. In particular in Pakistan, vegetable oils consumption grew from 5 kilograms per capita to almost 12 kilograms per capita in the late 1980s and early 1990s. The most notable increase, however, was in per capita consumption of vegetable oils in Fiji (from an annual average of 5 kilograms per capita in 1975 to 13 kilograms in 1990).

The typical pattern of consumption for fats and oils is closely tied to economic development. At low levels of development, when per capita daily caloric intake is generally low, cooking oils are an insignificant part of diets. As incomes grow, however, consumption of vegetable oils increases rapidly as cooking oil is used increasingly for enhanced taste and a means of diversifying diets. As development proceeds further and incomes rise, calorie levels increase and changes occur in the types of fats consumed rather than in the levels. Studies of consumption in other countries and regions show that this pattern seems to transcend national boundaries.³⁸

The patterns shown in figure 19 show that for the countries and groups considered, per capita consumption of vegetables oils rises as per capita GNP increases. The high income elasticities apparent for the Pacific island countries and the NIEs are noteworthy as their per capita GNPs rose from US\$ 1,000 to US\$ 10,000.

³⁸ World Bank, *op. cit.*



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 19. Per capita consumption of vegetable oils related to per capita GNP for selected countries and groups, 1975-1990

Although per capita consumption levels were significantly higher in the developed countries, the pattern of vegetable oil demand in these countries shows an upward slope, which suggests a positive income elasticity.

The prospects for vegetable oil consumption appear to be good for both global and regional markets. With continued growth expected in world income, demand for vegetable oils is expected to show strong growth in the 1990s and beyond.³⁹ Similarly, continued economic development and increases in income in the Asian and Pacific region suggest further increases in vegetable oils consumption, especially given the large populations of Indonesia, China and India. Where the population consumes less than the average level of fats and oils for their per capita incomes, as in China, India, Indonesia, the Philippines and Thailand, the potential for consumption growth appears to be large.⁴⁰ This could be especially the case for China and India, where restrictive policies have kept consumption levels low thus far. Significant increases in consumption of vegetable oils are also expected from the higher-income countries of the Asian and Pacific region, with annual growth averaging about 4 per cent until the year 2005.⁴¹

d. Consumption of spices

Spices are consumed primarily for food purposes throughout the world. With the exception of Indonesia and Singapore, all countries follow this pattern. Asian and Pacific consumption of spices represented about 65 per cent of total world consumption from 1975 to 1990. As shown in figure 20, regional consumption of spices exhibits a steadily rising trend, which closely parallels that of the world. Over the period from 1975 to 1990, spice consumption averaged over 2.9 per cent growth each year.

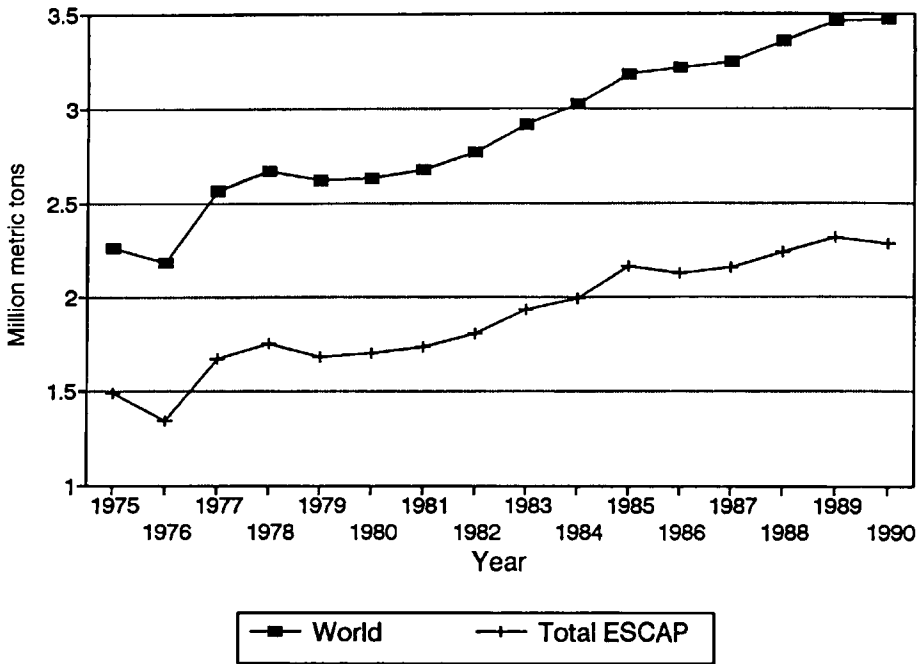
Among Asian and Pacific countries, spice consumption has been the highest in South Asian countries. The amount of spices consumed in South Asia are due to the large populations and the relatively high levels of per capita spice consumption as well. In Bangladesh, India, Nepal, Pakistan and Sri Lanka, average per capita spice consumption was more than 1 kilogram a year. In contrast, average annual per capita consumption of spices was less than 0.5 kilograms for many Pacific island countries, the developed countries and the NIEs.

For other country groups, consumption of spices generally increased steadily from 1975 to 1990. Consumption for the NIEs increased more than threefold, for South Asia it was more than 50 per cent, and for the other country grouping, consumption more than doubled. It is interesting to note that spice consumption for the ASEAN-5 group showed a steady increase until 1985, rising from 161,000 metric tons in 1975 to 221,000 metric tons. Then consumption began to decline and by 1990, total consumption had

³⁹ Ibid.

⁴⁰ Ibid.

⁴¹ Ibid.



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

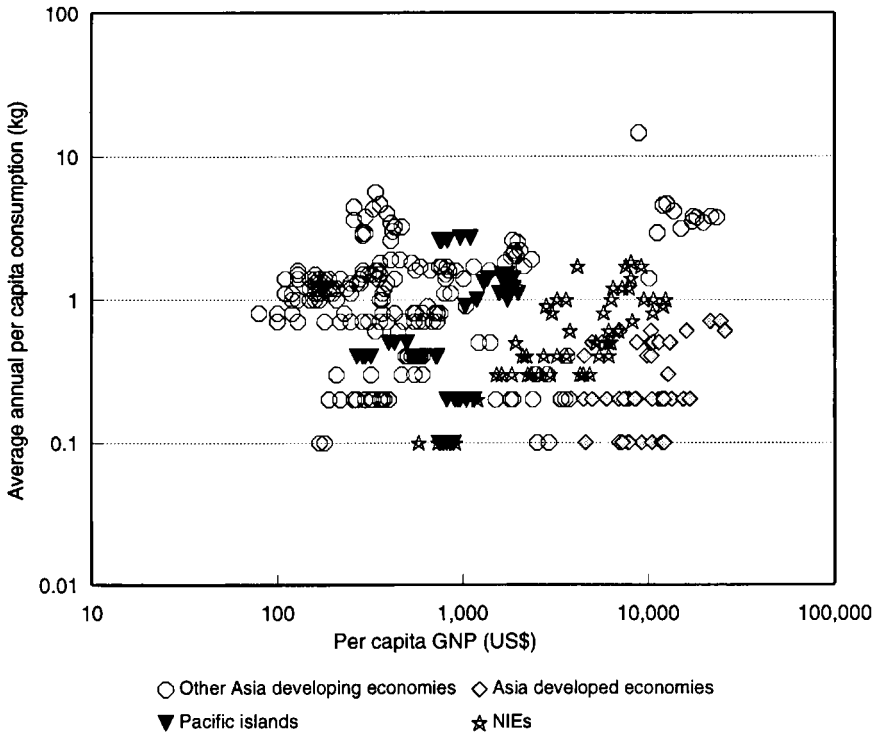
Figure 20. Consumption of spices, 1975-1990

almost gone back to the 1975 levels. This pattern can be explained by a decline in average per capita consumption in the mid-1980s for Malaysia and the Philippines; for Thailand beginning in 1986 and for Brunei Darussalam beginning in 1987. A more moderate rate of growth was found for spice consumption in the developed economies, with an average of 4.5 per cent increase annually.

There is no clear trend or pattern in the relationship between consumption of spices and per capita GNP in the region, as shown in figures 21 and 22. For the Asian developing economies, the income elasticity appeared to be at or near zero. (The relationship in the log-log chart is more or less a horizontal line). Spice consumption in the Pacific islands appeared to follow an upward trend as per capita incomes rose, but the data points are not as tightly clustered as they were for wheat, rice and vegetable oils. For the developed members, income elasticity appeared to be positive, but at low values or zero. Only for the NIEs does consumption of spices follow a more discernible upward trend, with per capita consumption rising as per capita GNP increases.

e. Consumption of tea

Practically all of the tea consumed in the world is for human consumption.



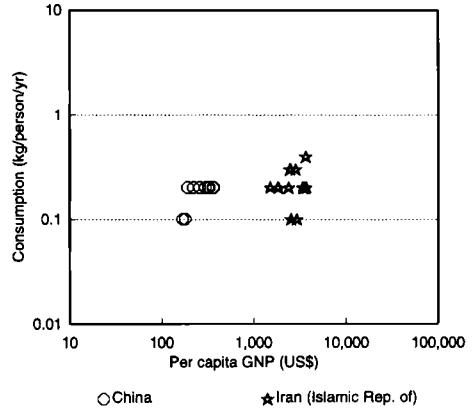
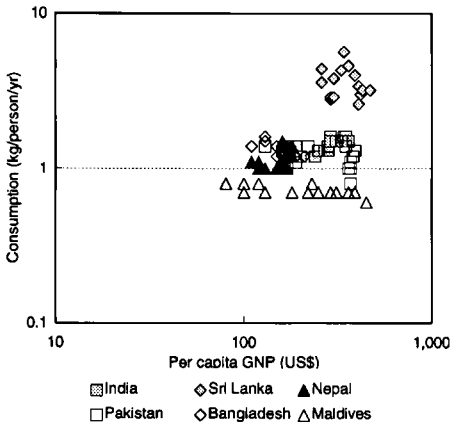
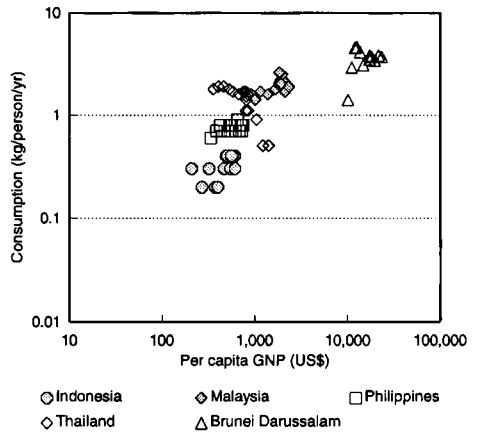
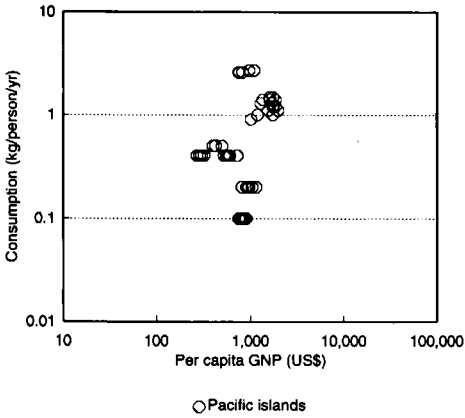
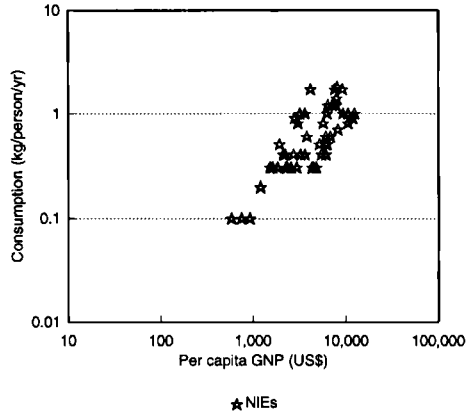
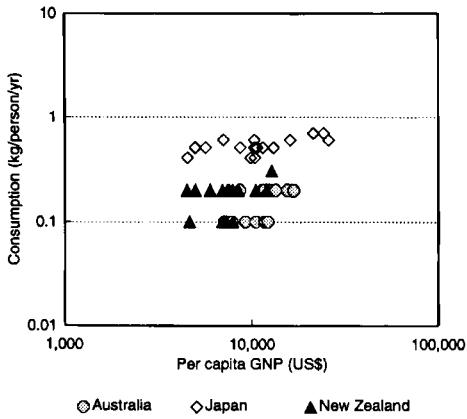
Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 21. Per capita consumption of spices related to per capita GNP for selected countries and groups, 1975-1990

Over the study period, consumption of tea in the world and in the region generally followed an increasing trend, as shown in figure 23. In 1975, world tea consumption was 1.8 million metric tons and rose to 2.9 million metric tons in 1990, an increase of almost 65 per cent. For the Asian and Pacific region, tea consumption more than doubled from 760,000 metric tons in 1975 to 1.5 million metric tons in 1990. Consumption of tea doubled for almost all regions and groupings, except the developed countries where tea consumption remained relatively unchanged.

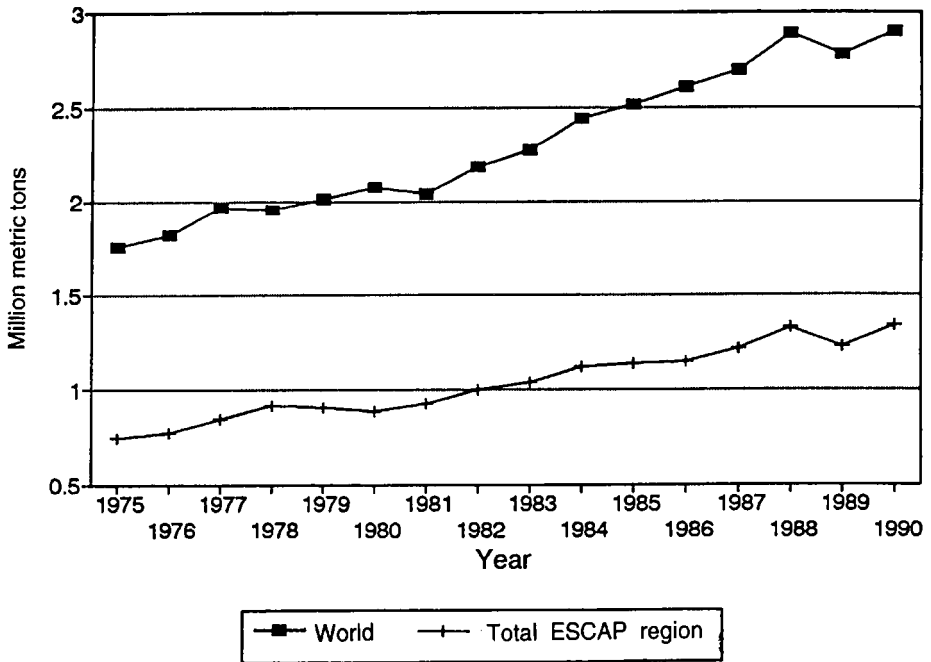
South Asia accounts for the largest share of consumption and this is primarily due to the large population of the countries. Average annual per capita consumption of tea has remained relatively constant throughout the period, and these levels are moderate, ranging from 0.1 kilogram in Bangladesh to 1.0 kilogram in Sri Lanka.

Elsewhere in Asia and the Pacific, the high consumption levels are due partly to high per capita tea consumption in several of the countries. For example, Mongolia's average annual tea consumption was as high as 3.9 kilograms in 1975, and it has since



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 22. Per capita consumption of spices related to per capita GNP for selected countries and groups, 1975-1990



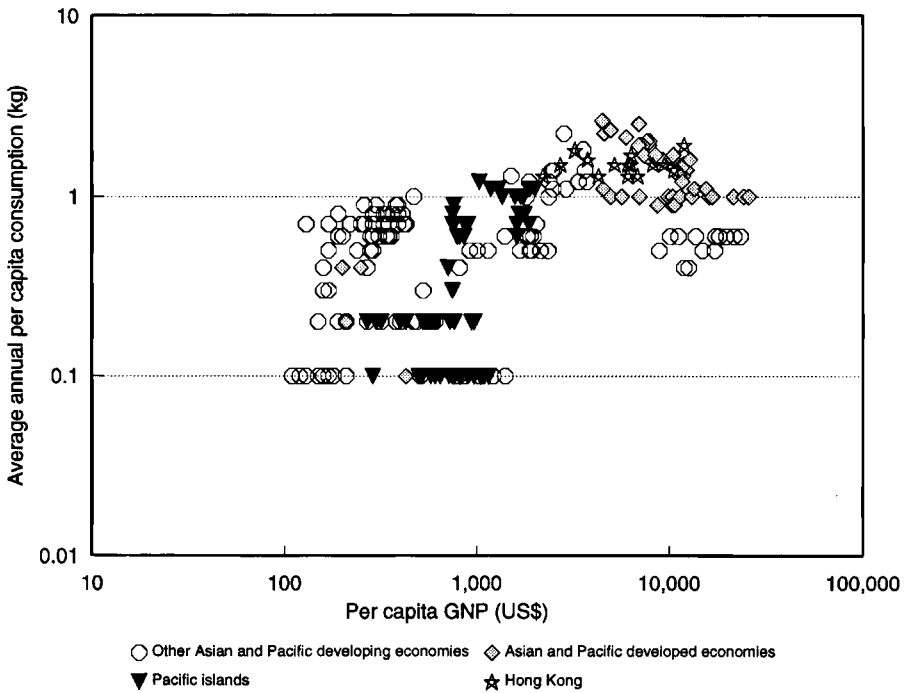
Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 23. Consumption of tea, 1975-1990

declined to 3.3 kilograms in 1990. In Afghanistan and the Islamic Republic of Iran, average annual per capita tea consumption has generally been close to or more than 1.0 kilogram.

Per capita tea consumption has remained relatively constant in Japan, Hong Kong and the ASEAN-5 countries, but it has declined by 40 to 50 per cent in Australia and New Zealand. In the Pacific islands, trends in per capita consumption were varied, with increases in Papua New Guinea and stagnant or declining in other countries.

Tea is a traditional drink for people in many Asian and Pacific countries, but no clear relationship was seen between per capita tea consumption and per capita GNP, as shown in figures 24 and 25. For certain developing economies, tea consumption seems to be characterized by a positive income elasticity. Yet, for the Pacific island countries, tea consumption appeared to be relatively stable at various per capita GNP levels, depending on the particular country. Hong Kong was the only member of the NIEs group for which data were available, and its per capita tea consumption was high. For the developed countries, per capita consumption declined with higher per capita GNP, but this occurs in Australia and New Zealand, not in Japan, where tea consumption has been very stable.



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

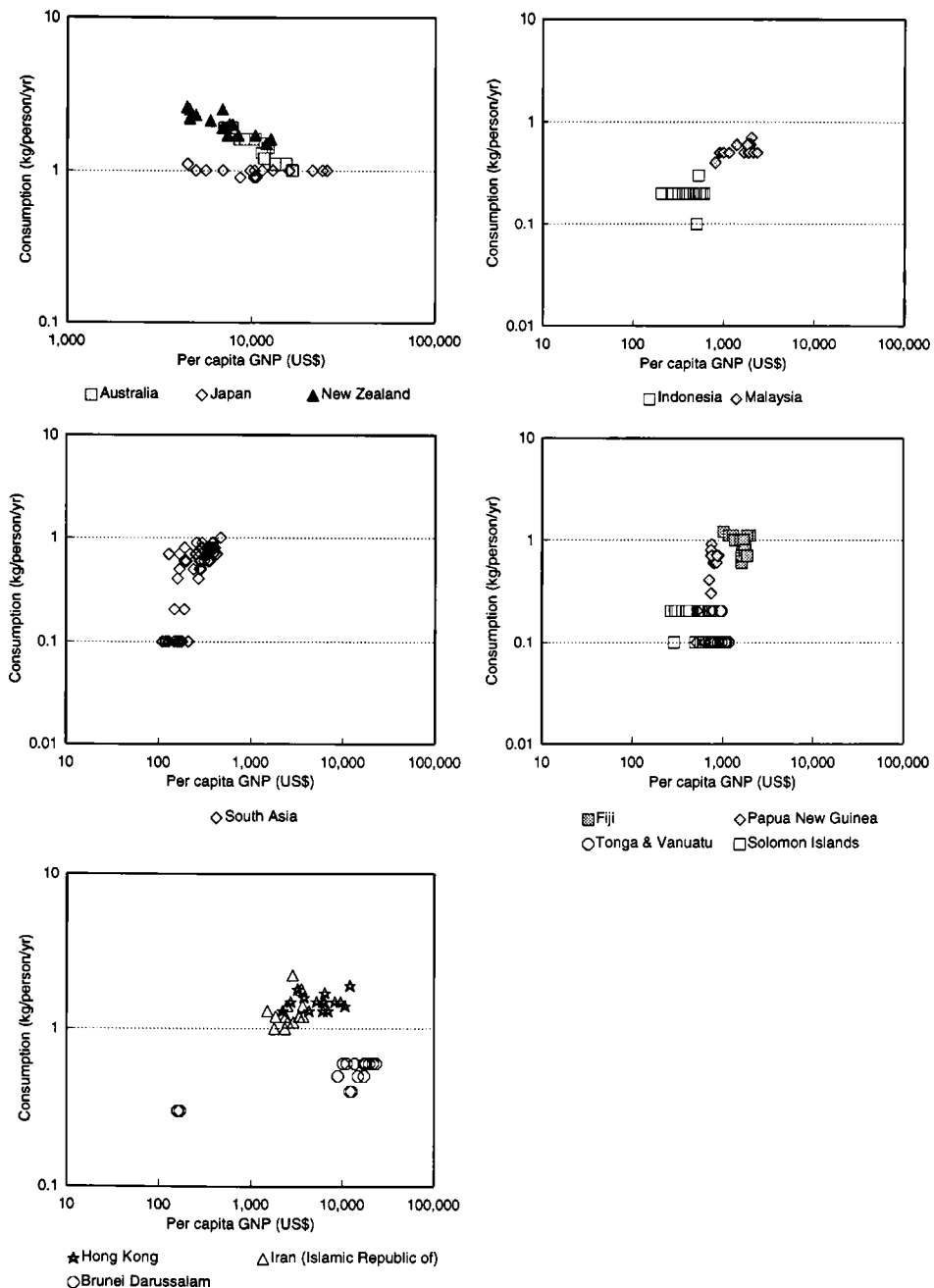
Figure 24. Per capita consumption of tea related to per capita GNP, 1975-1990

Worldwide demand for tea is expected to decline in the future as a result of changing tastes in the tea-drinking developed countries.⁴² However, tea consumption in the Asian developing countries would appear to have some potential for growth with future increases in income. It is expected that growth in consumption will be tempered by slower population growth.

f. Consumption of coffee

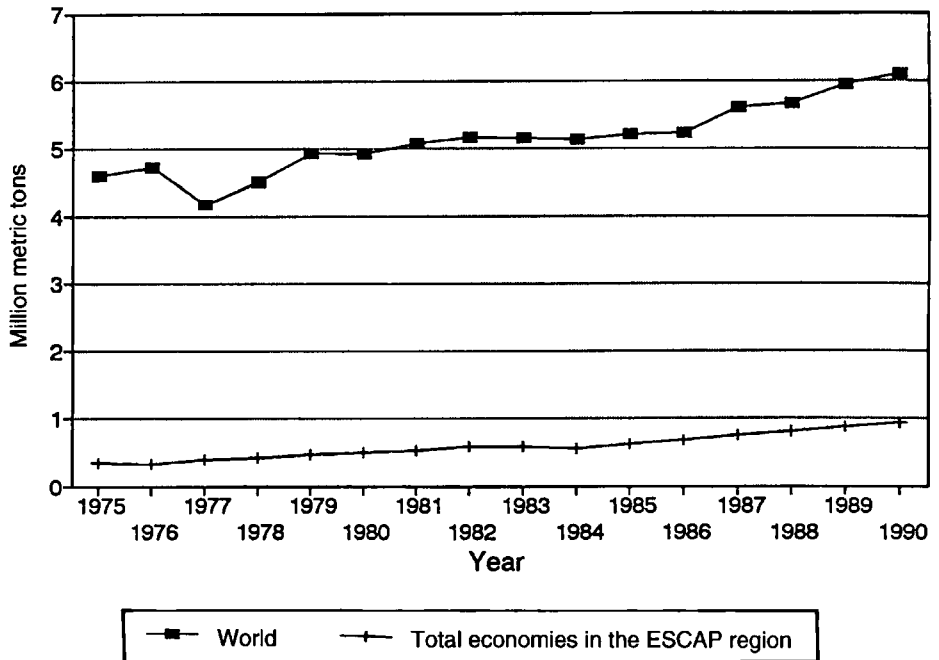
Coffee has achieved increased popularity in the Asian and Pacific region, but its consumption level has remained relatively low compared to total world consumption. (See figure 26.) During the period from 1975 to 1990, world coffee consumption increased by 34 per cent, while coffee consumption in the Asian and Pacific region almost tripled. Despite this strong growth, in 1990 the region still represented less than 16 per cent of total world coffee consumption.

⁴² Ibid.



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 25. Per capita consumption of tea related to per capita GNP for selected countries and groups, 1975-1990



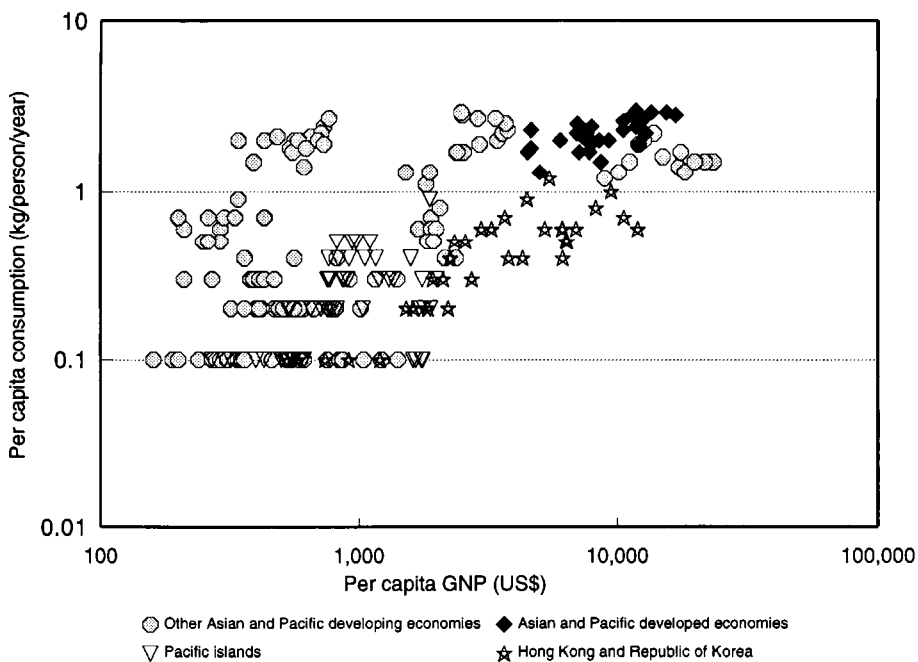
Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 26. Consumption of coffee, 1975-1990

The strong growth in coffee consumption occurred in the NIEs, mainly in the Republic of Korea. For all NIEs, average annual coffee consumption rose from 3,000 metric tons to 52,500 metric tons. Viet Nam's consumption went from 3,000 metric tons to 197,000 metric tons. China had a seven-fold increase, from 5,000 metric tons to 39,000 metric tons. Among the developed countries, average annual consumption doubled in Australia to reach 8,000 metric tons in 1990, while consumption tripled in Japan to 362,000 metric tons in 1990.

Average annual per capita coffee consumption for most developing countries has been and continues to be below the world average of 1.1 kilogram. Exceptions include the Philippines, Brunei Darussalam and Viet Nam. Viet Nam increased its per capita coffee consumption from less than 0.5 kilograms a year in the mid-1980s to almost 3.0 kilograms in 1990. However, a rising trend in per capita coffee consumption has occurred in most Asian and Pacific countries, which combined with population growth in these countries caused total coffee consumption levels to increase over the period from 1975 to 1990.

There was a mixed relationship between per capita coffee consumption and per capita GNP, as shown in figures 27 and 28. Coffee consumption for the developed countries was already at high per capita levels and has remained unchanged or increased



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

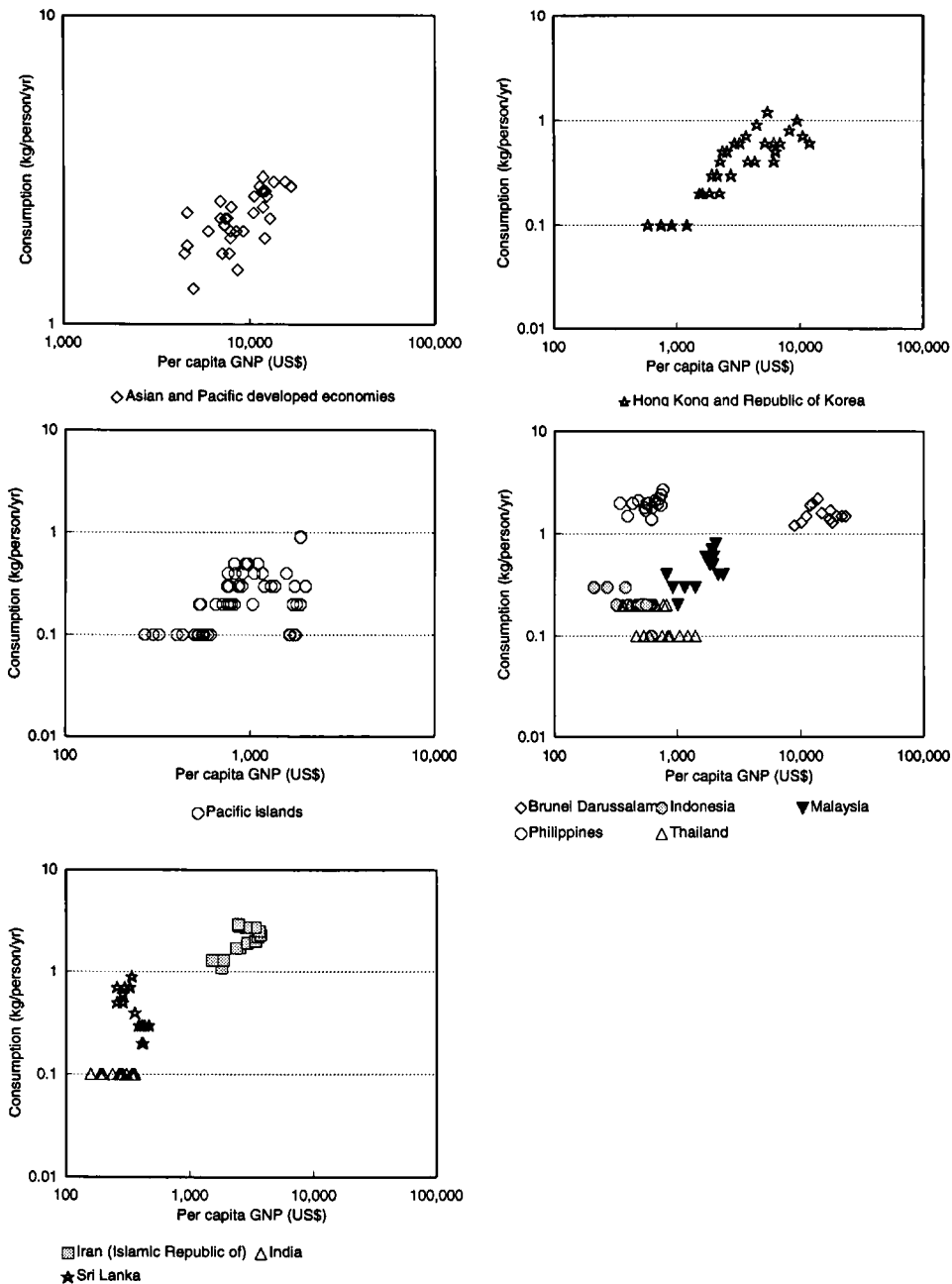
Figure 27. Per capita consumption of coffee related to per capita GNP, 1975-1990

slightly with increases in per capita income. This suggests zero or low income elasticity of demand. For Hong Kong and the Republic of Korea, the income elasticity of coffee demand was positive and almost equal to one. Consumption of coffee in the Pacific island countries was slightly lower than that of the NIEs and most developing economies in the region, but the income elasticity for Pacific island countries was near zero.

The relationship between consumption and income for the Asian developing countries can be grouped into three clusters: (1) a group with less than US\$ 1,000 per capita GNP, (2) a group with per capita GNP between US\$ 1,000 and US\$ 10,000 and (3) Brunei Darussalam, for which per capita GNP was US\$ 10,000 or more. In the first two groups, a positive and high income elasticity was indicated by the steep upward trend of the data points in each cluster. For the third, Brunei Darussalam, per capita consumption of coffee is the same as the developed countries in the region.

World coffee consumption is expected to be relatively stagnant, with demand rising at an average of 1 per cent a year to the year 2005.⁴³ Consumption in Asia and the Pacific has potential for higher growth. For high-income countries worldwide, very slow population growth combined with their high levels of coffee consumption suggest that there is very little room for growth. However, coffee consumption in Japan and some

⁴³ Ibid.



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

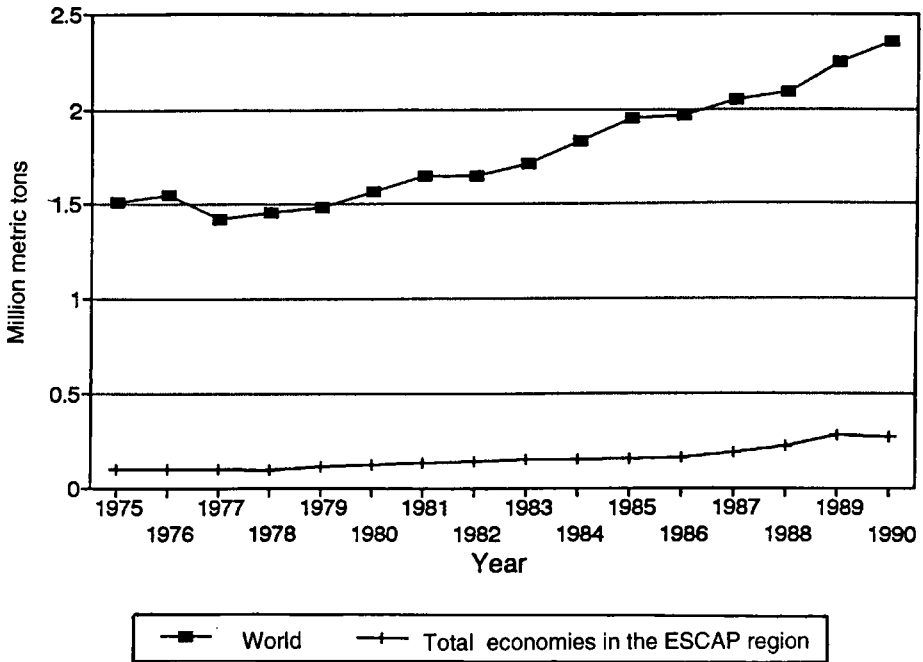
Figure 28. Per capita consumption of coffee related to per capita GNP for selected countries and groups, 1975-1990

other Asian and Pacific countries is likely to be stronger than the world average. For example, the World Bank has estimated that Japanese consumption of coffee will grow at an annual average rate of 2.6 per cent from 1991 to 2005.⁴⁴ Per capita consumption in the NIEs and those Asian developing countries with current low levels of per capita coffee consumption, should rise if their consumption patterns follow the other countries.

g. Consumption of cocoa

Cocoa is used primarily for human consumption in world markets and in the Asian and Pacific region. And like consumption levels for coffee, the Asian and Pacific countries' consumption levels for cocoa are very low, less than 10 per cent of world consumption levels, as shown in figure 29. This contrasts greatly with the region's dominant share in world consumption of basic cereals such as rice and wheat.

For the various groups of Asian and Pacific countries, consumption of cocoa has generally increased from 1975 to 1990. The most notable increases have been for the ASEAN-5 and South Asia beginning in the mid-1980s, and for the Pacific islands during



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

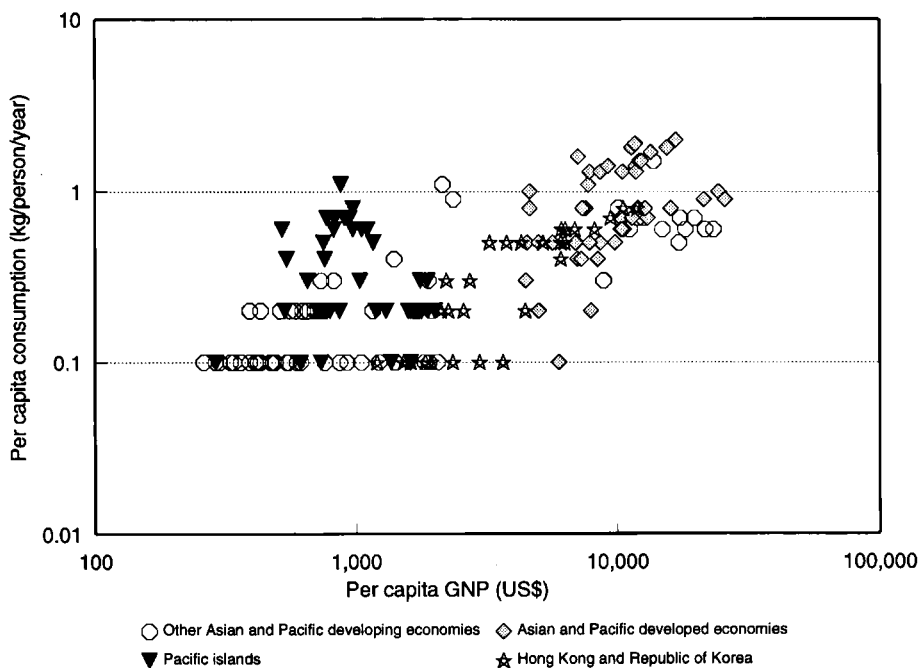
Figure 29. Consumption of cocoa, 1975-1990

⁴⁴ Ibid. This rate is significantly lower than the average annual growth rate of 7.6 per cent for the past two decades. The reasons to explain this are the current higher per capita consumption levels as compared to the 1970s and slower population growth.

the late 1980s. However, even with the growth of cocoa consumption in these three groups (600 per cent growth for the ASEAN-5, 800 per cent growth for South Asia and 300 per cent growth for the Pacific island economies), the actual amounts consumed have been small. In contrast, cocoa consumption in the developed countries, particularly Japan, accounts for the largest share of regional cocoa consumption. Developed countries accounted for more than 55 per cent of total regional consumption in 1990, with Japan accounting for 42 per cent. Cocoa consumption in Australia increased by 50 per cent over the fifteen-year period.

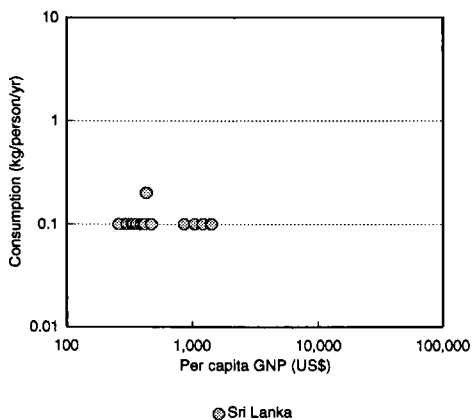
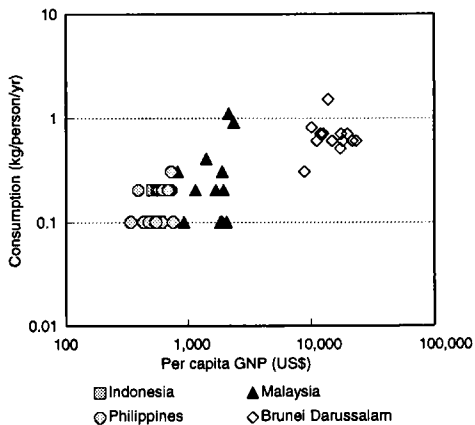
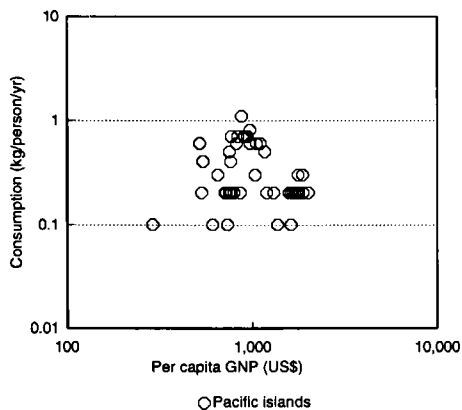
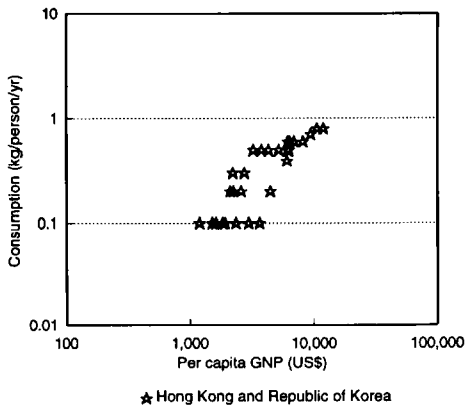
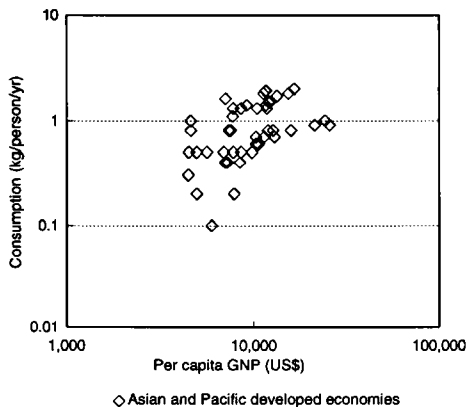
A country by country examination shows that per capita consumption more than doubled in Hong Kong. Per capita levels of consumption also increased significantly in Japan. They were consistently high in other countries, with levels exceeding an annual average of 1.0 kilograms per person in Australia, Brunei Darussalam (since the mid-1980s) and Samoa. In the ASEAN-5 group, per capita cocoa consumption increased in both Brunei Darussalam and Malaysia, while per capita levels increased slightly or remained level in the other ASEAN-5 members throughout the period.

In general, cocoa demand in the region appears to have a positive income elasticity, particularly as per capita incomes rise from US\$ 1,000 to US\$ 10,000. (Refer to figures 30 and 31.) For most Asian developing countries, both per capita consumption



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 30. Per capita consumption of cocoa related to per capita GNP, 1975-1990



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Figure 31. Per capita consumption of cocoa related to per capita GNP for selected countries and groups, 1975-1990

levels and income elasticity of cocoa demand have been low. In the case of Pacific island countries, the data points cluster at less than 1.0 kilogram per person a year. The most interesting and dynamic pattern is seen for the NIEs and the developed countries. Their income elasticities are close to 1.0 and the potential for further increases in consumption can be expected in the near future. Growth potential is great for developing Asian countries, given their current low levels of consumption, large populations and anticipated growth in incomes.

These expectations of future cocoa consumption in the region are comparable with those of the World Bank. Although growth in consumption of cocoa for the world is likely to slow in the next few years, averaging less than 2 per cent each year, consumption is expected to increase in several countries, including China, Japan and the Republic of Korea.⁴⁵ Consumption of cocoa is beginning to assume greater importance in East Asia as incomes have grown rapidly, although per capita consumption is currently about 0.2 kilograms, which is only one tenth that of Western Europe.

3. Summary and conclusion

Consumption of basic staples such as rice and wheat in the countries of the region tended to increase as incomes rose. However, the income elasticity of such commodities was not constant. In the case of rice, there appeared to be clear cultural differences in consumption patterns. For most Asian and Pacific countries, income elasticity was typically greater than or close to 1.0 at lower levels of per capita income. Income elasticity declined as per capita income levels rose, and eventually turned negative at higher levels of per capita income. The Pacific island countries also showed this relationship, although at lower levels of per capita consumption. However, a positive income elasticity was found for Australia and New Zealand for rice, as their Asian populations grew and as consumers began to increase the diversity in their diets by shifting from wheat to rice. The consumption patterns for wheat appear to support this explanation, because at higher per capita income levels, per capita consumption of wheat falls for Australia and New Zealand.

For vegetable oils, the typical pattern of consumption is closely linked to economic development, and this was found to be the case among the countries in the region. At low levels of per capita income, where per capita daily caloric intake is generally low, cooking oils are an insignificant part of a person's diet. However, as incomes increase, consumption of vegetable oils tends to rise rapidly. As development proceeds further and incomes rise more, calorie levels increase and changes occur in the types of fats and oils consumed rather than in the levels. This pattern has been found to transcend cultural habits and seems to be confirmed in the case of Asian and Pacific countries as well. For the region as a whole, income elasticity of vegetable oils is positive. At lower levels of per capita income, the income elasticity exceeds 1.0 and declines as per capita incomes rise.

⁴⁵ Ibid.

Consumption of spices exhibited no clear trend or pattern. For most countries, consumption of spices was relatively low and income elasticity of spices was near zero.

Among the beverages, consumption of cocoa is generally low and has a generally positive relationship with per capita income for the region as a whole. However, for the higher-income countries, an income elasticity that is close to 1.0 was indicated. When combined with the current low levels of cocoa consumption, this suggests strong potential for growth in cocoa consumption in the future.

For coffee, the relationship between per capita consumption and per capita income is generally positive, with an elasticity almost equal to 1.0, though the level of consumption differs among countries with per capita gross national product of US\$ 1,000 or less and between US\$ 1,000 and US\$ 10,000.

Consumption of tea, a traditional beverage in many Asian countries, had a variety of results across the individual countries. For certain developing countries, tea consumption appeared to have an income elasticity that is positive; for others, tea consumption is relatively unchanged at different per capita incomes; and for Australia and New Zealand, per capita consumption declined with increases in per capita income.

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ANNEX 1

Table 1. Matrix of intraregional trade in rice by country and area, 1992.
(Thousands of US dollars)

| Exporting country/area | To East Asia | | | | To South-East Asia | | | | | To South Asia | | | | | To Indo-China | | | To Pacific islands | | | To Central Asia | To other region | To developed economies | | | To non-regional economies | Total exports | | | | | | |
|-------------------------------------|--------------|--------|-----------|---------------|--------------------|-----------|-----------|----------|-------------|---------------|----------|-----------|------------|-------|---------------|-----------|-------|--------------------|----------|-------|-----------------|-----------------|------------------------|------------------|--------|---------------------------|---------------|-----------|-----------|---------|-------------|--------|-------|
| | Sub-total | China | Hong Kong | Rep. of Korea | Other | Sub-total | Indonesia | Malaysia | Philippines | Singapore | Thailand | Sub-total | Bangladesh | India | Pakistan | Sri Lanka | Other | Sub-total | Viet Nam | Other | | | Sub-total | Papua New Guinea | Other | | | Sub-total | Australia | Japan | New Zealand | | |
| East Asia | 20,552 | 955 | .. | 18,441 | 1,157 | 16,037 | 15,507 | .. | 0 | 529 | .. | 3,885 | 0 | .. | 3,885 | .. | .. | 34 | 32 | 3 | 49 | .. | 49 | 2,847 | 957 | 828 | 734 | 85 | 9 | 182,483 | 227,672 | | |
| China | 19,561 | .. | .. | 18,411 | 1,150 | 16,009 | 15,507 | .. | .. | 502 | .. | 3,885 | 0 | .. | 3,885 | .. | .. | 34 | 32 | 3 | 49 | .. | 49 | 2,847 | 957 | 816 | 734 | 74 | 7 | 181,655 | 225,814 | | |
| Hong Kong | 36 | 35 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 12 | .. | 11 | 2 | .. | 49 | | |
| Rep. of Korea | 7 | 2 | .. | .. | 5 | 0 | .. | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | 828 | 836 | | |
| Other | 947 | 917 | .. | 30 | .. | 27 | .. | .. | .. | 27 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 974 | | |
| South-East Asia | 161,415 | 37,133 | 479 | 120,451 | 3,352 | 193,137 | 111,943 | 4 | 337 | 80,826 | 27 | 14,023 | 0 | 1 | 14,017 | 4 | 1 | .. | .. | .. | 3,086 | .. | 3,086 | 7 | 43 | 16,644 | 4,110 | 11,328 | 1,206 | 3,131 | 391,486 | | |
| Indonesia | 2 | .. | .. | 2 | .. | 1 | .. | .. | .. | .. | 1 | 5,684 | .. | .. | 5,684 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | 2,806 | 8,494 | |
| Malaysia | .. | .. | .. | .. | .. | 154 | .. | .. | .. | 154 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | 0 | .. | .. | 155 | | |
| Philippines | .. | .. | .. | .. | .. | 7,741 | 7,741 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | 0 | 0 | 2 | 7,743 | | |
| Singapore | 12 | 1 | .. | 11 | 0 | 439 | 380 | 4 | 30 | .. | 25 | 7 | 0 | 1 | 1 | 4 | 1 | .. | .. | .. | 1 | .. | 1 | 7 | 43 | 36 | 4 | 29 | 3 | 324 | 870 | | |
| Thailand | 161,400 | 37,132 | 479 | 120,438 | 3,352 | 184,801 | 103,822 | .. | 307 | 80,672 | .. | 8,332 | .. | .. | 8,332 | .. | .. | .. | .. | .. | 3,085 | .. | 3,085 | .. | .. | 16,607 | 4,106 | 11,298 | 1,203 | .. | 374,225 | | |
| South Asia | 498 | 18 | 120 | 380 | .. | 33,258 | 22,565 | 6,886 | 52 | 3,547 | 107 | 24,004 | .. | 3,209 | 20,781 | .. | 4 | 12 | .. | 12 | 25 | .. | 25 | .. | 80,968 | 3,349 | 1,166 | 2,030 | 153 | 304,183 | 426,297 | | |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | |
| India | 308 | .. | .. | 308 | .. | 23,212 | 22,565 | .. | .. | 647 | .. | 11,187 | .. | .. | 11,187 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 647 | 110 | .. | 35,464 | |
| Pakistan | 190 | 18 | 120 | 52 | .. | 10,046 | .. | 6,886 | 52 | 2,900 | 107 | 12,813 | .. | 3,209 | 9,604 | .. | .. | 12 | .. | 12 | 25 | .. | 25 | .. | 80,968 | 2,520 | 1,166 | 1,314 | 40 | 303,880 | 390,454 | | |
| Sri Lanka | .. | .. | .. | .. | .. | 0 | .. | .. | .. | 0 | .. | 4 | .. | .. | .. | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 69 | 3 | 303 | 379 | | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | |
| Indo-China | 310 | 310 | .. | .. | .. | 11,348 | 11,348 | .. | .. | .. | .. | 35,167 | .. | .. | 35,167 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 12 | .. | 12 | .. | .. | 46,838 | |
| Viet Nam | 283 | 283 | .. | .. | .. | 11,348 | 11,348 | .. | .. | .. | .. | 35,167 | .. | .. | 35,167 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 12 | .. | 12 | .. | .. | 46,821 | |
| Other | 17 | 17 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 17 | |
| Pacific islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Papua New Guinea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Central Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Other economies of the ESCAP region | 277 | 277 | .. | .. | .. | 5,411 | 4,324 | .. | .. | 1,087 | .. | 2,777 | .. | .. | 2,777 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8,465 |
| Developed economies | 27,589 | 325 | 2 | 27,224 | 39 | 1,134 | 16 | .. | 3 | 1,112 | 3 | 31 | 0 | 3 | 28 | .. | .. | 103 | 2 | 101 | 5,892 | .. | 5,892 | .. | 8 | 3,511 | 182 | 84 | 3,244 | 388 | 38,856 | | |
| Australia | 27,501 | 242 | .. | 27,220 | 39 | 1,110 | 0 | .. | .. | 1,107 | 3 | 25 | .. | .. | 25 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3,227 | 269 | 38,206 | |
| Japan | 87 | 82 | 2 | 3 | 0 | 8 | 0 | .. | 3 | 5 | .. | 6 | 0 | 3 | 3 | .. | .. | 103 | 2 | 101 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 361 | |
| New Zealand | .. | .. | .. | .. | .. | 15 | 15 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 88 | |
| Non-regional economies | 1,412 | 133 | 18 | 1,251 | 10 | 7,715 | 1,171 | .. | 0 | 6,544 | .. | 13 | 2 | .. | 11 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 13,053 | |
| Total imports | 212,052 | 39,150 | 618 | 187,726 | 4,558 | 288,040 | 166,875 | 6,990 | 394 | 83,845 | 137 | 78,900 | 2 | 3,212 | 78,676 | 4 | 5 | 149 | 34 | 116 | 9,119 | .. | 9,119 | 2,854 | 61,978 | 28,281 | 6,714 | 15,691 | 5,877 | 490,186 | | | |

Source: United Nations, COMTRADE database.

Notes: .. = Unknown or zero.

Other East Asian countries/areas: Democratic People's Republic of Korea and Macau.

Other South Asian countries/areas: Nepal and Maldives.

Other Indo-China countries/areas: Cambodia and Lao People's Democratic Republic.

Central Asian countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Other Pacific islands countries: Fiji, Kiribati, the Marshall Islands, Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, American Samoa, the Commonwealth of the Northern Mariana Islands, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue, and Palau.

Other countries/areas of the ESCAP region: Afghanistan, Bhutan, Brunei Darussalam, the Islamic Republic of Iran, Mongolia, and Myanmar.

Table 2. Matrix of intraregional trade in wheat by country and area, 1992.
(Thousands of US dollars)

| Exporting country/area | To East Asia | | | | | To South-East Asia | | | | | To South Asia | | | | | To Indo-China | | | To Pacific islands | | | To | To | To developed economies | | | To non- | Total exports | | | | | |
|-------------------------------------|--------------|-----------|-----------|---------------|-------|--------------------|-----------|----------|-------------|-----------|---------------|-----------|------------|-------|----------|---------------|-------|-----------|--------------------|-------|-----------|------------------|-------|------------------------|--------------|-----------|-----------|---------------|--------|-------------|--------------------|-------|----|
| | Sub-total | China | Hong Kong | Rep. of Korea | Other | Sub-total | Indonesia | Malaysia | Philippines | Singapore | Thailand | Sub-total | Bangladesh | India | Pakistan | Sri Lanka | Other | Sub-total | Viet Nam | Other | Sub-total | Papua New Guinea | Other | Central Asia | other region | Sub-total | Australia | | Japan | New Zealand | regional economies | | |
| East Asia | 470 | .. | 212 | 257 | 1 | 1,096 | .. | .. | .. | .. | 1,096 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,566 | |
| China | 470 | .. | 212 | 257 | 1 | 1,096 | .. | .. | .. | .. | 1,096 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,566 | |
| Hong Kong | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Rep. of Korea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| South-East Asia | 566 | 9 | 557 | .. | .. | 1,190 | 0 | 1,080 | .. | 109 | .. | 1,359 | .. | .. | 9 | 1,350 | .. | .. | .. | .. | .. | .. | .. | .. | 33 | 10 | .. | 10 | .. | 1,121 | 4,279 | | |
| Indonesia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Malaysia | .. | .. | .. | .. | .. | 109 | .. | .. | .. | 109 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | 0 | .. | .. | 110 | | |
| Philippines | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Singapore | 1 | 1 | .. | .. | .. | 1,061 | 0 | 1,080 | .. | .. | .. | 1,350 | .. | .. | .. | 1,350 | .. | .. | .. | .. | .. | .. | .. | .. | 33 | .. | .. | .. | .. | .. | 1,121 | 3,586 | |
| Thailand | 565 | 8 | 557 | .. | .. | .. | .. | .. | .. | .. | .. | 9 | .. | .. | 9 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | .. | 10 | .. | .. | 584 | | |
| South Asia | .. | .. | .. | .. | .. | 7,789 | .. | 1,090 | 6,148 | 551 | .. | 2,152 | .. | 11 | 1,365 | .. | 777 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 964 | 10,907 | | |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| India | .. | .. | .. | .. | .. | 7,789 | .. | 1,090 | 6,148 | 551 | .. | 2,152 | .. | 11 | 1,365 | .. | 777 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | 964 | 10,907 | | |
| Pakistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Sri Lanka | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Indo-China | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Viet Nam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pacific islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Papua New Guinea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 |
| Central Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other economies of the ESCAP region | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Developed economies | 123,181 | 35,880 | 87,255 | 46 | .. | 182,971 | 144,828 | .. | 2,718 | 19,973 | 15,454 | 178,300 | 59,759 | .. | .. | 118,542 | .. | .. | .. | .. | 9,878 | .. | 9,878 | .. | .. | 218,462 | 196,535 | 14 | 21,914 | 1,081,302 | 1,794,094 | | |
| Australia | 123,181 | 35,880 | 87,255 | 46 | .. | 182,971 | 144,828 | .. | 2,718 | 19,973 | 15,454 | 178,300 | 59,759 | .. | .. | 118,542 | .. | .. | .. | .. | 9,877 | .. | 9,877 | .. | .. | 218,448 | 196,535 | .. | 21,914 | 1,081,293 | 1,794,070 | | |
| Japan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | 0 | .. | .. | 0 | | |
| New Zealand | .. | .. | .. | .. | .. | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | 14 | .. | 14 | .. | 9 | 24 | |
| Non-regional economies | 1,951,349 | 1,467,837 | 455,868 | 27,847 | .. | 614,711 | 259,025 | .. | 282,962 | 17,907 | 74,818 | 603,376 | 385,401 | .. | 63,896 | 154,080 | .. | .. | .. | .. | 0 | .. | 0 | .. | .. | 989,413 | 978,748 | 34 | 10,631 | .. | 4,158,851 | | |
| Total imports | 2,075,566 | 1,503,728 | 543,690 | 28,149 | 1 | 807,758 | 403,853 | 2,171 | 271,828 | 38,539 | 81,388 | 785,168 | 445,159 | 11 | 65,270 | 273,971 | 777 | .. | .. | .. | 9,878 | .. | 9,878 | .. | 34 | 1,207,865 | 1,175,283 | 58 | 32,545 | 1,083,388 | | | |

Source: United Nations, COMTRADE database.

Notes: .. = Unknown or zero.

Other East Asian countries/areas: Democratic People's Republic of Korea and Macau.

Other South Asian countries/areas: Nepal and Maldives.

Other Indo-China countries/areas: Cambodia and Lao People's Democratic Republic.

Central Asian countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Other Pacific islands countries: Fiji, Kiribati, the Marshall Islands, Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, American Samoa, the Commonwealth of the Northern Mariana Islands, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue, and Palau.

Other countries/areas of the ESCAP region: Afghanistan, Bhutan, Brunei Darussalam, the Islamic Republic of Iran, Mongolia, and Myanmar.

Table 3. Matrix of intraregional trade in wheat meal and flour by country and area, 1992
(Thousands of US dollars)

| Exporting country/area | To East Asia | | | | To South-East Asia | | | | | To South Asia | | | | | To Indo-China | | | To Pacific islands | | | To Central Asia | | To other region | | | To developed economies | | | | To non-regional economies | Total exports |
|-------------------------------------|--------------|--------|-----------|---------------|--------------------|-----------|-----------|----------|-------------|---------------|----------|-----------|------------|-------|---------------|-----------|-------|--------------------|----------|-------|-----------------|------------------|-----------------|-----------|-----------|------------------------|-------------|--------------------|-------|---------------------------|---------------|
| | Sub-total | China | Hong Kong | Rep. of Korea | Other | Sub-total | Indonesia | Malaysia | Philippines | Singapore | Thailand | Sub-total | Bangladesh | India | Pakistan | Sri Lanka | Other | Sub-total | Viet Nam | Other | Sub-total | Papua New Guinea | Other | Sub-total | Australia | Japan | New Zealand | regional economies | | | |
| East Asia | 23,473 | 9,358 | .. | 664 | 13,450 | 5,919 | .. | .. | 186 | 5,719 | 14 | 6 | .. | .. | .. | .. | 1,054 | 1,054 | .. | 304 | .. | 304 | 1,111 | 7,132 | 145 | 111 | 21 | 13 | 3,807 | 42,952 | |
| China | 13,315 | .. | .. | 625 | 12,690 | 32 | .. | .. | .. | 23 | 9 | 6 | 6 | .. | .. | .. | 434 | 434 | .. | 12 | .. | 12 | 1,111 | 7,132 | 20 | 8 | 8 | 4 | 3,193 | 25,254 | |
| Hong Kong | 9,996 | 9,239 | .. | .. | 756 | 5,885 | .. | .. | 186 | 5,693 | 5 | .. | .. | .. | .. | .. | 69 | 69 | .. | 291 | .. | 291 | .. | .. | 23 | .. | 13 | 9 | 208 | 16,471 | |
| Rep. of Korea | 49 | 7 | .. | 37 | 4 | 3 | .. | .. | .. | 3 | .. | .. | .. | .. | .. | .. | 551 | 551 | .. | 1 | .. | 1 | .. | .. | 103 | 103 | .. | .. | 406 | 1,113 | |
| Other | 114 | 111 | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 114 | .. | |
| South-East Asia | 1,829 | 309 | .. | 1,514 | 5 | 11,565 | 210 | 145 | 6 | 10,621 | 583 | 1,300 | .. | 7 | 66 | 0 | 1,227 | 1 | 1 | .. | 27 | 25 | 1 | .. | 1,690 | 4 | 0 | 3 | 1 | 22,738 | 39,154 |
| Indonesia | 12 | 12 | .. | .. | .. | 5 | .. | .. | 5 | .. | .. | .. | .. | .. | .. | .. | 1 | 1 | .. | .. | .. | .. | .. | .. | 0 | .. | 0 | .. | 17 | 35 | |
| Malaysia | .. | .. | .. | .. | .. | 11,053 | 0 | .. | .. | 10,584 | 469 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | .. | 11,055 | |
| Philippines | 1 | 1 | .. | .. | .. | 3 | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | 5 | |
| Singapore | 88 | 45 | .. | 40 | 3 | 466 | 207 | 145 | 1 | .. | 114 | 1,235 | .. | 7 | 1 | 0 | 1,227 | .. | .. | .. | 26 | 25 | 0 | .. | 1,690 | 1 | 0 | 1 | .. | 22,721 | 26,227 |
| Thailand | 1,729 | 252 | .. | 1,474 | 3 | 38 | .. | .. | .. | 38 | .. | 65 | .. | .. | 65 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | 1 | .. | 1,833 | |
| South Asia | 16 | .. | .. | 16 | .. | 3 | .. | .. | .. | 3 | .. | 1 | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | 186 | 206 | |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| India | 15 | .. | .. | 15 | .. | 3 | .. | .. | .. | 3 | .. | 1 | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | 185 | 205 | |
| Pakistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Sri Lanka | 0 | .. | .. | 0 | .. | 0 | .. | .. | .. | 0 | .. | 0 | .. | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | .. | 0 | .. | 0 | .. | 1 | 1 | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Indo-China | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Viet Nam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Pacific Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 74 | .. | 74 | .. | .. | 1 | .. | 1 | 0 | 7 | 81 |
| Papua New Guinea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 74 | .. | 74 | .. | .. | 1 | .. | 1 | 0 | 7 | 81 |
| Central Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Other economies of the ESCAP region | 6 | 6 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | |
| Developed economies | 50,504 | 9,729 | 3 | 39,974 | 798 | 24,834 | 4,000 | 55 | 5,719 | 7,173 | 7,868 | 34 | .. | .. | 14 | .. | 20 | 7,219 | 7,206 | 13 | 5,324 | 326 | 4,998 | .. | 153 | 1,359 | 53 | 60 | 1,246 | 3,291 | 92,719 |
| Australia | 6,245 | 4,609 | .. | 1,620 | 16 | 8,270 | 2,331 | .. | 5,379 | 24 | 535 | 34 | .. | .. | 14 | .. | 20 | 1,830 | 1,830 | .. | 3,726 | 9 | 3,717 | .. | 77 | 1,295 | 53 | .. | 1,241 | 2,464 | 23,940 |
| Japan | 44,259 | 5,120 | 3 | 38,354 | 782 | 16,562 | 1,668 | 55 | 340 | 7,147 | 7,353 | 0 | .. | .. | 0 | .. | .. | 5,389 | 5,376 | 13 | 968 | 317 | 851 | .. | 78 | 64 | .. | 59 | 5 | 807 | 68,126 |
| New Zealand | 0 | 0 | .. | .. | .. | 3 | 1 | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 631 | .. | 631 | .. | .. | 0 | .. | 0 | .. | 20 | 653 |
| Non-regional economies | 3,330 | 1,818 | 1 | 1,495 | 16 | 723 | 341 | .. | 146 | 191 | 45 | 0 | .. | .. | 0 | .. | .. | .. | .. | .. | 1,040 | .. | 1,040 | .. | .. | 263 | 20 | 117 | 126 | .. | 175,119 |
| Total imports | 79,159 | 21,221 | 4 | 43,663 | 14,270 | 43,045 | 4,551 | 199 | 6,058 | 23,707 | 8,530 | 1,341 | 6 | 7 | 80 | 0 | 1,247 | 8,274 | 8,261 | 13 | 6,769 | 351 | 6,417 | 1,111 | 8,975 | 1,772 | 184 | 202 | 1,386 | 30,029 | .. |

Source: United Nations, COMTRADE database.

Notes: .. = Unknown or zero.

Other East Asian countries/areas: Democratic People's Republic of Korea and Macau.

Other South Asian countries/areas: Nepal and Maldives.

Other Indo-China countries/areas: Cambodia and Lao People's Democratic Republic.

Central Asian countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Other Pacific islands countries: Fiji, Kiribati, the Marshall Islands, Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, American Samoa, the Commonwealth of the Northern Mariana Islands, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue, and Palau.

Other countries/areas of the ESCAP region: Afghanistan, Bhutan, Brunei Darussalam, the Islamic Republic of Iran, Mongolia, and Myanmar.

Table 4. Matrix of intraregional trade in tea by country and area, 1992
(Thousands of US dollars)

| Exporting country/area | To East Asia | | | | To South-East Asia | | | | | To South Asia | | | | | To Indo-China | | | To Pacific islands | | | To Central Asia | To other region | To developed economies | | | To non-regional economies | Total exports | | | | | |
|-------------------------------------|--------------|-------|-----------|---------------|--------------------|-----------|-----------|----------|-------------|---------------|----------|-----------|------------|-------|---------------|-----------|-------|--------------------|----------|-------|-----------------|-----------------|------------------------|------------------|--------|---------------------------|---------------|-----------|-----------|---------|-------------|--------|
| | Sub-total | China | Hong Kong | Rep. of Korea | Other | Sub-total | Indonesia | Malaysia | Philippines | Singapore | Thailand | Sub-total | Bangladesh | India | Pakistan | Sri Lanka | Other | Sub-total | Viet Nam | Other | | | Sub-total | Papua New Guinea | Other | | | Sub-total | Australia | Japan | New Zealand | |
| East Asia | 52,195 | 107 | 42 | 51,104 | 942 | 7,153 | 132 | 1,668 | 51 | 5,011 | 290 | 5,977 | 5,509 | 280 | 57 | .. | 31 | 459 | 459 | .. | 4 | .. | 4 | 6,037 | 8,450 | 65,682 | 60,810 | 3,322 | 1,550 | 244,749 | 390,607 | |
| China | 50,874 | .. | 42 | 49,915 | 917 | 6,642 | 126 | 1,666 | 32 | 4,541 | 276 | 5,698 | 5,329 | 280 | 57 | .. | 31 | 459 | 459 | .. | 1 | .. | 1 | 6,037 | 8,450 | 64,952 | 60,408 | 3,112 | 1,432 | 243,877 | 386,990 | |
| Hong Kong | 84 | 60 | 0 | .. | 24 | 499 | 5 | .. | 19 | 468 | 8 | 39 | 39 | .. | .. | .. | .. | .. | .. | .. | 3 | .. | 3 | .. | .. | 538 | 253 | 169 | 116 | 126 | 1,288 | |
| Rep. of Korea | 3 | .. | .. | 1 | 1 | 12 | 1 | 2 | .. | 3 | 6 | 122 | 122 | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 192 | 149 | 42 | 1 | 748 | 1,075 | |
| Other | 1,235 | 48 | .. | 1,187 | .. | 0 | 0 | .. | .. | .. | .. | 19 | 19 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | 1,254 | | |
| South-East Asia | 5,120 | 582 | 61 | 4,476 | 2 | 10,762 | 31 | 5,861 | 88 | 4,344 | 438 | 40,630 | 40,093 | 23 | 505 | 4 | 5 | .. | .. | .. | 87 | 1 | 86 | .. | 797 | 14,001 | 7,160 | 5,493 | 1,348 | 91,844 | 163,242 | |
| Indonesia | 474 | 407 | 14 | 53 | .. | 5,682 | .. | 2,493 | .. | 3,152 | 37 | 40,143 | 39,619 | 20 | 505 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 170 | 7,793 | 1,076 | 5,369 | 1,348 | 87,912 | 142,175 | |
| Malaysia | 0 | .. | .. | .. | 0 | 1,104 | 17 | .. | .. | 1,087 | .. | 32 | 32 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 49 | 38 | 11 | 0 | .. | 1,186 | |
| Philippines | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9 | 9 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | 0 | .. | .. | 9 | |
| Singapore | 4,534 | 158 | 46 | 4,327 | 2 | 3,870 | 14 | 3,368 | 88 | .. | 401 | 351 | 338 | 3 | 0 | 4 | 5 | .. | .. | .. | 87 | 1 | 86 | .. | 827 | 6,102 | 5,991 | 111 | 0 | 3,932 | 19,503 | |
| Thailand | 94 | 17 | .. | 77 | .. | 106 | .. | .. | .. | 108 | .. | 80 | 80 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 56 | 55 | 1 | 0 | .. | 335 | |
| South Asia | 7,769 | 1,612 | 134 | 5,808 | 215 | 5,769 | .. | 97 | 27 | 5,579 | 66 | 30,209 | 28,633 | .. | 946 | 112 | 517 | 25 | .. | 25 | 1,188 | 28 | 1,140 | .. | 64,066 | 50,874 | 31,115 | 15,737 | 4,021 | 259,206 | 419,085 | |
| Bangladesh | 1,220 | 1,220 | .. | .. | .. | 11 | .. | .. | .. | 11 | .. | 16,638 | 16,544 | .. | .. | .. | 94 | .. | .. | .. | .. | .. | .. | .. | .. | 15,135 | 401 | 133 | 195 | 73 | 12,510 | 45,914 |
| India | 41 | 1 | 15 | 25 | .. | 2,966 | .. | .. | .. | 2,967 | 19 | 4,261 | 3,316 | .. | 946 | .. | .. | .. | .. | .. | 27 | .. | 27 | .. | .. | 19,016 | 12,001 | 5,581 | 1,434 | .. | 26,331 | |
| Pakistan | 3 | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 51 | .. | .. | .. | .. | 54 | |
| Sri Lanka | 6,504 | 389 | 119 | 5,781 | 215 | 2,773 | .. | 97 | 27 | 2,601 | 47 | 9,296 | 8,760 | .. | .. | 112 | 423 | 25 | .. | 25 | 1,141 | 28 | 1,114 | .. | 48,880 | 31,451 | 19,976 | 9,961 | 2,514 | 246,696 | 346,766 | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 14 | 14 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | 5 | 0 | .. | .. | 20 | |
| Indo-China | 1,548 | 675 | .. | 873 | .. | 37 | 7 | .. | .. | 30 | 260 | 260 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 923 | 910 | 14 | .. | .. | 2,769 | |
| Viet Nam | 1,548 | 675 | .. | 873 | .. | 37 | 7 | .. | .. | 30 | 260 | 260 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 923 | 910 | 14 | .. | .. | 2,769 | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Pacific islands | .. | .. | .. | .. | .. | 89 | .. | 23 | 2 | 64 | .. | 341 | 273 | .. | 88 | .. | .. | .. | .. | .. | 269 | .. | 269 | .. | .. | 2,955 | 1 | 2,487 | 468 | 1,860 | 5,514 | |
| Papua New Guinea | .. | .. | .. | .. | .. | 89 | .. | 23 | 2 | 64 | .. | 341 | 273 | .. | 88 | .. | .. | .. | .. | .. | 158 | .. | 158 | .. | .. | 2,951 | .. | 2,484 | 467 | 1,843 | 5,382 | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 111 | .. | 111 | .. | .. | 4 | 1 | 2 | 2 | 17 | 133 | |
| Central Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Other economies of the ESCAP region | 1,758 | 1,739 | .. | 19 | .. | .. | .. | .. | .. | .. | .. | 52 | 52 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,809 |
| Developed economies | 644 | 6 | 68 | 546 | 23 | 612 | 206 | 5 | 21 | 355 | 25 | 250 | 223 | .. | 23 | .. | 3 | 17 | .. | 17 | 1,177 | 425 | 752 | .. | 3 | 630 | 195 | 355 | 80 | 3,183 | 6,516 | |
| Australia | 105 | 0 | .. | 89 | 15 | 257 | 194 | 3 | 12 | 47 | .. | 85 | 43 | .. | 22 | .. | .. | .. | .. | .. | 1,078 | 425 | 653 | .. | 3 | 58 | .. | .. | 58 | 383 | 1,949 | |
| Japan | 539 | 6 | 68 | 456 | 8 | 331 | 11 | 2 | 5 | 289 | 25 | 184 | 180 | .. | 1 | .. | 3 | 17 | .. | 17 | 12 | .. | 12 | .. | .. | 375 | .. | 353 | 22 | 2,797 | 4,256 | |
| New Zealand | .. | .. | .. | .. | .. | 24 | 1 | .. | 4 | 19 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 87 | 0 | 87 | .. | .. | 197 | 195 | 2 | .. | 3 | 310 | |
| Non-regional economies | 2,545 | 240 | 72 | 1,763 | 469 | 5,015 | 365 | .. | 168 | 4,270 | 211 | 113,162 | 111,993 | .. | 1,170 | .. | .. | .. | .. | .. | 13 | .. | 13 | .. | .. | 44,341 | 39,730 | 3,473 | 1,138 | .. | 165,077 | |
| Total imports | 71,560 | 4,862 | 377 | 64,568 | 1,653 | 29,437 | 741 | 7,855 | 357 | 19,624 | 1,061 | 190,766 | 187,020 | 303 | 2,769 | 117 | 557 | 500 | 459 | 42 | 2,719 | 454 | 2,265 | 6,037 | 73,316 | 179,407 | 139,921 | 30,881 | 8,605 | 600,842 | | |

Source: United Nations, COMTRADE database.

Notes: .. = Unknown or zero.

Other East Asian countries/areas: Democratic People's Republic of Korea and Macau.

Other South Asian countries/areas: Nepal and Maldives.

Other Indo-China countries/areas: Cambodia and Lao People's Democratic Republic.

Central Asian countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Other Pacific islands countries: Fiji, Kiribati, the Marshall Islands, Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, American Samoa, the Commonwealth of the Northern Mariana Islands, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue, and Palau.

Other countries/areas of the ESCAP region: Afghanistan, Bhutan, Brunei Darussalam, the Islamic Republic of Iran, Mongolia, and Myanmar.

Table 5. Matrix of intraregional trade in coffee by country and area, 1992
(Thousands of US dollars)

| Exporting country/area | To East Asia | | | | To South-East Asia | | | | | | To South Asia | | | | | To Indo-China | | | To Pacific islands | | | To developed economies | | | | To non-regional economies | | Total exports | | | |
|-------------------------------------|--------------|-------|-----------|---------------|--------------------|-----------|-----------|----------|-------------|-----------|---------------|-----------|------------|-------|----------|---------------|-------|-----------|--------------------|-------|-----------|------------------------|-------|--------------|--------------|---------------------------|-----------|---------------|--------|-------------|--------------------|
| | Sub-total | China | Hong Kong | Rep. of Korea | Other | Sub-total | Indonesia | Malaysia | Philippines | Singapore | Thailand | Sub-total | Bangladesh | India | Pakistan | Sri Lanka | Other | Sub-total | Viet Nam | Other | Sub-total | Papua New Guinea | Other | Central Asia | Other region | Sub-total | Australia | | Japan | New Zealand | regional economies |
| East Asia | 2,893 | 429 | 806 | 1,531 | 127 | 1,142 | 24 | 364 | 3 | 618 | 133 | 9 | 0 | .. | 9 | .. | .. | .. | .. | .. | 134 | .. | 134 | 2 | 34 | 114 | 80 | 32 | 2 | 5,750 | 10,078 |
| China | 1,059 | .. | 806 | 168 | 85 | 168 | 8 | 10 | 3 | 136 | 10 | 9 | .. | .. | 9 | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 10 | 20 | 19 | 1 | .. | 833 | 2,101 |
| Hong Kong | 168 | 126 | .. | .. | 42 | 2 | 1 | .. | .. | 1 | .. | 0 | .. | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 29 | .. | 29 | .. | 199 | |
| Rep. of Korea | 1,424 | 66 | .. | 1,358 | .. | 972 | 15 | 354 | 0 | 481 | 123 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | 134 | .. | 134 | .. | 23 | 64 | 61 | 1 | 2 | 4,917 | 7,535 |
| Other | 242 | 238 | .. | 5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 242 | |
| South-East Asia | 16,118 | 844 | 11,568 | 3,511 | 195 | 23,719 | 245 | 6,895 | .. | 16,563 | 16 | 636 | 201 | 8 | 184 | 430 | 12 | .. | .. | .. | 179 | 23 | 156 | .. | 499 | 95,909 | 81,474 | 11,389 | 3,046 | 203,927 | 341,186 |
| Indonesia | 6,634 | 645 | 4,980 | 940 | 69 | 11,739 | .. | 2,932 | .. | 8,808 | .. | 429 | .. | .. | .. | 429 | .. | .. | .. | .. | 23 | 23 | .. | .. | .. | 75,725 | 67,918 | 6,393 | 1,414 | 160,303 | 254,854 |
| Malaysia | 128 | 104 | .. | .. | 24 | 1,254 | .. | .. | .. | 1,254 | 1 | 333 | 187 | .. | 145 | .. | .. | .. | .. | .. | 3 | .. | 3 | .. | .. | 5 | .. | 4 | 0 | .. | 1,722 |
| Philippines | 27 | 14 | .. | 13 | .. | 1,541 | .. | 280 | .. | 1,262 | .. | 2 | 2 | .. | .. | .. | .. | .. | .. | .. | 105 | 0 | 105 | .. | 19 | 828 | 825 | 99 | 5 | 610 | 3,234 |
| Singapore | 1,466 | 56 | 978 | 376 | 56 | 3,944 | 245 | 3,684 | .. | .. | 15 | 55 | 12 | 8 | 22 | 1 | 12 | .. | .. | .. | 47 | .. | 47 | .. | 480 | 10,054 | 5,008 | 3,418 | 1,627 | 43,013 | 59,059 |
| Thailand | 7,863 | 25 | 5,609 | 2,182 | 47 | 5,240 | .. | .. | .. | 5,240 | .. | 17 | .. | .. | 17 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9,197 | 7,722 | 1,474 | .. | .. | 22,317 |
| South Asia | 3,144 | 83 | 2,260 | 172 | 629 | 1,443 | 28 | 1 | .. | 1,414 | .. | 219 | .. | .. | 3 | .. | 216 | .. | .. | .. | 121 | .. | 121 | .. | .. | 7,802 | 6,222 | 1,417 | 163 | 133,584 | 146,314 |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 3 |
| India | 3,116 | 83 | 2,260 | 144 | 629 | 1,324 | 28 | 0 | .. | 1,295 | .. | 212 | .. | .. | 3 | .. | 208 | .. | .. | .. | 120 | .. | 120 | .. | .. | 7,706 | 6,210 | 1,333 | 163 | 132,629 | 145,107 |
| Pakistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Sri Lanka | 28 | .. | 0 | 28 | .. | 119 | .. | 0 | .. | 119 | .. | 8 | .. | .. | .. | .. | 8 | .. | .. | .. | 0 | .. | 0 | .. | .. | 93 | 9 | 84 | .. | 952 | 1,200 |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | 3 | .. | .. | .. | 3 |
| Indo-China | 1,203 | 808 | 278 | 117 | .. | 562 | 562 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8,981 | 4,117 | 4,723 | 140 | .. | 10,746 |
| Viet Nam | 482 | 86 | 278 | 117 | .. | 562 | 562 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8,981 | 4,117 | 4,723 | 140 | .. | 10,024 |
| Other | 722 | 722 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 722 |
| Pacific islands | 1,682 | 90 | 925 | 667 | 1 | 927 | .. | .. | .. | 927 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 642 | .. | 642 | .. | .. | 25,090 | 774 | 21,670 | 2,647 | 43,009 | 71,351 |
| Papua New Guinea | 1,682 | 90 | 925 | 667 | 1 | 927 | .. | .. | .. | 927 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 633 | .. | 633 | .. | .. | 25,011 | 774 | 21,594 | 2,642 | 42,993 | 71,246 |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9 | .. | 9 | .. | .. | 80 | .. | 75 | 5 | 17 | 105 |
| Central Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 60 | 60 | .. | .. | .. | 60 |
| Other economies of the ESCAP region | 11 | 11 | .. | .. | .. | 25 | .. | .. | .. | 25 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | 2 | .. | .. | .. | 38 |
| Developed economies | 12,598 | 118 | 848 | 10,558 | 1,075 | 1,172 | 28 | 253 | .. | 816 | 74 | 6 | .. | .. | 6 | .. | .. | 18 | 3 | 16 | 2,074 | 1,299 | 775 | .. | 2 | 2,363 | 49 | 179 | 2,134 | 13,862 | 32,096 |
| Australia | 10,962 | 81 | 4 | 9,947 | 950 | 971 | 26 | 247 | .. | 630 | 68 | 5 | .. | .. | 5 | .. | .. | 3 | 3 | .. | 1,860 | 1,295 | 564 | .. | .. | 2,183 | 49 | .. | 2,134 | 527 | 16,511 |
| Japan | 1,635 | 56 | 843 | 611 | 124 | 201 | 1 | 6 | .. | 187 | 7 | 1 | .. | .. | 6 | .. | .. | 16 | .. | 16 | 50 | .. | 50 | .. | 2 | 150 | .. | 149 | 1 | 13,329 | 15,383 |
| New Zealand | 2 | 1 | .. | .. | 1 | 1 | 1 | .. | .. | 0 | .. | 0 | .. | .. | 0 | .. | .. | .. | .. | .. | 164 | 4 | 161 | .. | .. | 30 | .. | 30 | .. | 6 | 203 |
| Non-regional economies | 86,749 | 4,288 | 69,373 | 12,287 | 801 | 65,814 | 258 | .. | 19 | 63,078 | 2,460 | 1,529 | 152 | .. | 229 | 1,147 | .. | .. | .. | .. | 6 | .. | 6 | .. | .. | 534,766 | 470,302 | 50,768 | 4,696 | .. | 688,864 |
| Total imports | 124,399 | 6,670 | 86,058 | 28,843 | 2,827 | 94,804 | 1,145 | 7,512 | 22 | 83,442 | 2,683 | 2,599 | 353 | 8 | 433 | 1,577 | 228 | 18 | 3 | 16 | 3,155 | 1,322 | 1,833 | 2 | 535 | 675,087 | 572,081 | 90,177 | 12,829 | 400,133 | |

Source: United Nations, COMTRADE database.

Notes: .. = Unknown or zero.

Other East Asian countries/areas: Democratic People's Republic of Korea and Macau.

Other South Asian countries/areas: Nepal and Maldives.

Other Indo-China countries/areas: Cambodia and Lao People's Democratic Republic.

Central Asian countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Other Pacific islands countries: Fiji, Kiribati, the Marshall Islands, Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, American Samoa, the Commonwealth of the Northern Mariana Islands, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue, and Palau.

Other countries/areas of the ESCAP region: Afghanistan, Bhutan, Brunei Darussalam, the Islamic Republic of Iran, Mongolia, and Myanmar.

Table 6. Matrix of intraregional trade in cocoa by country and area, 1992
(Thousands of US dollars)

| Exporting country/area | To East Asia | | | | To South-East Asia | | | | | | To South Asia | | | | | To Indo-China | | | To Pacific islands | | | To Central Asia | To other region | To developed economies | | | To non-regional economies | Total exports | | | |
|-------------------------------------|--------------|--------|-----------|---------------|--------------------|-----------|-----------|----------|-------------|-----------|---------------|-----------|------------|-------|----------|---------------|-------|-----------|--------------------|-------|-----------|-----------------|-----------------|------------------------|-------|-----------|---------------------------|---------------|-----------|---------|-------------|
| | Sub-total | China | Hong Kong | Rep. of Korea | Other | Sub-total | Indonesia | Malaysia | Philippines | Singapore | Thailand | Sub-total | Bangladesh | India | Pakistan | Sri Lanka | Other | Sub-total | Viet Nam | Other | Sub-total | | | Papua New Guinea | Other | Sub-total | | | Australia | Japan | New Zealand |
| East Asia | 395 | 189 | .. | 200 | 6 | 399 | 0 | 69 | .. | 325 | 4 | 62 | .. | 15 | 48 | .. | .. | .. | .. | .. | 8 | .. | 8 | .. | 14 | 274 | 196 | 78 | .. | 27,202 | 28,353 |
| China | 203 | .. | .. | 200 | 4 | 390 | 0 | 69 | .. | 316 | 4 | 62 | .. | 15 | 48 | .. | .. | .. | .. | .. | 8 | .. | 8 | .. | 14 | 237 | 159 | 78 | .. | 27,198 | 28,113 |
| Hong Kong | 191 | 189 | .. | .. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 191 | |
| Rep. of Korea | .. | .. | .. | .. | .. | 8 | .. | .. | .. | 8 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 49 | |
| Other | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | |
| South-East Asia | 34,119 | 30,314 | 3,269 | 507 | 30 | 144,617 | 634 | 2,072 | 9,995 | 124,495 | 7,421 | 976 | 185 | .. | 237 | 554 | 1 | .. | .. | .. | 5 | .. | 5 | .. | 13 | 66,636 | 18,875 | 40,372 | 7,389 | 259,307 | 505,673 |
| Indonesia | 3,517 | 3,401 | 27 | 61 | 28 | 49,291 | .. | 1,412 | 2,078 | 44,140 | 1,662 | 25 | .. | .. | 25 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,937 | 1,815 | 104 | 18 | 101,808 | 156,578 |
| Malaysia | 23,680 | 21,962 | 1,544 | 173 | 1 | 88,091 | 100 | .. | 4,813 | 79,629 | 3,550 | 232 | 157 | .. | 75 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 18,973 | 6,502 | 12,106 | 384 | .. | 130,975 |
| Philippines | 392 | .. | 392 | .. | .. | 589 | 23 | .. | .. | 566 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3,976 | 1,736 | 2,239 | .. | 7,898 | 12,854 |
| Singapore | 6,405 | 4,930 | 1,306 | 169 | .. | 6,053 | 511 | 660 | 2,671 | .. | 2,210 | 720 | 28 | .. | 137 | 554 | 1 | .. | .. | .. | 5 | .. | 5 | .. | 13 | 41,698 | 8,769 | 25,922 | 7,007 | 149,602 | 204,495 |
| Thailand | 125 | 21 | .. | 104 | 0 | 594 | 0 | .. | 433 | 160 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 53 | 53 | .. | .. | 772 | |
| South Asia | .. | .. | .. | .. | .. | 10 | .. | .. | .. | .. | 10 | 28 | 28 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 28 | 118 |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| India | .. | .. | .. | .. | .. | 10 | .. | .. | .. | .. | 10 | 28 | 28 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 52 | 52 | .. | .. | 90 |
| Pakistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Sri Lanka | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 28 | 28 |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Indo-China | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Viet Nam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pacific islands | .. | .. | .. | .. | .. | 13,897 | .. | .. | 458 | 13,439 | .. | 134 | .. | .. | 134 | .. | .. | .. | .. | .. | 37 | .. | 37 | .. | .. | 107 | .. | 15 | 92 | 25,256 | 39,432 |
| Papua New Guinea | .. | .. | .. | .. | .. | 13,594 | .. | .. | 458 | 13,136 | .. | 134 | .. | .. | 134 | .. | .. | .. | .. | .. | 23 | .. | 23 | .. | .. | 16 | .. | 9 | 7 | 24,932 | 38,699 |
| Other | .. | .. | .. | .. | .. | 303 | .. | .. | .. | 303 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 15 | .. | 15 | .. | .. | 91 | .. | 6 | 85 | 324 | 733 |
| Central Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other economies of the ESCAP region | 0 | .. | 0 | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 |
| Developed economies | 1,407 | 0 | 1,405 | .. | 2 | 4,798 | 23 | .. | .. | 4,760 | 14 | 2 | .. | .. | 2 | .. | .. | .. | .. | .. | 205 | 9 | 196 | .. | .. | 1,258 | 145 | 681 | 433 | 94 | 7,764 |
| Australia | 0 | 0 | .. | .. | .. | 446 | 16 | .. | .. | 430 | .. | 2 | .. | .. | 2 | .. | .. | .. | .. | .. | 94 | 9 | 85 | .. | .. | 156 | 145 | .. | 11 | 3 | 702 |
| Japan | 1,406 | .. | 1,405 | .. | 1 | 4,322 | 7 | .. | .. | 4,301 | 14 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | 0 | .. | .. | 1,100 | .. | 678 | 421 | 88 | 6,916 |
| New Zealand | 1 | .. | .. | .. | 1 | 30 | .. | .. | .. | 30 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 111 | .. | 111 | .. | .. | 2 | .. | 2 | .. | 3 | 147 |
| Non-regional economies | 22,132 | 4,596 | 17,456 | 72 | 8 | 10,276 | 400 | .. | 537 | 8,277 | 1,062 | 320 | 51 | .. | 269 | .. | .. | .. | .. | .. | 82 | .. | 82 | .. | .. | 135,818 | 120,797 | 12,471 | 2,549 | .. | 168,627 |
| Total imports | 58,053 | 35,099 | 22,130 | 778 | 45 | 173,996 | 1,058 | 2,141 | 10,990 | 151,297 | 8,511 | 1,524 | 264 | 15 | 690 | 554 | 1 | .. | .. | .. | 337 | 9 | 328 | .. | 28 | 204,144 | 140,065 | 53,617 | 10,463 | 311,887 | |

Source: United Nations, COMTRADE database.

Notes: .. = Unknown or zero.

Other East Asian countries/areas: Democratic People's Republic of Korea and Macau.

Other South Asian countries/areas: Nepal and Maldives.

Other Indo-China countries/areas: Cambodia and Lao People's Democratic Republic.

Central Asian countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Other Pacific islands countries: Fiji, Kiribati, the Marshall Islands, Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, American Samoa, the Commonwealth of the Northern Mariana Islands, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue, and Palau.

Other countries/areas of the ESCAP region: Afghanistan, Bhutan, Brunei Darussalam, the Islamic Republic of Iran, Mongolia, and Myanmar.

Table 7. Matrix of intraregional trade in cocoa beans by country and area, 1992
(Thousands of US dollars)

| Exporting country/area | To East Asia | | | | | To South-East Asia | | | | | To South Asia | | | | | To Indo-China | | | To Pacific islands | | | To Central Asia | To other region | To developed economies | | | | To non-regional economies | Total exports | | | | | |
|-------------------------------------|--------------|--------|-----------|---------------|-------|--------------------|-----------|----------|-------------|-----------|---------------|-----------|------------|-------|----------|---------------|-------|-----------|--------------------|-------|-----------|------------------|-----------------|------------------------|-----------|-------|-------------|---------------------------|---------------|--------|----|-----|---------|--------|
| | Sub-total | China | Hong Kong | Rep. of Korea | Other | Sub-total | Indonesia | Malaysia | Philippines | Singapore | Thailand | Sub-total | Bangladesh | India | Pakistan | Sri Lanka | Other | Sub-total | Viet Nam | Other | Sub-total | Papua New Guinea | Other | Sub-total | Australia | Japan | New Zealand | regional | Total | | | | | |
| East Asia | 141 | 139 | .. | 2 | 1 | .. | .. | .. | .. | .. | 48 | .. | .. | 48 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 188 | | | | |
| China | 2 | .. | .. | 2 | .. | .. | .. | .. | .. | .. | 48 | .. | .. | 48 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 49 | | | | | |
| Hong Kong | 139 | 139 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 139 | | | | | |
| Rep. of Korea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | | |
| South-East Asia | 35,019 | 34,810 | 181 | .. | 28 | 139,669 | .. | 1,596 | 11,092 | 120,250 | 6,731 | 667 | .. | .. | 114 | 553 | .. | .. | .. | .. | .. | .. | .. | 4,304 | 4,264 | 41 | .. | 196,366 | 376,026 | | | | | |
| Indonesia | 3,399 | 3,371 | .. | .. | 28 | 48,863 | .. | 1,412 | 1,918 | 43,877 | 1,657 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,295 | 1,277 | 18 | .. | 78,077 | 131,634 | | | | | |
| Malaysia | 21,804 | 21,623 | 181 | .. | .. | 83,605 | .. | .. | 4,779 | 76,137 | 2,689 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2,814 | 2,814 | .. | .. | 108,223 | | | | | | |
| Philippines | .. | .. | .. | .. | .. | 236 | .. | .. | .. | 236 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 236 | | | | | | |
| Singapore | 9,816 | 9,816 | .. | .. | .. | 6,965 | .. | 185 | 4,396 | .. | 2,385 | 667 | .. | .. | 114 | 553 | .. | .. | .. | .. | .. | .. | .. | 196 | 172 | 23 | .. | 118,268 | 135,932 | | | | | |
| Thailand | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | | |
| South Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 28 | 28 | | | | |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| India | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| Pakistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| Sri Lanka | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 28 | 28 | | | | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| Indo-China | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| Viet Nam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| Pacific islands | .. | .. | .. | .. | .. | 13,897 | .. | .. | 458 | 13,439 | .. | 134 | .. | .. | 134 | .. | .. | .. | .. | .. | .. | .. | .. | 36 | .. | 36 | .. | .. | 107 | .. | 15 | 92 | 25,256 | 39,431 |
| Papua New Guinea | .. | .. | .. | .. | .. | 13,594 | .. | .. | 458 | 13,136 | .. | 134 | .. | .. | 134 | .. | .. | .. | .. | .. | .. | .. | .. | 23 | .. | 23 | .. | .. | 16 | .. | 9 | 7 | 24,932 | 38,699 |
| Other | .. | .. | .. | .. | .. | 303 | .. | .. | .. | 303 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 13 | .. | 13 | .. | .. | 91 | .. | 6 | 85 | 324 | 731 |
| Central Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | |
| Other economies of the ESCAP region | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Developed economies | .. | .. | .. | .. | .. | 13 | 13 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 13 | |
| Australia | .. | .. | .. | .. | .. | 13 | 13 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 13 | |
| Japan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| New Zealand | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Non-regional economies | 8,614 | 4,520 | 4,084 | .. | .. | 5,674 | 96 | .. | 226 | 5,352 | .. | 266 | .. | .. | 266 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 81,639 | |
| Total imports | 43,774 | 39,468 | 4,275 | 2 | 29 | 159,254 | 109 | 1,596 | 11,776 | 139,041 | 6,731 | 1,115 | .. | .. | 562 | 553 | .. | .. | .. | .. | .. | .. | .. | 36 | .. | 36 | .. | .. | 71,496 | 71,143 | 77 | 276 | 221,650 | |

Source: United Nations, COMTRADE database.

Notes: .. = Unknown or zero.

Other East Asian countries/areas: Democratic People's Republic of Korea and Macau.

Other South Asian countries/areas: Nepal and Maldives.

Other Indo-China countries/areas: Cambodia and Lao People's Democratic Republic.

Central Asian countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Other Pacific islands countries: Fiji, Kiribati, the Marshall Islands, Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, American Samoa, the Commonwealth of the Northern Mariana Islands, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue, and Palau.

Other countries/areas of the ESCAP region: Afghanistan, Bhutan, Brunei Darussalam, the Islamic Republic of Iran, Mongolia, and Myanmar.

Table 8. Matrix of intraregional trade in cocoa powder by country and area, 1992
(Thousands of US dollars)

| Exporting country/area | To East Asia | | | | | To South-East Asia | | | | | To South Asia | | | | | To Indo-China | | | To Pacific islands | | | To Central Asia | To other region | To developed economies | | | | To non-regional economies | Total exports | | | | | | | |
|-------------------------------------|--------------|-------|-----------|---------------|-------|--------------------|-----------|----------|-------------|-----------|---------------|-----------|------------|-------|----------|---------------|-------|-----------|--------------------|-------|-----------|-----------------|-----------------|------------------------|-------|-----------|-----------|---------------------------|---------------|-------|-------------|-------|----|----|-----|-----|
| | Sub-total | China | Hong Kong | Rep. of Korea | Other | Sub-total | Indonesia | Malaysia | Philippines | Singapore | Thailand | Sub-total | Bangladesh | India | Pakistan | Sri Lanka | Other | Sub-total | Viet Nam | Other | Sub-total | | | Papua New Guinea | Other | Sub-total | Australia | | | Japan | New Zealand | | | | | |
| East Asia | 66 | 50 | .. | 12 | 4 | 13 | .. | 0 | .. | 8 | 4 | 15 | .. | 15 | .. | .. | .. | .. | .. | .. | 8 | .. | 8 | .. | .. | .. | .. | .. | .. | .. | 2,487 | 2,577 | | | | |
| China | 16 | .. | .. | 12 | 4 | 4 | .. | 0 | .. | .. | 4 | 15 | .. | 15 | .. | .. | .. | .. | .. | .. | 8 | .. | 8 | .. | .. | .. | .. | .. | .. | 2,483 | 2,514 | | | | | |
| Hong Kong | 50 | 49 | .. | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 50 | | | | | |
| Rep. of Korea | .. | .. | .. | .. | 8 | .. | .. | .. | .. | 8 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 12 | | | | | |
| Other | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | | | | | |
| South-East Asia | 1,859 | 322 | 1,077 | 459 | 1 | 5,638 | 573 | 374 | 798 | 2,116 | 1,777 | 161 | 91 | .. | 89 | 1 | .. | .. | .. | .. | 4 | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| Indonesia | 148 | 60 | 27 | 61 | .. | 165 | .. | .. | .. | 155 | 10 | 8 | .. | .. | 8 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| Malaysia | 592 | 234 | 228 | 129 | 1 | 2,508 | 42 | .. | 34 | 1,674 | 758 | 119 | 63 | .. | 56 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| Philippines | 108 | .. | 108 | .. | .. | 190 | 23 | .. | .. | 167 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| Singapore | 886 | 7 | 714 | 165 | .. | 2,340 | 508 | 374 | 449 | .. | 1,009 | 35 | 28 | .. | 6 | 1 | .. | .. | .. | .. | 4 | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| Thailand | 125 | 21 | .. | 104 | 0 | 435 | 0 | .. | 315 | 119 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| South Asia | .. | .. | .. | .. | .. | 10 | .. | .. | .. | .. | 10 | 3 | 3 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 13 | | | |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| India | .. | .. | .. | .. | .. | 10 | .. | .. | .. | .. | 10 | 3 | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 13 | | |
| Pakistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | |
| Sri Lanka | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | |
| Indo-China | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | |
| Viet Nam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Pacific islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | 1 |
| Papua New Guinea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | 1 |
| Central Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Other economies of the ESCAP region | 0 | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | |
| Developed economies | 73 | 0 | 71 | .. | 2 | 228 | 3 | .. | .. | 225 | 0 | 2 | .. | .. | 2 | .. | .. | .. | .. | .. | 205 | 9 | 198 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 804 |
| Australia | 0 | 0 | .. | .. | .. | 6 | 3 | .. | .. | 3 | .. | 2 | .. | .. | 2 | .. | .. | .. | .. | .. | 94 | 9 | 85 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 262 |
| Japan | 72 | .. | 71 | .. | 1 | 220 | .. | .. | .. | 220 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 424 | |
| New Zealand | 1 | .. | .. | .. | 1 | 1 | .. | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 111 | .. | 111 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 118 | |
| Non-regional economies | 3,137 | 20 | 3,052 | 57 | 8 | 2,681 | 256 | .. | 289 | 1,223 | 914 | 51 | 51 | .. | 0 | .. | .. | .. | .. | .. | 81 | .. | 81 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Total imports | 5,135 | 391 | 4,200 | 528 | 15 | 8,570 | 831 | 375 | 1,087 | 3,572 | 2,705 | 233 | 145 | 15 | 72 | 1 | 0 | .. | .. | .. | 300 | 9 | 290 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |

Source: United Nations, COMTRADE database.

Notes: .. = Unknown or zero.

Other East Asian countries/areas: Democratic People's Republic of Korea and Macau.

Other South Asian countries/areas: Nepal and Maldives.

Other Indo-China countries/areas: Cambodia and Lao People's Democratic Republic.

Central Asian countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Other Pacific islands countries: Fiji, Kiribati, the Marshall Islands, Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, American Samoa, the Commonwealth of the Northern Mariana Islands, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue, and Palau.

Other countries/areas of the ESCAP region: Afghanistan, Bhutan, Brunei Darussalam, the Islamic Republic of Iran, Mongolia, and Myanmar.

Table 9. Matrix of intraregional trade in vegetable oils by country and area, 1992
(Thousands of US dollars)

| Exporting country/area | To East Asia | | | | | To South-East Asia | | | | | To South Asia | | | | | To Indo-China | | | To Pacific islands | | | To Central Asia | To other region | To developed economies | | | | To non-regional economies | Total exports | | | |
|-------------------------------------|--------------|---------|-----------|---------------|--------|--------------------|-----------|----------|-------------|-----------|---------------|-----------|------------|-------|----------|---------------|-------|-----------|--------------------|-------|-----------|-----------------|-----------------|------------------------|-------|-----------|-----------|---------------------------|---------------|-----------|-------------|--------|
| | Sub-total | China | Hong Kong | Rep. of Korea | Other | Sub-total | Indonesia | Malaysia | Philippines | Singapore | Thailand | Sub-total | Bangladesh | India | Pakistan | Sri Lanka | Other | Sub-total | Viet Nam | Other | Sub-total | | | Papua New Guinea | Other | Sub-total | Australia | | | Japan | New Zealand | |
| East Asia | 79,641 | 15,860 | 6,440 | 51,583 | 5,758 | 7,118 | 316 | 1,089 | 387 | 2,309 | 3,017 | 463 | 40 | 84 | 27 | 312 | .. | 29 | 29 | .. | 107 | 2 | 105 | 517 | 143 | 25,325 | 23,581 | 1,470 | 274 | 42,147 | 155,490 | |
| China | 60,995 | .. | 6,387 | 51,469 | 3,139 | 6,261 | 244 | 1,077 | 21 | 1,913 | 3,005 | 454 | 40 | 84 | 23 | 307 | .. | .. | .. | .. | 18 | .. | 18 | 517 | 140 | 20,133 | 19,117 | 840 | 176 | 38,591 | 127,108 | |
| Hong Kong | 18,394 | 15,723 | 53 | .. | 2,618 | 852 | 68 | 12 | 366 | 396 | 10 | 5 | .. | .. | .. | 5 | .. | 29 | 29 | .. | 89 | 2 | 87 | .. | 2 | 799 | 72 | 630 | 97 | 3,255 | 23,427 | |
| Rep. of Korea | 132 | 37 | .. | 94 | 1 | 5 | 4 | .. | .. | .. | 1 | 4 | .. | .. | 4 | .. | .. | .. | .. | .. | 0 | .. | 0 | .. | .. | 4,393 | 4,392 | .. | 1 | 301 | 4,835 | |
| Other | 120 | 100 | .. | 19 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 120 | |
| South-East Asia | 370,457 | 247,382 | 104,056 | 12,021 | 6,998 | 480,974 | 132,630 | 77,318 | 21,198 | 236,628 | 13,202 | 397,005 | 353,394 | 1,830 | 16,890 | 21,005 | 4,088 | .. | .. | .. | 3,900 | 1,635 | 2,265 | .. | 5,536 | 282,671 | 209,772 | 53,425 | 19,474 | 973,200 | 2,513,743 | |
| Indonesia | 37,385 | 31,444 | 5,902 | 39 | .. | 111,815 | .. | 54,461 | 397 | 56,956 | .. | 5,098 | .. | .. | 23 | 5,075 | .. | .. | .. | .. | 272 | 28 | 244 | .. | 504 | 27,932 | 9,026 | 15,501 | 3,405 | 475,340 | 658,345 | |
| Malaysia | 269,407 | 178,435 | 83,286 | 7,686 | .. | 306,331 | 112,174 | .. | 15,390 | 170,835 | 7,932 | 376,151 | 350,622 | .. | 13,046 | 12,484 | .. | .. | .. | .. | 183 | .. | 183 | .. | .. | 211,523 | 165,333 | 31,277 | 14,914 | .. | 1,163,595 | |
| Philippines | 17,047 | 3,255 | 12,825 | 968 | .. | 24,346 | 4,652 | 11,025 | .. | 8,668 | .. | 16 | .. | .. | 16 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 30,532 | 30,520 | 4 | 8 | 415,066 | 487,007 | |
| Singapore | 46,031 | 34,235 | 1,482 | 3,328 | 6,986 | 38,175 | 15,664 | 11,832 | 5,409 | .. | 5,270 | 15,677 | 2,711 | 1,830 | 3,621 | 3,428 | 4,086 | .. | .. | .. | 3,446 | 1,607 | 1,839 | .. | 5,032 | 10,046 | 2,484 | 6,449 | 1,113 | 82,793 | 201,200 | |
| Thailand | 586 | 13 | 562 | .. | 11 | 309 | 139 | .. | 1 | 168 | .. | 63 | 62 | .. | 0 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2,638 | 2,410 | 194 | 34 | .. | 3,596 | |
| South Asia | 921 | 468 | 453 | .. | .. | 195 | .. | 67 | .. | 128 | .. | 5,698 | 35 | 2,108 | 20 | 3,468 | 67 | .. | .. | .. | 0 | .. | 0 | .. | 26 | 8,327 | 8,157 | 151 | 19 | 38,769 | 53,935 | |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| India | 783 | 330 | 453 | .. | .. | 195 | .. | 67 | .. | 128 | .. | 97 | 35 | 45 | 16 | .. | .. | .. | .. | .. | 0 | .. | 0 | .. | 26 | 8,314 | 8,157 | 139 | 19 | 38,502 | 47,918 | |
| Pakistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | .. | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 29 | 33 | |
| Sri Lanka | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2,280 | 0 | 2,062 | .. | 151 | 67 | .. | .. | .. | .. | .. | .. | .. | .. | 12 | .. | 12 | 0 | 237 | 2,530 | |
| Other | 138 | 138 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3,317 | .. | .. | .. | 3,317 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3,455 | |
| Indo-China | 8,999 | 8,203 | .. | 796 | .. | .. | .. | .. | .. | .. | .. | 95 | 95 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 430 | 430 | .. | .. | .. | 9,524 | |
| Viet Nam | 8,999 | 8,203 | .. | 796 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 430 | 430 | .. | .. | .. | 9,429 | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 95 | 95 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 95 | |
| Pacific islands | .. | .. | .. | .. | .. | 2,275 | 786 | 1,086 | .. | 403 | .. | 10 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4,940 | .. | 4,240 | 700 | 84,833 | 92,270 |
| Papua New Guinea | .. | .. | .. | .. | .. | 2,275 | 786 | 1,086 | .. | 403 | .. | 10 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 490 | .. | 490 | .. | 84,827 | 87,602 |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 212 | .. | 212 | .. | .. | .. | 4,450 | .. | 3,750 | 700 | 6 | 4,668 |
| Central Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Other economies of the ESCAP region | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Developed economies | 7,195 | 1,255 | 4,527 | 1,062 | 351 | 2,430 | 265 | 431 | 75 | 1,482 | 177 | 391 | 340 | .. | 7 | 44 | .. | 22 | 22 | .. | 798 | 233 | 564 | .. | 14 | 2,412 | 1,813 | 332 | 266 | 15,292 | 28,553 | |
| Australia | 3,850 | 293 | 3,435 | 98 | 24 | 738 | 100 | 2 | 5 | 582 | 49 | 37 | .. | .. | 0 | 37 | .. | .. | .. | .. | 292 | 232 | 81 | .. | .. | 2,066 | 1,813 | .. | 252 | 1,319 | 8,303 | |
| Japan | 3,341 | 958 | 1,092 | 964 | 327 | 1,682 | 165 | 424 | 67 | 899 | 127 | 354 | 340 | .. | 7 | 7 | .. | 22 | 22 | .. | 205 | .. | 205 | .. | 14 | 139 | .. | 126 | 14 | 13,939 | 19,697 | |
| New Zealand | 4 | 3 | .. | .. | 0 | 9 | 0 | 5 | 3 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 300 | 2 | 298 | .. | .. | 207 | .. | 207 | .. | 34 | 554 | |
| Non-regional economies | 285,817 | 190,554 | 28,323 | 78,458 | 482 | 53,178 | 2,389 | .. | 3,480 | 40,903 | 6,405 | 160,855 | 106,162 | .. | 275 | 54,418 | .. | .. | .. | .. | 4,175 | .. | 4,175 | .. | .. | 157,689 | 84,296 | 60,289 | 13,104 | .. | 671,715 | |
| Total imports | 763,030 | 463,722 | 143,800 | 141,920 | 13,588 | 546,170 | 136,386 | 79,991 | 25,140 | 281,853 | 22,800 | 564,516 | 460,076 | 4,022 | 17,019 | 79,246 | 4,153 | 51 | 51 | .. | 9,194 | 1,870 | 7,324 | 517 | 5,718 | 481,794 | 328,050 | 119,907 | 33,837 | 1,154,240 | | |

Source: United Nations, COMTRADE database.

Notes: .. = Unknown or zero.

Other East Asian countries/areas: Democratic People's Republic of Korea and Macau.

Other South Asian countries/areas: Nepal and Maldives.

Other Indo-China countries/areas: Cambodia and Lao People's Democratic Republic.

Central Asian countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Other Pacific islands countries: Fiji, Kiribati, the Marshall Islands, Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, American Samoa, the Commonwealth of the Northern Mariana Islands, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue, and Palau.

Other countries/areas of the ESCAP region: Afghanistan, Bhutan, Brunei Darussalam, the Islamic Republic of Iran, Mongolia, and Myanmar.

Table 10. Matrix of intraregional trade in spices by country and area, 1992
(Thousands of US dollars)

| Exporting country/area | To East Asia | | | | | To South-East Asia | | | | | To South Asia | | | | | To Indo-China | | | To Pacific islands | | | To Central Asia | To other region | To developed economies | | | To non-regional economies | Total exports | | | |
|-------------------------------------|--------------|--------|-----------|---------------|-------|--------------------|-----------|----------|-------------|-----------|---------------|-----------|------------|-------|----------|---------------|-------|-----------|--------------------|-------|-----------|------------------|-----------------|------------------------|-----------|---------|---------------------------|--------------------|---------------|---------|---------|
| | Sub-total | China | Hong Kong | Rep. of Korea | Other | Sub-total | Indonesia | Malaysia | Philippines | Singapore | Thailand | Sub-total | Bangladesh | India | Pakistan | Sri Lanka | Other | Sub-total | Viet Nam | Other | Sub-total | Papua New Guinea | Other | Sub-total | Australia | Japan | New Zealand | regional economies | Total exports | | |
| East Asia | 40,643 | 439 | 8,840 | 31,126 | 237 | 34,202 | 925 | 1,793 | 152 | 29,706 | 1,627 | 3,499 | 1,715 | 131 | 521 | 997 | 135 | 97 | 0 | 97 | 152 | 0 | 152 | 12 | 166 | 29,499 | 29,093 | 349 | 57 | 18,952 | 127,222 |
| China | 40,174 | .. | 8,840 | 31,107 | 227 | 32,778 | 437 | 1,793 | 53 | 28,870 | 1,625 | 3,270 | 1,521 | 131 | 513 | 970 | 135 | 97 | .. | 97 | 143 | 0 | 142 | 12 | 164 | 26,148 | 25,851 | 256 | 40 | 17,825 | 120,610 |
| Hong Kong | 359 | 348 | 0 | .. | 11 | 856 | 41 | .. | 98 | 715 | 2 | 217 | 185 | .. | 5 | 27 | .. | .. | .. | .. | 4 | .. | 4 | .. | .. | 165 | 86 | 72 | 7 | 303 | 1,905 |
| Rep. of Korea | 95 | 87 | .. | 8 | .. | 568 | 446 | .. | 0 | 121 | .. | 12 | 10 | .. | 2 | 0 | .. | 0 | 0 | .. | 6 | .. | 6 | .. | .. | 3,186 | 3,155 | 20 | 10 | 782 | 4,651 |
| Other | 15 | 4 | .. | 11 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 42 | 57 |
| South-East Asia | 15,181 | 1,713 | 5,353 | 8,105 | 10 | 59,036 | 764 | 12,828 | 558 | 44,427 | 459 | 22,954 | 7,363 | 7,200 | 720 | 5,420 | 2,250 | 24 | 24 | .. | 322 | 42 | 280 | .. | 4,168 | 58,844 | 54,145 | 4,046 | 652 | 163,638 | 324,168 |
| Indonesia | 4,629 | 597 | 760 | 3,266 | 5 | 34,371 | .. | 2,130 | .. | 32,005 | 236 | 1,447 | 1,036 | .. | 16 | 395 | .. | 24 | 24 | .. | 28 | 18 | 10 | .. | 0 | 11,570 | 10,191 | 1,334 | 45 | 93,079 | 145,147 |
| Malaysia | 3,009 | 29 | 2,699 | 280 | .. | 10,674 | 84 | .. | 5 | 10,585 | 1 | 1,952 | 1,946 | .. | 6 | .. | .. | .. | .. | .. | 7 | .. | 7 | .. | .. | 8,584 | 7,520 | 771 | 293 | .. | 24,226 |
| Philippines | 115 | 89 | .. | 28 | .. | 17 | 15 | .. | 2 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9 | 0 | 8 | .. | .. | 28 | 17 | 10 | 0 | 106 | 274 |
| Singapore | 5,444 | 231 | 1,894 | 3,317 | 2 | 11,984 | 514 | 10,698 | 550 | .. | 222 | 19,379 | 4,219 | 7,200 | 691 | 5,018 | 2,250 | .. | .. | .. | 279 | 24 | 254 | .. | 4,168 | 4,148 | 2,603 | 1,305 | 239 | 70,453 | 115,855 |
| Thailand | 1,985 | 766 | .. | 1,216 | 3 | 1,989 | 151 | .. | 3 | 1,836 | .. | 177 | 163 | .. | 7 | 7 | .. | .. | .. | .. | 0 | .. | 0 | .. | .. | 34,514 | 33,813 | 626 | 75 | .. | 38,666 |
| South Asia | 1,471 | 123 | 336 | 1,001 | 11 | 9,269 | 921 | 2,452 | 80 | 5,732 | 83 | 21,423 | 3,581 | 1,484 | 10,001 | 5,495 | 863 | 60 | .. | 60 | 176 | .. | 176 | .. | 674 | 8,036 | 6,260 | 1,329 | 448 | 140,870 | 181,979 |
| Bangladesh | .. | .. | .. | .. | .. | 129 | .. | .. | .. | 129 | .. | 893 | 264 | .. | 621 | 8 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 127 | 1,150 |
| India | 898 | 24 | 268 | 601 | 5 | 8,751 | 917 | 2,438 | 50 | 5,314 | 31 | 13,357 | 2,920 | 1,137 | 8,515 | .. | 786 | .. | .. | .. | 162 | .. | 162 | .. | 626 | 7,076 | 5,805 | 918 | 352 | 85,459 | 116,332 |
| Pakistan | 528 | 96 | 27 | 400 | 6 | 183 | 4 | 14 | 7 | 157 | .. | 1,287 | .. | 272 | 864 | 160 | .. | .. | .. | .. | 14 | .. | 14 | .. | 12 | 352 | 277 | 75 | 0 | 16,572 | 18,958 |
| Sri Lanka | 41 | .. | 41 | .. | 0 | 206 | .. | 0 | 22 | 132 | 51 | 1,918 | 369 | 75 | .. | 1,396 | 77 | 60 | .. | 60 | .. | .. | .. | .. | 34 | 608 | 177 | 335 | 96 | 38,711 | 41,579 |
| Other | 3 | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3,958 | 28 | .. | .. | 3,930 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3,961 |
| Indo-China | 3,009 | 48 | 1,855 | 1,105 | .. | 382 | 349 | .. | .. | .. | 33 | 369 | 285 | .. | 30 | 54 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,210 | 1,171 | 38 | .. | .. | 4,969 |
| Viet Nam | 3,008 | 47 | 1,855 | 1,105 | .. | 382 | 349 | .. | .. | .. | 33 | 362 | 279 | .. | 30 | 54 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,210 | 1,171 | 38 | .. | .. | 4,962 |
| Other | 1 | 1 | .. | .. | .. | 0 | .. | .. | .. | .. | 0 | 6 | 6 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 7 |
| Pacific islands | .. | .. | .. | .. | .. | 81 | 14 | .. | .. | 67 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 145 | 0 | 145 | .. | .. | 647 | 106 | 179 | 362 | 2,416 | 3,280 |
| Papua New Guinea | .. | .. | .. | .. | .. | 81 | 14 | .. | .. | 67 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | .. | 112 | .. | 92 | 21 | 135 | 330 |
| Other | .. | .. | .. | .. | .. | 0 | .. | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 143 | 0 | 143 | .. | .. | 534 | 106 | 87 | 341 | 2,281 | 2,960 |
| Central Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other economies of the ESCAP region | 9,911 | 8,745 | 1,010 | 156 | .. | 16,982 | 1,573 | .. | .. | 15,394 | 15 | 3,143 | 1,228 | .. | 1,726 | 188 | .. | .. | .. | .. | 98 | .. | 98 | .. | .. | 3,073 | 2,755 | 283 | 35 | .. | 33,207 |
| Developed economies | 1,436 | 381 | 517 | 523 | 14 | 2,308 | 1,104 | 301 | 31 | 524 | 349 | 66 | 54 | .. | 12 | .. | .. | .. | .. | .. | 893 | 347 | 546 | .. | 13 | 1,692 | 461 | 234 | 997 | 2,267 | 8,675 |
| Australia | 81 | 73 | 1 | 6 | 1 | 1,911 | 1,085 | 243 | 12 | 281 | 290 | 11 | .. | .. | 11 | .. | .. | .. | .. | .. | 769 | 346 | 424 | .. | 13 | 1,409 | 438 | .. | 971 | 734 | 4,928 |
| Japan | 1,349 | 302 | 517 | 517 | 13 | 322 | 15 | 2 | 19 | 240 | 46 | 55 | 54 | .. | 1 | .. | .. | .. | .. | .. | 11 | .. | 11 | .. | .. | 245 | .. | 218 | 26 | 1,524 | 3,506 |
| New Zealand | 6 | 6 | .. | 0 | .. | 75 | 4 | 56 | 0 | 2 | 13 | 0 | .. | .. | 0 | .. | .. | .. | .. | .. | 112 | 2 | 111 | .. | .. | 39 | 23 | 16 | .. | 9 | 241 |
| Non-regional economies | 6,751 | 2,691 | 2,162 | 1,854 | 43 | 39,197 | 2,054 | .. | 928 | 35,903 | 312 | 6,139 | 1,992 | .. | 1,605 | 2,542 | .. | .. | .. | .. | 66 | .. | 66 | .. | .. | 41,952 | 35,930 | 5,238 | 784 | .. | 94,105 |
| Total imports | 78,401 | 14,140 | 20,075 | 43,871 | 316 | 161,457 | 7,703 | 17,374 | 1,749 | 131,754 | 2,878 | 57,593 | 16,219 | 8,815 | 14,615 | 14,695 | 3,248 | 181 | 24 | 157 | 1,852 | 390 | 1,462 | 12 | 5,022 | 144,953 | 129,920 | 11,697 | 3,335 | 328,143 | |

Source: United Nations, COMTRADE database.

Notes: .. = Unknown or zero.

Other East Asian countries/areas: Democratic People's Republic of Korea and Macau.

Other South Asian countries/areas: Nepal and Maldives.

Other Indo-China countries/areas: Cambodia and Lao People's Democratic Republic.

Central Asian countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Other Pacific islands countries: Fiji, Kiribati, the Marshall Islands, Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, American Samoa, the Commonwealth of the Northern Mariana Islands, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue, and Palau.

Other countries/areas of the ESCAP region: Afghanistan, Bhutan, Brunei Darussalam, the Islamic Republic of Iran, Mongolia, and Myanmar.

Table 11. Matrix of intraregional trade in pepper by country and area, 1992
(Thousands of US dollars)

| Exporting country/area | To East Asia | | | | | To South-East Asia | | | | | To South Asia | | | | | To Indo-China | | | To Pacific islands | | | To Central Asia | To other region | To developed economies | | | | To non-regional economies | Total exports | | | |
|-------------------------------------|--------------|-------|-----------|---------------|-------|--------------------|-----------|----------|-------------|-----------|---------------|-----------|------------|-------|----------|---------------|-------|-----------|--------------------|-------|-----------|------------------|-----------------|------------------------|-----|-----------|-----------|---------------------------|---------------|---------|---------|--------|
| | Sub-total | China | Hong Kong | Rep. of Korea | Other | Sub-total | Indonesia | Malaysia | Philippines | Singapore | Thailand | Sub-total | Bangladesh | India | Pakistan | Sri Lanka | Other | Sub-total | Viet Nam | Other | Sub-total | Papua New Guinea | Other | | | Sub-total | Australia | Japan | New Zealand | | | |
| East Asia | 18,945 | 93 | 6,861 | 12,142 | 49 | 23,222 | 651 | 1,055 | 20 | 20,387 | 1,109 | 20 | 10 | .. | 10 | 0 | .. | 8 | 0 | 8 | 27 | .. | 27 | 1 | 35 | 10,714 | 10,559 | 127 | 28 | 6,477 | 59,449 | |
| China | 18,837 | .. | 6,661 | 12,131 | 45 | 21,417 | 204 | 1,055 | 15 | 19,033 | 1,109 | 7 | .. | .. | 7 | .. | .. | 8 | .. | 8 | 20 | .. | 20 | 1 | 32 | 9,683 | 9,590 | 75 | 19 | 5,684 | 55,690 | |
| Hong Kong | 49 | 44 | .. | .. | 4 | 1,239 | .. | .. | 6 | 1,233 | .. | 1 | .. | .. | 1 | .. | .. | .. | .. | .. | 2 | .. | 2 | .. | .. | 122 | 73 | 46 | 2 | 60 | 1,471 | |
| Rep. of Korea | 48 | 48 | .. | 0 | .. | 567 | 446 | .. | .. | 120 | .. | 12 | 10 | .. | 2 | 0 | .. | 0 | 0 | .. | 5 | .. | 5 | .. | 2 | 909 | 896 | 6 | 7 | 734 | 2,277 | |
| Other | 11 | 1 | .. | 11 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 11 | |
| South-East Asia | 5,160 | 66 | 4,448 | 643 | 2 | 42,854 | 241 | 7,442 | 353 | 34,783 | 36 | 5,865 | 4,655 | 40 | 8 | 876 | 286 | .. | .. | .. | 43 | 1 | 42 | .. | 428 | 13,164 | 11,057 | 1,766 | 341 | 81,090 | 148,603 | |
| Indonesia | 458 | 27 | 274 | 157 | .. | 24,852 | .. | 169 | .. | 24,683 | .. | 430 | 328 | .. | .. | 102 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2,433 | 1,900 | 519 | 14 | 35,284 | 63,457 | |
| Malaysia | 2,738 | 17 | 2,699 | 22 | .. | 9,270 | 80 | .. | 5 | 9,185 | .. | 1,821 | 1,821 | .. | 0 | .. | .. | .. | .. | .. | 6 | .. | 6 | .. | .. | 7,920 | 7,117 | 545 | 258 | .. | 21,755 | |
| Philippines | 0 | 0 | .. | .. | .. | 1 | .. | .. | .. | 0 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | .. | 8 | .. | .. | 11 | 11 | 1 | 0 | 90 | 109 | |
| Singapore | 1,930 | 15 | 1,475 | 439 | 1 | 7,805 | 149 | 7,273 | 348 | .. | 35 | 3,486 | 2,378 | 40 | 8 | 775 | 286 | .. | .. | .. | 28 | 1 | 28 | .. | 428 | 2,382 | 1,804 | 527 | 52 | 45,717 | 61,776 | |
| Thailand | 33 | 7 | .. | 25 | 1 | 927 | 12 | .. | .. | 915 | .. | 128 | 128 | .. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 417 | 225 | 175 | 17 | .. | 1,505 | |
| South Asia | 101 | 7 | 2 | 92 | 0 | 1,563 | 31 | 129 | 42 | 1,361 | .. | 9,553 | 372 | 100 | 7,709 | 1,121 | 250 | .. | .. | .. | 40 | .. | 40 | .. | 5 | 1,465 | 1,106 | 307 | 51 | 48,328 | 61,056 | |
| Bangladesh | .. | .. | .. | .. | .. | 93 | .. | .. | .. | 93 | .. | 787 | 158 | .. | 621 | 8 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 880 |
| India | 101 | 7 | 2 | 92 | .. | 1,340 | 31 | 129 | 37 | 1,143 | .. | 6,856 | 25 | 100 | 6,499 | .. | 232 | .. | .. | .. | 35 | .. | 35 | .. | 5 | 1,188 | 921 | 216 | 50 | 46,644 | 56,169 | |
| Pakistan | .. | .. | .. | .. | .. | 130 | .. | .. | 5 | 124 | .. | 589 | .. | .. | 589 | .. | .. | .. | .. | .. | 5 | .. | 5 | .. | .. | 259 | 185 | 73 | 0 | .. | 983 | |
| Sri Lanka | 0 | .. | .. | .. | 0 | 0 | .. | 0 | .. | 0 | .. | 1,316 | 185 | .. | .. | 1,113 | 18 | .. | .. | .. | .. | .. | .. | .. | .. | 18 | .. | 17 | 1 | 1,684 | 3,019 | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | |
| Indo-China | 146 | 8 | 118 | 19 | .. | .. | .. | .. | .. | .. | .. | 269 | 269 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 32 | .. | 32 | .. | 447 |
| Viet Nam | 145 | 7 | 118 | 19 | .. | .. | .. | .. | .. | .. | .. | 263 | 263 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 32 | .. | 32 | .. | 440 |
| Other | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | 6 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 7 |
| Pacific islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | 0 | .. | .. | 84 | 11 | 48 | 24 | 26 | 110 | |
| Papua New Guinea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | 0 | .. | .. | 61 | .. | 44 | 17 | 24 | 86 | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | 0 | .. | .. | 22 | 11 | 4 | 7 | 1 | 24 | |
| Central Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other economies of the ESCAP region | 9,748 | 8,701 | 891 | 156 | .. | 4,097 | 289 | .. | .. | 3,807 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | .. | 4 | .. | .. | .. | .. | .. | .. | .. | .. | 13,849 |
| Developed economies | 175 | 38 | 49 | 85 | 4 | 93 | 30 | 2 | 5 | 53 | 3 | 54 | 54 | .. | 0 | .. | .. | .. | .. | .. | 62 | 13 | 49 | .. | .. | 211 | 2 | 120 | 90 | 270 | 866 | |
| Australia | 6 | 1 | 1 | 4 | .. | 36 | 25 | .. | .. | 10 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 46 | 13 | 33 | .. | .. | 88 | .. | .. | 88 | 43 | 219 | |
| Japan | 169 | 37 | 48 | 80 | 4 | 57 | 5 | 2 | 5 | 43 | 1 | 54 | 54 | .. | 0 | .. | .. | .. | .. | .. | 4 | .. | 4 | .. | .. | 119 | .. | 118 | 2 | 227 | 630 | |
| New Zealand | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | .. | .. | 12 | .. | 12 | .. | .. | 4 | 2 | 2 | .. | .. | 16 | |
| Non-regional economic | 1,940 | 92 | 1,462 | 367 | 20 | 13,974 | 36 | .. | 226 | 13,643 | 68 | 6 | .. | .. | 0 | 6 | .. | .. | .. | .. | 7 | .. | 7 | .. | .. | 12,483 | 6,638 | 3,394 | 451 | .. | 28,410 | |
| Total imports | 36,216 | 9,004 | 13,631 | 13,505 | 75 | 85,804 | 1,278 | 8,629 | 646 | 74,035 | 1,215 | 15,767 | 5,360 | 140 | 7,728 | 2,004 | 536 | 8 | 0 | 8 | 183 | 13 | 170 | 1 | 467 | 38,153 | 31,375 | 5,793 | 985 | 136,191 | | |

Source: United Nations, COMTRADE database.

.. = Unknown or zero.

Other East Asian countries/areas: Democratic People's Republic of Korea and Macau.

Other South Asian countries/areas: Nepal and Maldives.

Other Indo-China countries/areas: Cambodia and Lao People's Democratic Republic.

Central Asian countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Other Pacific islands countries: Fiji, Kiribati, the Marshall Islands, Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, American Samoa, the Commonwealth of the Northern Mariana Islands, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue, and Palau.

Other countries/areas of the ESCAP region: Afghanistan, Bhutan, Brunei Darussalam, the Islamic Republic of Iran, Mongolia, and Myanmar.

Table 12. Matrix of intraregional trade in natural rubber by country and area, 1992
(Thousands of US dollars)

| Exporting country/area | To East Asia | | | | | To South-East Asia | | | | | To South Asia | | | | | To Indo-China | | | To Pacific islands | | | To Central Asia | To other region | To developed economies | | | | To non-regional economies | Total exports | | | | | |
|-------------------------------------|--------------|---------|-----------|---------------|-------|--------------------|-----------|----------|-------------|-----------|---------------|-----------|------------|-------|----------|---------------|-------|-----------|--------------------|-------|-----------|-----------------|-----------------|------------------------|---------|-----------|-----------|---------------------------|---------------|-----------|-------------|-----|-----|--------|
| | Sub-total | China | Hong Kong | Rep. of Korea | Other | Sub-total | Indonesia | Malaysia | Philippines | Singapore | Thailand | Sub-total | Bangladesh | India | Pakistan | Sri Lanka | Other | Sub-total | Viet Nam | Other | Sub-total | | | Papua New Guinea | Other | Sub-total | Australia | | | Japan | New Zealand | | | |
| East Asia | 6,241 | 3,355 | .. | 1,818 | 1,068 | 349 | 97 | 7 | 171 | 27 | 47 | 475 | 249 | 8 | 4 | 211 | 4 | 3 | 3 | .. | 1 | .. | 1 | 86 | 51 | 35 | .. | 778 | 7,935 | | | | | |
| China | 2,848 | .. | .. | 1,787 | 1,061 | 1 | 1 | .. | .. | .. | .. | 303 | 90 | .. | .. | 209 | 4 | .. | .. | .. | .. | .. | .. | 17 | .. | 17 | .. | 571 | 3,740 | | | | | |
| Hong Kong | 2,120 | 2,112 | .. | .. | 8 | 1 | .. | .. | .. | 1 | 14 | 13 | .. | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | 1 | .. | 1 | .. | 2,136 | | | | | | |
| Rep. of Korea | 575 | 545 | .. | 30 | .. | 347 | 96 | 7 | 171 | 27 | 46 | 158 | 146 | 8 | 4 | .. | .. | 3 | 3 | .. | 1 | .. | 1 | 89 | 51 | 18 | .. | 208 | 1,360 | | | | | |
| Other | 698 | 697 | .. | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 696 | | | | | | |
| South-East Asia | 525,791 | 230,456 | 246,902 | 43,817 | 4,516 | 542,431 | 1,634 | 39,189 | 604 | 500,500 | 504 | 31,675 | 16,134 | 878 | 2 | 14,660 | .. | .. | .. | .. | .. | .. | .. | 15,948 | 623,511 | 581,882 | 36,873 | 4,756 | 1,131,467 | 2,870,822 | | | | |
| Indonesia | 48,914 | 11,774 | 35,920 | 1,018 | 203 | 233,450 | .. | 12,689 | 17 | 220,744 | .. | 2,166 | 2,004 | 127 | .. | 35 | .. | .. | .. | .. | .. | .. | .. | 103 | 79,672 | 64,363 | 14,302 | 1,007 | 708,890 | 1,073,196 | | | | |
| Malaysia | 208,468 | 64,517 | 128,967 | 14,984 | .. | 201,127 | 1,560 | .. | 326 | 198,803 | 438 | 13,585 | 8,438 | .. | .. | 5,148 | .. | .. | .. | .. | .. | .. | .. | .. | 100,500 | 81,818 | 15,852 | 2,830 | .. | 523,680 | | | | |
| Philippines | 287 | 56 | 231 | .. | .. | 4,992 | .. | 4,024 | .. | 968 | .. | 4 | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | 6 | .. | .. | 4,261 | 9,549 | | | | | |
| Singapore | 49,087 | 24,247 | 11,660 | 8,867 | 4,313 | 22,834 | 74 | 22,476 | 218 | .. | 65 | 7,249 | 5,433 | 751 | 2 | 1,063 | .. | .. | .. | .. | .. | .. | .. | 15,844 | 28,981 | 24,667 | 3,979 | 335 | 418,315 | 542,311 | | | | |
| Thailand | 219,034 | 129,861 | 70,125 | 19,048 | .. | 80,029 | .. | .. | 43 | 79,986 | .. | 8,671 | 256 | .. | 0 | 8,415 | .. | .. | .. | .. | .. | .. | .. | .. | 414,352 | 411,028 | 2,739 | 584 | .. | 722,084 | | | | |
| South Asia | 1,767 | 821 | 818 | 129 | .. | 7,700 | 17 | 191 | 96 | 6,578 | 816 | 13,205 | 8,152 | 1,613 | 1 | 3,236 | 203 | .. | .. | .. | .. | .. | .. | 1,299 | 3,559 | 3,506 | 30 | 23 | 46,404 | 75,935 | | | | |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| India | 348 | 164 | 184 | .. | .. | 5,818 | .. | .. | .. | 5,818 | .. | 9 | 5 | .. | 1 | .. | 3 | .. | .. | .. | .. | .. | .. | 5 | .. | .. | 5 | 219 | 6,399 | | | | | |
| Pakistan | 79 | 79 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 79 | | | | | |
| Sri Lanka | 1,330 | 568 | 633 | 129 | .. | 1,881 | 17 | 191 | 96 | 760 | 816 | 13,182 | 8,134 | 1,613 | .. | 3,238 | 199 | .. | .. | .. | .. | .. | .. | .. | 3,555 | 3,506 | 30 | 18 | 48,186 | 69,433 | | | | |
| Other | 10 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 13 | 13 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 24 | | | | | |
| Indo-China | 1,474 | 537 | 938 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,511 | | | | |
| Viet Nam | 1,291 | 353 | 938 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,327 | | | | |
| Other | 184 | 184 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 184 | | | | | |
| Pacific Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 184 | | | | |
| Papua New Guinea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,991 | 1,999 | | | |
| Other | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | | | | | |
| Central Asia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | | |
| Other economies of the ESCAP region | 431 | 27 | 404 | .. | .. | 9,797 | .. | .. | .. | 9,797 | .. | 1,485 | 1,189 | .. | .. | 296 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 11,712 | | | | |
| Developed economies | 499 | 338 | 110 | 37 | 15 | 175 | 81 | 6 | 55 | 16 | 17 | 122 | 98 | .. | 9 | 15 | .. | .. | .. | .. | .. | .. | .. | 27 | 12 | 15 | .. | .. | 827 | 34 | 49 | 744 | 184 | 1,833 |
| Australia | 32 | .. | .. | 32 | .. | 61 | 35 | 4 | 4 | 5 | 13 | 5 | .. | .. | 5 | .. | .. | .. | .. | .. | .. | .. | .. | 27 | 12 | 15 | .. | .. | 777 | 34 | .. | 743 | 25 | 927 |
| Japan | 467 | 338 | 110 | 5 | 15 | 111 | 46 | 2 | 48 | 11 | 4 | 117 | 98 | .. | 4 | 15 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 17 | .. | 16 | 1 | 159 | 871 | |
| New Zealand | .. | .. | .. | .. | .. | 3 | .. | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 32 | .. | 32 | .. | 36 | |
| Non-regional economies | 19,775 | 12,508 | 5,150 | 2,116 | 0 | 36,363 | 276 | .. | 37 | 35,939 | 112 | 846 | 755 | .. | 5 | 87 | .. | .. | .. | .. | .. | .. | .. | 83 | .. | 83 | .. | .. | 6,995 | 6,707 | 64 | 225 | .. | 64,063 |
| Total imports | 555,977 | 248,039 | 254,321 | 48,017 | 5,599 | 596,815 | 2,104 | 39,393 | 963 | 552,858 | 1,497 | 47,808 | 26,577 | 2,498 | 22 | 18,505 | 206 | 3 | 3 | .. | 111 | 12 | 98 | .. | 17,247 | 635,023 | 592,216 | 37,060 | 5,747 | 1,182,824 | | | | |

Source: United Nations, COMTRADE database.

Notes: .. = Unknown or zero.

Other East Asian countries/areas: Democratic People's Republic of Korea and Macau.

Other South Asian countries/areas: Nepal and Maldives.

Other Indo-China countries/areas: Cambodia and Lao People's Democratic Republic.

Central Asian countries: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

Other Pacific islands countries: Fiji, Kiribati, the Marshall Islands, Federated States of Micronesia, Nauru, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, American Samoa, the Commonwealth of the Northern Mariana Islands, the Cook Islands, French Polynesia, Guam, New Caledonia, Niue, and Palau.

Other countries/areas of the ESCAP region: Afghanistan, Bhutan, Brunei Darussalam, the Islamic Republic of Iran, Mongolia, and Myanmar.

Table 13. Trade indices for rice by country and area, 1976-1992

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|-----------------------------------|------|-------------|----------|-----------|-----------|-----------|-------------|-------------|-------------|-----------|-------------|-------------|-------------|-----------|-----------|-----------|-----------|
| Developing economies | 1.2 | 1.5 | 1.7 | 1.0 | 1.0 | 0.9 | 1.8 | 1.5 | 1.9 | 2.6 | 3.2 | 2.3 | 2.3 | 1.8 | 2.6 | 2.9 | 1.7 |
| East Asia | 0.0 | 0.3 | 1.4 | 0.9 | 0.4 | 0.1 | 0.3 | 0.4 | 1.1 | 2.5 | 1.5 | 0.9 | 0.8 | 0.2 | 0.6 | 0.7 | 1.1 |
| China | 0.2 | 295.2 | 67,785.7 | 7.0 | 19.8 | 1.7 | 1.2 | 10.7 | 3.6 | 22.0 | 5.6 | 2.4 | 2.1 | 0.4 | 6.5 | 3.7 | 5.8 |
| Democratic People's Rep. of Korea | .. | .. | .. | 57,199.5 | 36.9 | .. | .. | .. | .. | .. | .. | 0.2 | .. | 3.2 | .. | 0.5 | 185.1 |
| Hong Kong | 0.0 | 0.0 | 0.0 | 0.5 | 0.6 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Macau | .. | .. | .. | .. | .. | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 |
| Rep. of Korea | 0.0 | 0.9 | 37.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 222.5 | 3.4 | 1.8 | 0.6 | 1.5 | 0.5 | 2.7 | 0.4 | 1.4 |
| South-East Asia | 2.1 | 2.2 | 1.9 | 1.1 | 1.3 | 3.0 | 3.1 | 1.8 | 3.1 | 3.2 | 6.5 | 7.3 | 5.6 | 5.5 | 3.4 | 4.1 | 1.5 |
| Indonesia | .. | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | .. | 7.5 | 5.6 | 0.7 | 0.0 | 0.2 | 0.9 | 0.0 | 0.1 |
| Malaysia | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Philippines | 0.0 | 1.0 | 4,456.4 | 1,578.4 | 197.0 | 1,861.1 | 4.3 | 479.5 | 0.0 | 0.0 | 0.0 | 102.4 | 0.0 | 0.2 | 0.0 | 0.2 | 19.7 |
| Singapore | .. | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Thailand | .. | 3,164,882.5 | 1,867.3 | 2,524.5 | 155,640.4 | 83,212.2 | 1,255,155.9 | 6,135.5 | 1,214,216.2 | 299,104.7 | 1,178,951.4 | 1,122,023.7 | 2,307,879.9 | 260,426.1 | 46,744.8 | 403,658.7 | 2,726.7 |
| South Asia | 0.0 | 0.0 | 5.5 | 1.1 | 2.0 | 4.3 | 4.4 | 3.5 | 2.3 | 3.8 | 8.4 | 3.8 | 2.1 | 1.7 | 8.2 | 12.3 | 5.3 |
| Bangladesh | .. | .. | 0.0 | .. | 0.5 | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| India | 0.0 | 1.3 | 34.1 | 129.6 | 143.0 | 9.5 | 811.7 | 1.3 | 1.6 | 14.3 | 100.8 | 121.6 | 1.3 | 0.0 | 11.0 | 48.2 | 8,490.3 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | .. | .. | 5,973.9 | 7,304.8 | 49.3 | .. | .. | 5.1 | 169.1 | 1,138.9 | .. | .. | .. | 96.9 | .. | .. |
| Pakistan | .. | 49.3 | 2.2 | 13,776.1 | 71,649.0 | 744,974.4 | 34,705.9 | 176.5 | 42,015.4 | 22,274.8 | 174,121.2 | 1,022.8 | 2,263.1 | 12,457.5 | 3,540.6 | 175,144.2 | 156,934.9 |
| Sri Lanka | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Indo-China | .. | .. | .. | .. | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 0.2 | 76.5 | 8.9 | 313.4 |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5.8 |
| Viet Nam | .. | .. | .. | .. | 0.0 | 0.2 | 225.2 | 1.5 | 0.0 | 863.5 | 0.0 | 0.0 | 0.0 | .. | 217,170.3 | 104.5 | 1,389.5 |
| Pacific islands | .. | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Fiji | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Kiribati | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Marshall Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Micronesia (Federated States of) | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | .. | .. | .. | .. | .. | .. | .. |
| Nauru | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | .. | .. | .. | .. | 0.0 | .. | .. | .. | 0.0 | 0.0 | 0.0 | .. | 0.0 | .. | 0.0 | 12.0 | .. |
| Samoa | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Solomon Islands | .. | .. | 234.1 | 0.4 | 1.1 | 1.5 | 1.0 | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | 0.0 | 6.1 | .. |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Vanuatu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other economies | .. | 0.0 | 0.0 | 12.7 | 0.9 | 0.4 | 0.5 | 0.7 | 0.4 | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Iran (Islamic Rep. of) | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | .. | 619.2 | 392,649.3 | 506,050.2 | 46,153.0 | .. | 1,069,046.7 | .. | .. | .. | 24.5 | 12.4 | 48.7 | 139.0 | 9.8 | 25.0 |
| Developed economies | 0.1 | 1.4 | 1.6 | 32.2 | 41.2 | 13.1 | 8.2 | 19.8 | 2.2 | 7.9 | 10.0 | 6.8 | 4.1 | 3.2 | 2.5 | 1.3 | 1.4 |
| Australia | 29.6 | 331.0 | 1,540.3 | 200.6 | 149.7 | 188.3 | 92.0 | 35.5 | 26.5 | 23.1 | 21.9 | 14.7 | 7.4 | 6.9 | 4.4 | 2.3 | 2.4 |
| Japan | 0.0 | 0.7 | 0.7 | 33.3 | 58.3 | 10.2 | 4.1 | 30.6 | 0.7 | 0.1 | 0.7 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| New Zealand | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 1.2 | 1.5 | 1.7 | 1.3 | 1.2 | 1.1 | 2.0 | 1.7 | 1.9 | 2.7 | 3.4 | 2.4 | 2.4 | 1.8 | 2.6 | 2.9 | 1.7 |

Source: United Nations, COMTRADE database.
 Note: .. = Data (imports or exports) are unknown.

Table 14. Trade indices for wheat by country and area, 1976-1992

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|-----------------------------------|------|------|------|------|-------------|-------------|-------------|-------------|-------------|-----------|-------------|-------------|-----------|-----------|----------|----------|------|
| Developing economies | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| East Asia | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| China | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Democratic People's Rep. of Korea | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. |
| Hong Kong | .. | .. | 0.0 | 0.0 | 0.0 | .. | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.0 | .. |
| Macau | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Rep. of Korea | 0.0 | .. | .. | 0.0 | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | .. | 0.0 | .. | .. | .. | .. |
| South-East Asia | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Indonesia | .. | .. | .. | .. | 0.0 | .. | .. | 0.0 | 0.0 | .. | 0.0 | .. | .. | .. | 0.0 | 0.0 | 0.0 |
| Malaysia | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Philippines | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. |
| Singapore | .. | .. | 0.4 | 0.1 | 0.0 | 0.1 | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.3 | 0.2 | 0.1 | 0.1 |
| Thailand | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| South Asia | .. | 0.0 | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 |
| Bangladesh | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. |
| India | .. | .. | 1.2 | 0.7 | 0.3 | 0.0 | 0.0 | .. | 0.1 | 0.8 | 0.8 | 3.9 | 0.0 | .. | 1.5 | .. | 0.0 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | .. | 7.3 | 88.9 | 1.5 | 88.9 | .. | 0.3 | 49.9 | .. | 0.1 | .. | .. | .. | .. | .. | .. |
| Pakistan | .. | .. | .. | .. | .. | .. | 0.0 | 0.5 | 0.4 | 0.0 | .. | 0.0 | .. | .. | .. | .. | .. |
| Sri Lanka | .. | .. | .. | 0.0 | 0.0 | .. | 0.0 | 0.0 | .. | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | .. | 0.0 |
| Indo-China | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Viet Nam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. |
| Pacific islands | .. | .. | 0.0 | .. | .. | .. | 0.0 | .. | 0.0 | .. | .. | .. | 0.0 | .. | .. | .. | 0.0 |
| Fiji | .. | .. | 0.0 | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | 0.0 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Marshall Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Micronesia (Federated States of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nauru | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. |
| Samoa | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Solomon Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Vanuatu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other economies | .. | .. | .. | .. | .. | .. | 0.0 | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Iran (Islamic Rep. of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Developed economies | 0.2 | 0.2 | 0.3 | 1.6 | 1.9 | 1.4 | 1.8 | 1.0 | 2.1 | 2.0 | 2.2 | 1.9 | 1.1 | 1.7 | 1.8 | 1.3 | 1.5 |
| Australia | .. | .. | .. | .. | 3,942,122.2 | 2,818,281.2 | 6,197,473.0 | 7,146,657.3 | 9,086,451.4 | 585,164.8 | 5,197,169.9 | 1,482,413.5 | 114,335.7 | 408,657.7 | 63,939.0 | 31,002.8 | .. |
| Japan | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| New Zealand | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.5 | 0.1 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 0.1 | 0.1 | 0.2 | 0.7 | 0.7 | 0.6 | 0.7 | 0.4 | 0.7 | 0.5 | 0.6 | 0.4 | 0.3 | 0.4 | 0.4 | 0.3 | 0.4 |

Source: United Nations, COMTRADE database.

Note: .. = Data (imports or exports) are unknown.

Table 15. Trade indices for wheat meal and flour by country and area, 1976-1992

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|-----------------------------------|-------|-------|-------|---------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------|---------|
| Developing economies | 0.1 | 0.2 | 0.6 | 0.2 | 0.2 | 0.5 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.5 | 0.6 |
| East Asia | 0.1 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.5 |
| China | .. | .. | 184.3 | 15.0 | 1.5 | 2.0 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.2 | 1.2 |
| Democratic People's Rep. of Korea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.1 | .. | .. |
| Hong Kong | 0.3 | 0.5 | 0.3 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 |
| Macao | .. | .. | .. | 0.0 | 0.0 | 0.1 | 0.3 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 |
| Rep. of Korea | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 16.2 | 73.3 | 166.4 | 5.4 | 2.6 | 9.7 | 185.0 | 11.3 | 28.6 | 307.9 |
| South-East Asia | 0.2 | 0.2 | 0.5 | 1.1 | 1.8 | 2.1 | 0.6 | 0.2 | 0.4 | 0.3 | 0.2 | 0.5 | 0.6 | 0.9 | 0.7 | 0.9 | 0.9 |
| Indonesia | .. | .. | .. | 0.1 | 0.0 | 0.0 | .. | 0.0 | 0.7 | .. | 0.0 | .. | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 |
| Malaysia | 0.0 | 0.2 | 0.5 | 0.4 | 0.6 | 2.8 | 24.6 | 21.3 | 20.2 | 6.9 | 11.6 | 11.4 | 17.9 | 45.8 | 55.4 | 91.9 | 55.4 |
| Philippines | .. | 0.0 | .. | .. | .. | 0.0 | .. | 0.0 | .. | 0.0 | .. | 0.0 | .. | 0.0 | 0.0 | .. | 0.0 |
| Singapore | 18.1 | 68.8 | 1.9 | 5.5 | 5.6 | 4.5 | 0.7 | 0.2 | 0.4 | 0.4 | 0.9 | 0.8 | 1.5 | 1.5 | 1.1 | 1.2 | 1.1 |
| Thailand | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.6 | 0.1 | 0.2 | 0.1 | 0.1 | 0.3 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 |
| South Asia | .. | 48.5 | 5.4 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.5 | 0.1 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.4 | 0.2 |
| Bangladesh | .. | .. | 5.4 | .. | .. | 77.6 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| India | .. | .. | 8.6 | 0.5 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.4 | 0.0 | 2.6 | .. | 0.0 | 1.1 | 205,387.5 | 1,013.0 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | .. | 561.2 | .. | 11,421.8 | .. | .. | .. | .. | 2.9 | 11.6 | .. | .. | .. | .. | .. | .. |
| Pakistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Sri Lanka | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Indo-China | .. | 0.0 | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Viet Nam | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pacific islands | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Fiji | .. | 0.0 | 0.4 | 0.6 | 0.4 | 1.0 | 1.6 | 22.4 | 0.4 | 12.1 | 0.6 | 0.2 | 1.8 | 0.8 | 0.1 | 0.1 | 0.0 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Marshall Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Micronesia (Federated States of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nauru | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | .. | 0.0 | .. | .. | .. | .. | .. | 0.0 |
| Papua New Guinea | .. | .. | .. | .. | .. | 0.0 | .. | 0.0 | 0.7 | .. | 0.1 | 0.0 | .. | .. | .. | .. | .. |
| Samoa | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. |
| Solomon Islands | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Vanuatu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. |
| Other economies | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | .. | .. |
| Iran (Islamic Rep. of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 |
| Myanmar | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | 0.4 | .. | .. | .. | .. |
| Developed economies | 178.4 | 226.0 | 81.3 | 432.2 | 500.8 | 314.6 | 279.1 | 240.3 | 130.7 | 143.0 | 68.9 | 23.7 | 42.7 | 37.9 | 42.8 | 42.0 | 52.3 |
| Australia | .. | .. | 264.3 | 1,429.8 | 865.7 | 491.7 | 249.8 | 333.8 | 115.3 | 118.6 | 118.1 | 107.8 | 137.4 | 144.3 | 101.4 | 78.7 | 118.5 |
| Japan | 145.9 | 108.3 | 60.8 | 165.6 | 421.3 | 295.7 | 459.5 | 392.9 | 599.2 | 641.9 | 88.7 | 21.3 | 252.0 | 150.8 | 507.1 | 532.3 | 369.7 |
| New Zealand | .. | .. | 12.6 | 1.5 | 72.1 | 4.9 | 2.3 | 1.7 | 0.4 | 0.5 | 0.4 | 0.2 | 0.1 | 0.0 | 0.0 | 0.1 | 0.5 |
| Total | 0.6 | 0.6 | 0.9 | 0.4 | 0.4 | 1.0 | 1.0 | 0.7 | 1.1 | 0.9 | 0.8 | 0.7 | 0.9 | 1.0 | 0.8 | 1.0 | 1.2 |

Source: United Nations, COMTRADE database.
 Note: .. = Data (imports or exports) are unknown.

Table 16. Trade indices for tea by country and area, 1976-1992

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|-----------------------------------|------|------|-----------|----------|-----------|-------------|----------|----------|----------|---------|----------|---------|---------|---------|-------|---------|-------|
| Developing economies | 4.3 | 4.0 | 4.5 | 5.1 | 5.3 | 4.6 | 4.1 | 3.8 | 3.9 | 4.4 | 4.9 | 3.9 | 4.3 | 3.4 | 4.2 | 3.7 | 2.6 |
| East Asia | 3.8 | 4.3 | 1.1 | 1.3 | 1.7 | 1.5 | 1.6 | 2.0 | 2.1 | 8.6 | 7.6 | 6.0 | 5.1 | 8.1 | 6.9 | 6.5 | 5.5 |
| China | .. | .. | 39,362.5 | 1,747.8 | 2,859.0 | 40.6 | 820.4 | 242.9 | 20,959.3 | 83.6 | 33.7 | 23.8 | 16.6 | 69.3 | 53.6 | 69.6 | 78.0 |
| Democratic People's Rep. of Korea | .. | .. | .. | .. | .. | 0.0 | 0.0 | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | 0.1 |
| Hong Kong | 1.7 | 1.7 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Macau | .. | .. | 0.1 | 0.1 | 0.0 | 0.2 | 67.7 | 0.2 | 0.2 | 0.4 | 0.2 | 0.1 | 0.1 | 0.1 | 1.1 | 1.8 | 0.8 |
| Rep. of Korea | 12.6 | 4.8 | 10.4 | 0.3 | 3.4 | 6.4 | 3.9 | 17.3 | 18.8 | 8.9 | 13.6 | 8.0 | 5.8 | 6.6 | 2.6 | 2.3 | 2.8 |
| South-East Asia | 0.2 | 0.2 | 0.5 | 3.4 | 3.4 | 3.2 | 3.1 | 3.6 | 5.6 | 5.1 | 4.1 | 4.3 | 4.7 | 5.5 | 4.2 | 4.8 | 5.4 |
| Indonesia | 67.7 | 11.9 | 27.0 | 526.2 | 607.9 | 450.2 | 458.2 | 327.4 | 1,366.4 | 677.3 | 186.6 | 551.8 | 502.4 | 277.6 | 27.0 | 133.9 | 191.9 |
| Malaysia | 2.8 | 0.3 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Philippines | 0.0 | .. | .. | 0.0 | .. | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.4 | 0.3 | 0.0 |
| Singapore | .. | 0.0 | 0.5 | 0.7 | 0.7 | 0.6 | 0.7 | 0.7 | 1.1 | 1.2 | 1.0 | 1.0 | 0.9 | 0.8 | 0.8 | 1.0 | 1.0 |
| Thailand | 0.1 | 0.2 | 0.3 | 0.1 | 0.5 | 0.3 | 0.7 | 0.6 | 1.1 | 0.9 | 0.7 | 0.7 | 1.5 | 0.6 | 0.4 | 0.4 | 0.3 |
| South Asia | .. | .. | 29.8 | 12.0 | 13.5 | 9.9 | 6.1 | 5.9 | 5.8 | 5.4 | 5.6 | 6.3 | 6.4 | 2.3 | 6.2 | 6.1 | 2.2 |
| Bangladesh | .. | .. | 342,829.7 | 12,796.2 | 200,378.1 | 9,669,018.3 | 14,046.5 | 12,820.1 | 1,437.3 | 6,425.4 | 25,362.1 | 7,088.1 | 33.1 | 204.0 | 669.5 | 1,084.9 | 151.4 |
| India | .. | .. | 663,711.7 | 47,382.5 | 633.3 | 373.9 | 1,227.0 | 389.4 | 278.5 | 460.4 | 244.8 | 485.1 | 433.4 | 58.8 | 717.7 | 183.2 | 226.0 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | 0.1 | 0.2 | .. | .. | .. | 1.6 | .. | .. | .. | 0.0 |
| Nepal | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 |
| Pakistan | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 |
| Sri Lanka | .. | .. | .. | 9,599.0 | 50,392.2 | 5,238.0 | 4,901.2 | 478.3 | 96.5 | 1,260.9 | 3,111.1 | 854.6 | 1,487.0 | 1,817.9 | 151.5 | 428.4 | 125.2 |
| Indo-China | .. | .. | 670.4 | 664.7 | 975.4 | 470.5 | 1,009.5 | 265.3 | 693.9 | 279.0 | 156.6 | 80.4 | 64.5 | 6,530.5 | 99.4 | 27.2 | 5.5 |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1.7 | .. | .. | .. | .. | 0.3 | .. | .. |
| Viet Nam | .. | .. | 3,663.0 | 12,181.7 | 1,842.3 | .. | .. | 4,946.0 | 778.0 | 742.9 | .. | .. | .. | 6,530.5 | 538.1 | .. | 6.0 |
| Pacific islands | 0.0 | 0.1 | 0.0 | 3.8 | 4.9 | 5.2 | 4.7 | 5.0 | 6.5 | 5.5 | 4.0 | 3.4 | 2.0 | 1.9 | 2.6 | 1.5 | 2.0 |
| Fiji | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Marshall Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Micronesia (Federated States of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nauru | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | .. | .. | .. | 0.0 |
| Papua New Guinea | .. | .. | 48.5 | 48.7 | 54.0 | 43.1 | 39.4 | 48.3 | 51.4 | 32.4 | 18.5 | 9.8 | 10.8 | 14.6 | 11.9 | 11.9 | |
| Samoa | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Solomon Islands | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Vanuatu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 |
| Other economies | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Afghanistan | .. | .. | 0.0 | .. | .. | .. | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.0 | .. | 0.0 | 0.0 | .. | .. |
| Ethiopia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | .. | .. | .. | 0.0 | 0.3 | 0.4 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | .. | 0.1 |
| Iran (Islamic Rep. of) | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 |
| Myanmar | .. | .. | 0.5 | 3.4 | .. | .. | 172.3 | 501.9 | 75.2 | 257.4 | 104.2 | 739.7 | 2,246.5 | 35.3 | 582.5 | 225.1 | 47.5 |
| Developed economies | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Australia | 2.2 | 12.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| Japan | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| New Zealand | 37.6 | .. | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 0.4 | 0.5 | 3.3 | 3.2 | 3.4 | 3.2 | 2.9 | 2.9 | 3.0 | 3.2 | 3.2 | 2.8 | 3.1 | 2.3 | 3.1 | 2.7 | 1.8 |

Source: United Nations, COMTRADE database.

Note: .. = Data (imports or exports) are unknown.

Table 17. Trade indices for coffee by country and area, 1976-1992

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|-----------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Developing economies | 6.3 | 2.5 | 4.9 | 7.5 | 7.5 | 5.0 | 4.8 | 4.2 | 4.3 | 4.1 | 4.5 | 4.8 | 4.6 | 4.1 | 3.8 | 3.0 | 2.6 |
| East Asia | 0.3 | 0.3 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| China | .. | .. | .. | 21.2 | 94.7 | 0.1 | 0.1 | 0.3 | 1.0 | 0.2 | 0.7 | 0.3 | 0.2 | 0.3 | 0.5 | 0.6 | 0.3 |
| Democratic People's Rep. of Korea | .. | .. | .. | 0.7 | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. |
| Hong Kong | 7.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Macau | .. | .. | .. | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 |
| Rep. of Korea | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| South-East Asia | 17.7 | 3.1 | 2.8 | 8.1 | 7.6 | 4.5 | 4.4 | 4.5 | 4.3 | 5.2 | 5.1 | 5.9 | 8.4 | 9.3 | 5.7 | 5.2 | 3.6 |
| Indonesia | .. | 498.1 | 586.6 | 1,810.5 | 1,094.4 | 591.5 | 835.9 | 1,319.9 | 2,379.1 | 4,200.0 | 2,842.4 | 2,602.4 | 2,840.9 | 2,866.2 | 852.2 | 439.9 | 222.6 |
| Malaysia | 7.3 | 0.5 | 0.4 | 0.5 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 | 0.2 | 0.3 | 0.3 | 0.2 |
| Philippines | .. | .. | 2,664.5 | 923.8 | 91.7 | 578.1 | 845.0 | 361.4 | 1,978.8 | 723.8 | 2,151.8 | 221.7 | 1,440.4 | 1,935.4 | 127.4 | 90.7 | 146.9 |
| Singapore | 0.0 | 0.0 | 0.1 | 1.0 | 1.0 | 1.2 | 1.2 | 1.1 | 0.9 | 1.1 | 1.1 | 1.2 | 2.1 | 1.3 | 0.8 | 0.9 | 0.7 |
| Thailand | 1.2 | 2.0 | 2.6 | 4.7 | 5.7 | 8.3 | 11.5 | 11.6 | 12.2 | 20.0 | 46.0 | 39.1 | 24.8 | 48.5 | 26.2 | 13.7 | 8.3 |
| South Asia | .. | 794.2 | 10,602.9 | 1,148.8 | 1,563.9 | 889.9 | 92.2 | 24.6 | 40.5 | 60.5 | 118.5 | 258.5 | 167.9 | 38.1 | 172.0 | 8.5 | 56.3 |
| Bangladesh | .. | 1.2 | 2.8 | 0.5 | 0.2 | .. | 0.3 | .. | 17.7 | 0.0 | .. | 0.8 | .. | .. | .. | .. | 0.4 |
| India | .. | .. | 21,323.5 | 40,718.8 | 32,815.0 | 24,913.6 | 16,882.8 | 33,078.9 | 54,722.0 | 69,743.5 | 176,869.0 | 35,391.5 | 20,967.9 | 537.0 | 11,045.3 | 1,139.2 | 92.0 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | 0.1 | 0.1 | 0.9 | 0.1 | .. | 0.0 |
| Pakistan | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | 0.2 | .. |
| Sri Lanka | .. | .. | 57.7 | 253.9 | 36.3 | 49.1 | 64.2 | 2.0 | 17.6 | 49.2 | 75.9 | 14.1 | 11.2 | 19.2 | 6.7 | 7.4 | 2.8 |
| Indo-China | 1,176.4 | 4,650.9 | 5,576.8 | 999.2 | 222.5 | 51.1 | 140.8 | 67,883.8 | 90.6 | 1,247.5 | 71.3 | 276.1 | 364.1 | 486.0 | 92.5 | 99.7 | 582.2 |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lao People's Democratic Rep. | 286.2 | 1,408.0 | 1,456.5 | 18,491.0 | 470.4 | .. | 188.7 | .. | .. | 738.7 | .. | 0.0 | 276.5 | 31.1 | 51.6 | 9.6 | .. |
| Viet Nam | .. | .. | 645.1 | 190.6 | 95.3 | .. | .. | .. | 479.4 | .. | 74.3 | .. | 368.4 | 944.4 | 97.8 | 346.3 | 3,651.9 |
| Pacific islands | 92.4 | 3.2 | 2.3 | 15.4 | 18.3 | 26.1 | 33.6 | 31.9 | 31.5 | 34.7 | 47.5 | 42.2 | 29.5 | 53.1 | 39.6 | 28.9 | 22.6 |
| Fiji | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.2 | 0.4 | 0.1 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Marshall Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Micronesia (Federated States of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 |
| Nauru | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | .. | .. | 0.0 |
| Papua New Guinea | .. | 24.3 | 4.3 | 21.0 | 32.0 | 39.1 | 48.1 | 48.6 | 54.0 | 59.6 | 99.9 | 71.5 | 41.4 | 86.4 | 73.5 | 68.3 | 53.9 |
| Samoa | 0.5 | .. | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.1 | .. | .. | 0.0 | .. |
| Solomon Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tonga | .. | .. | .. | 0.2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Vanuatu | .. | .. | .. | 0.5 | 0.7 | 0.7 | 0.2 | 0.5 | 0.2 | .. | 11.5 | 4.6 | 0.3 | .. | 4.1 | 0.5 | 2.6 |
| Other economies | 1.6 | 96.3 | 0.1 | 0.3 | 0.9 | 0.1 | 0.0 | 0.6 | .. | 0.0 | 0.1 | 0.6 | 0.1 | 0.0 | 0.0 | 1.7 | 0.1 |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | 0.0 | 0.0 | .. | .. | .. | .. | .. | 0.0 | 0.1 | .. | .. | .. | .. | 0.0 | .. |
| Iran (Islamic Rep. of) | .. | .. | 0.1 | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | 0.1 | 23.2 | .. |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | 1,086.2 | 422.8 | 59.9 | 219.6 | 13.7 | 0.0 | 150.3 | .. | .. | .. | 163.1 | 1.9 | 13.7 | 2.1 | 1.2 | 0.3 |
| Developed economies | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Australia | .. | 29.4 | 3.0 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Japan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| New Zealand | 68.7 | 0.1 | 0.0 | 0.2 | 0.2 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 0.1 | 0.1 | 0.6 | 1.0 | 1.1 | 1.0 | 0.9 | 1.0 | 1.0 | 1.0 | 1.1 | 0.9 | 0.9 | 0.7 | 0.9 | 0.8 | 0.7 |

Source: United Nations, COMTRADE database.
 Note: .. = Data (imports or exports) are unknown.

Table 18. Trade indices for cocoa by country and area, 1976-1992

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|-----------------------------------|-------|---------|-------|---------|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Developing economies | 3.0 | 1.6 | 1.8 | 2.2 | 2.0 | 2.2 | 2.2 | 2.4 | 3.9 | 3.1 | 2.5 | 3.2 | 3.0 | 3.1 | 3.3 | 3.3 | 2.5 |
| East Asia | 0.2 | 0.5 | 0.1 | 0.2 | 0.4 | 0.5 | 0.3 | 0.3 | 0.5 | 0.2 | 0.0 | 0.6 | 0.4 | 0.4 | 0.6 | 0.4 | 0.5 |
| China | .. | .. | 4.2 | 1.6 | 11.1 | 71.9 | 1.9 | 1.7 | 1.6 | 0.3 | 0.1 | 0.9 | 0.7 | 0.7 | 1.6 | 0.7 | 0.8 |
| Democratic People's Rep. of Korea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hong Kong | .. | .. | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 |
| Macau | .. | .. | .. | .. | .. | .. | .. | .. | 3.1 | .. | .. | .. | .. | .. | .. | .. | 0.0 |
| Rep. of Korea | 0.1 | 0.2 | 0.0 | .. | .. | 0.0 | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| South-East Asia | 4.8 | 0.9 | 2.0 | 2.2 | 2.0 | 1.8 | 2.0 | 2.2 | 3.6 | 3.4 | 4.2 | 3.7 | 3.8 | 3.7 | 3.6 | 4.3 | 2.9 |
| Indonesia | .. | 3,086.4 | .. | 10.1 | 4.7 | 5.2 | 3.5 | 6.9 | 23.4 | 107.9 | 191.3 | 105.2 | 470.3 | 216.5 | 584.9 | 176.9 | 148.0 |
| Malaysia | .. | 24.9 | 7.2 | 35.6 | 58.2 | 66.0 | 56.2 | 24.7 | 86.6 | 990.1 | 764.2 | 1,166.0 | 601.3 | 102.9 | 558.4 | 173.7 | 61.2 |
| Philippines | .. | 0.5 | 0.4 | 0.5 | 0.7 | 0.9 | 1.2 | 1.5 | 2.3 | 2.2 | 5.2 | 0.9 | 4.3 | 0.2 | 1.5 | 1.3 | 1.2 |
| Singapore | 6.4 | 4.3 | 0.2 | 0.8 | 0.9 | 0.8 | 0.9 | 0.9 | 1.1 | 1.0 | 1.3 | 1.1 | 1.3 | 1.3 | 1.1 | 1.5 | 1.4 |
| Thailand | 0.0 | 0.0 | .. | .. | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 0.1 | 0.0 | 0.3 | 0.6 | 0.1 |
| South Asia | .. | .. | 0.4 | 1.0 | 1.2 | 3.9 | 9.9 | 17.0 | 5.9 | 4.9 | 4.2 | 4.3 | 4.5 | 0.8 | 5.3 | 0.4 | 0.1 |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | 0.3 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| India | .. | .. | 0.3 | 0.1 | 0.2 | 30.2 | 16.9 | 34.1 | 32.3 | 6.0 | 3.9 | 2.9 | 266.8 | .. | .. | 0.7 | 0.2 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pakistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Sri Lanka | .. | .. | .. | 7,155.3 | 6.6 | 364.1 | 303.7 | 290.3 | 259.3 | 51.3 | 202.3 | 24.0 | 6.5 | 3.7 | 2.9 | 1.5 | 0.0 |
| Indo-China | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Las People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Viet Nam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pacific islands | 122.4 | 117.3 | 94.7 | 106.9 | 96.3 | 315.8 | 315.4 | 266.1 | 384.7 | 331.1 | 319.5 | 268.9 | 157.9 | 207.2 | 97.2 | 144.5 | 117.0 |
| Fiji | .. | 3.8 | 5.1 | 2.7 | 3.5 | 4.8 | 2.1 | 5.1 | 4.8 | 4.3 | 4.3 | 6.6 | 1.1 | 3.1 | 2.6 | 3.1 | 2.0 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Marshall Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Micronesia (Federated States of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nauru | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | .. | .. | .. | 604.7 | 467.0 | 1,565.3 | 1,357.8 | 1,147.2 | 2,114.3 | 3,365.5 | 2,083.6 | 2,911.1 | 1,171.4 | 2,655.6 | 2,260.2 | 771.7 | 4,120.9 |
| Samoa | .. | .. | .. | 85.0 | 200.4 | 85.0 | 0.9 | 162.2 | 10.9 | 1.6 | 4.7 | 2.0 | 0.6 | 0.6 | 0.1 | 0.1 | .. |
| Solomon Islands | 121.5 | 124.1 | 212.9 | 212.6 | .. | 42.1 | 39.4 | .. | 5,661.4 | 2,937.5 | 9,898.6 | 2,716.1 | 525.8 | .. | 3,745.1 | 3,350.0 | 416.2 |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | 0.3 | 0.2 | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Vanuatu | .. | .. | .. | .. | 214.1 | 325.8 | 57.6 | 83.0 | 194.1 | .. | 30.9 | .. | .. | .. | 2,399.6 | 3,667.2 | .. |
| Other economies | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | 0.2 | 2.8 | .. | .. | 0.0 |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. |
| Iran (Islamic Rep. of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1,639.9 | .. | .. | .. |
| Developed economies | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Australia | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Japan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| New Zealand | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Total | 0.1 | 0.1 | 0.5 | 0.6 | 0.7 | 0.9 | 0.9 | 1.0 | 1.3 | 1.3 | 1.2 | 1.5 | 1.5 | 1.4 | 1.6 | 1.6 | 1.3 |

Source: United Nations, COMTRADE database.

Note: .. = Data (imports or exports) are unknown.

Table 19. Trade indices for vegetable oils by country and area, 1976-1992

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|-----------------------------------|---------|------|-------|-------|-------|--------|------|-------|-------|-------|------|------|------|------|------|------|-------|
| Developing economies | 5.0 | 6.4 | 1.5 | 2.2 | 1.6 | 1.8 | 2.4 | 1.6 | 1.6 | 1.7 | 1.6 | 1.1 | 1.5 | 1.3 | 1.3 | 1.6 | 1.5 |
| East Asia | 0.8 | 0.5 | 0.4 | 0.4 | 0.3 | 0.3 | 0.2 | 0.3 | 0.7 | 0.6 | 0.4 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 |
| China | 1,135.5 | 0.8 | 1.9 | 0.8 | 0.7 | 1.5 | 1.3 | 1.7 | 2.7 | 1.7 | 0.8 | 0.3 | 0.3 | 0.1 | 0.2 | 0.2 | 0.3 |
| Democratic People's Rep. of Korea | .. | .. | .. | 0.0 | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hong Kong | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
| Macau | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | .. | 0.3 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.4 | 0.1 | 0.0 | 0.0 |
| Rep. of Korea | 0.0 | 0.3 | 0.4 | 0.6 | 0.3 | 0.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| South-East Asia | 9.0 | 15.2 | 7.1 | 7.7 | 7.2 | 7.7 | 9.8 | 9.7 | 5.6 | 6.7 | 9.3 | 5.0 | 5.6 | 4.8 | 7.1 | 6.2 | 4.6 |
| Indonesia | 26.9 | 1.1 | 0.2 | 9.9 | 113.7 | 5.4 | 31.1 | 43.3 | 2.4 | 15.7 | 28.9 | 3.2 | 3.0 | 3.0 | 27.6 | 16.3 | 14.8 |
| Malaysia | 53.6 | 42.0 | 149.6 | 143.3 | 128.5 | 99.7 | 94.9 | 70.2 | 45.0 | 58.3 | 56.6 | 20.7 | 22.3 | 20.8 | 22.4 | 17.9 | 14.5 |
| Philippines | 51.4 | 78.1 | 107.0 | 78.8 | 38.7 | 49.8 | 39.7 | 25.6 | 27.0 | 39.0 | 36.3 | 2.7 | 29.3 | 3.0 | 19.2 | 18.3 | 19.4 |
| Singapore | 0.4 | 0.2 | 0.1 | 1.1 | 1.5 | 1.3 | 1.6 | 1.3 | 1.1 | 1.4 | 1.4 | 1.1 | 1.2 | 1.2 | 1.1 | 0.7 | 0.7 |
| Thailand | 0.4 | 0.1 | 0.2 | 0.0 | 0.1 | 0.3 | 1.0 | 0.5 | 0.3 | 1.4 | 2.5 | 2.5 | 0.7 | 0.4 | 0.5 | 0.5 | 0.2 |
| South Asia | 275.2 | 0.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| Bangladesh | .. | 0.0 | 0.0 | .. | .. | .. | .. | 0.0 | .. | .. | .. | 0.0 | 0.0 | .. | .. | 0.0 | .. |
| India | 327.1 | 8.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.6 | 0.6 |
| Maldives | .. | .. | .. | 0.0 | .. | 0.1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | .. | 2.7 | 7.3 | 0.8 | 0.8 | 1.0 | 0.3 | 0.7 | 2.2 | 0.5 | 0.6 | 0.8 | 0.7 | 0.6 | 1.2 | 0.6 |
| Pakistan | .. | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sri Lanka | 0.0 | .. | 187.0 | 66.4 | 2.8 | 4.3 | 8.6 | 3.4 | 1.7 | 7.8 | 5.9 | 2.5 | 0.6 | 5.1 | 1.4 | 0.1 | 0.1 |
| Indo-China | .. | .. | 59.9 | 2.2 | 0.0 | 3.7 | 1.3 | 136.1 | 98.8 | 45.4 | 1.5 | 3.7 | 15.5 | 0.2 | 14.0 | 2.3 | 185.4 |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.5 | .. |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Viet Nam | .. | .. | 61.0 | 436.4 | 0.1 | 4081.6 | 1.4 | 140.8 | 114.3 | 61.8 | 1.5 | 4.5 | 35.9 | 0.3 | 38.9 | 2.8 | 183.5 |
| Pacific islands | 6.1 | 2.7 | 3.1 | 2.8 | 2.0 | 6.5 | 8.6 | 9.9 | 15.1 | 10.6 | 8.4 | 8.0 | 8.4 | 8.2 | 4.9 | 6.5 | 10.0 |
| Fiji | .. | 2.9 | 3.3 | 3.3 | 1.9 | 1.4 | 1.6 | 2.1 | 2.5 | 1.0 | 1.0 | 0.7 | 0.5 | 0.7 | 0.6 | 0.4 | 0.7 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Marshall Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Micronesia (Federated States of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nauru | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. |
| Papua New Guinea | 3,480.0 | .. | .. | 0.9 | 0.2 | 31.2 | 36.7 | 39.8 | 54.8 | 50.7 | 22.5 | 20.5 | 28.5 | 23.0 | 15.7 | 20.6 | 46.8 |
| Samoa | 0.0 | .. | 0.6 | 1.0 | 1.2 | 0.9 | 13.1 | 116.3 | 217.1 | 133.1 | 66.9 | 45.2 | 38.8 | 61.3 | 18.8 | 6.0 | 9.5 |
| Solomon Islands | .. | .. | .. | .. | .. | .. | .. | .. | 21.8 | 9.4 | 8.7 | 8.4 | 13.8 | .. | 0.1 | 0.0 | .. |
| Tonga | .. | .. | 75.9 | 118.2 | 56.3 | 52.2 | 19.6 | 95.0 | 58.7 | 22.2 | 17.0 | 14.4 | 11.9 | 2.9 | 6.0 | 3.4 | .. |
| Tuvalu | .. | .. | .. | .. | .. | .. | .. | .. | 0.4 | 0.8 | 0.3 | .. | .. | .. | .. | .. | .. |
| Vanuatu | .. | .. | .. | 5.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 2.3 | 0.2 | .. | .. | .. | .. | .. | .. |
| Other economies | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | 0.2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. |
| Iran (Islamic Rep. of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | .. | .. | 0.0 | 0.0 | .. | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. |
| Developed economies | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Australia | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 |
| Japan | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| New Zealand | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 0.8 | 2.3 | 1.3 | 1.8 | 1.4 | 1.5 | 1.9 | 1.4 | 1.4 | 1.5 | 1.4 | 1.0 | 1.3 | 1.2 | 1.1 | 1.4 | 1.2 |

Source: United Nations, COMTRADE database.
 Note: .. = Data (imports or exports) are unknown.

Table 20. Trade indices for spices by country and area, 1976-1992

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|-----------------------------------|-----------|-------|-------|---------|---------|---------|---------|---------|----------|-------|------|---------|-------|----------|-------|-------|-------|
| Developing economies | 3.7 | 4.4 | 2.2 | 1.8 | 1.9 | 1.3 | 1.4 | 1.8 | 2.0 | 2.0 | 2.7 | 3.1 | 2.6 | 2.2 | 2.1 | 2.1 | 2.2 |
| East Asia | 3.3 | 3.2 | 1.1 | 0.8 | 2.0 | 1.5 | 1.3 | 1.9 | 1.5 | 1.8 | 1.8 | 1.4 | 1.3 | 1.9 | 2.0 | 1.7 | 1.6 |
| China | .. | .. | .. | 41.0 | 60.3 | 10.1 | 5.6 | 35.5 | 40.5 | 58.3 | 95.4 | 10.8 | 8.0 | 23.0 | 46.5 | 17.3 | 8.5 |
| Democratic People's Rep. of Korea | .. | 28.2 | 2.2 | 4.8 | 5.0 | 0.4 | 0.3 | 51.7 | 1.0 | 2.1 | 0.7 | 0.1 | 0.2 | 0.1 | .. | 0.2 | .. |
| Hong Kong | 1.6 | 0.5 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Macau | 2.8 | 1.5 | 2.8 | 2.8 | 1.7 | 1.9 | .. | 1.7 | 3.1 | 3.7 | 3.3 | 4.3 | 2.3 | 2.4 | 1.4 | 1.8 | 0.5 |
| Rep. of Korea | 0.5 | 1.4 | 0.5 | 0.2 | 0.3 | 0.4 | 0.4 | 0.5 | 0.2 | 0.2 | 0.4 | 0.2 | 0.3 | 0.8 | 0.3 | 0.2 | 0.2 |
| South-East Asia | 2.2 | 4.8 | 1.1 | 1.2 | 1.4 | 0.9 | 1.1 | 1.6 | 2.0 | 1.5 | 2.6 | 3.1 | 3.2 | 2.5 | 1.9 | 2.0 | 2.0 |
| Indonesia | 210.5 | 349.2 | 153.5 | 1.0 | 1.3 | 0.6 | 1.1 | 44.0 | 32.8 | 2.5 | 15.8 | 21.1 | 36.4 | 31.3 | 31.1 | 30.2 | 18.8 |
| Malaysia | 286.9 | 82.7 | 4.0 | 3.6 | 3.3 | 2.2 | 1.4 | 1.5 | 1.5 | 2.4 | 2.9 | 3.8 | 3.3 | 2.8 | 2.4 | 1.5 | 1.4 |
| Philippines | 125.8 | 1.8 | 0.9 | 0.3 | 0.3 | 0.3 | 0.2 | 0.1 | 0.2 | 0.3 | 0.5 | 0.0 | 0.7 | 0.3 | 0.6 | 0.8 | 0.2 |
| Singapore | 1.1 | 0.9 | 0.1 | 0.9 | 1.1 | 1.1 | 1.0 | 0.8 | 1.0 | 0.8 | 1.2 | 1.3 | 1.5 | 1.2 | 0.8 | 0.9 | 0.9 |
| Thailand | 0.2 | 1.0 | 3.7 | 1.8 | 2.3 | 2.6 | 2.8 | 2.9 | 7.3 | 5.0 | 5.4 | 6.3 | 9.2 | 8.1 | 6.9 | 9.9 | 13.4 |
| South Asia | 15,516.3 | 5.1 | 7.7 | 6.4 | 4.2 | 3.5 | 2.6 | 2.2 | 2.8 | 4.6 | 4.0 | 5.2 | 2.8 | 1.2 | 2.5 | 2.3 | 3.2 |
| Bangladesh | 369,153.0 | 0.8 | 0.4 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| India | .. | .. | 15.9 | 11.3 | 7.6 | 4.8 | 4.8 | 3.3 | 5.5 | 10.0 | 7.1 | 26.3 | 5.3 | 1.8 | 8.7 | 9.4 | 7.9 |
| Maldives | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | .. | 0.5 | 1.0 | 1.1 | 1.2 | 0.5 | 0.8 | 1.3 | 0.9 | 1.1 | 1.0 | 0.6 | 0.3 | 0.8 | 1.0 | 1.5 |
| Pakistan | 6,400.1 | 8.1 | 2.5 | 2.1 | 1.2 | 0.5 | 0.9 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 1.1 | 0.6 | 0.7 | 1.2 | 1.2 |
| Sri Lanka | .. | 7.8 | 0.0 | 2.7 | 2.5 | 7.4 | 3.4 | 2.3 | 1.6 | 2.3 | 3.2 | 2.8 | 2.5 | 3.3 | 4.7 | 2.7 | 2.8 |
| Indo-China | 1,046.2 | 86.5 | 35.6 | 49.2 | 143.1 | 783.4 | 470.5 | 1,581.1 | 2,146.5 | 151.3 | .. | 2,176.3 | 104.0 | 17.1 | 259.1 | 86.9 | 27.5 |
| Cambodia | .. | .. | .. | .. | .. | 785.2 | 1.3 | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | 0.1 |
| Laos People's Democratic Rep. | .. | 0.2 | 2.1 | .. | 43.0 | 1.5 | 7.7 | 2.5 | .. | 35.0 | .. | 62.9 | .. | 15.6 | .. | 24.6 | 0.0 |
| Viet Nam | .. | .. | .. | 1,395.5 | 2,230.6 | 1,492.9 | 9,770.5 | .. | 16,511.8 | .. | .. | 2,377.0 | .. | 40,236.0 | 561.3 | 243.1 | 206.4 |
| Pacific islands | 0.9 | 2.6 | 1.7 | 1.9 | 1.7 | 2.5 | 3.4 | 2.2 | 3.5 | 4.1 | 4.4 | 3.3 | 2.2 | 2.4 | 3.1 | 1.8 | 1.8 |
| Fiji | .. | 2.7 | 1.8 | 2.1 | 2.3 | 3.3 | 4.3 | 2.4 | 2.8 | 2.9 | 4.0 | 4.0 | 3.1 | 4.4 | 5.2 | 3.4 | 2.9 |
| Kiribati | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. |
| Marshall Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Micronesia (Federated States of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4.2 |
| Nauru | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | 11.4 | .. | .. | .. | .. | .. |
| Papua New Guinea | 40.6 | 66.8 | .. | 4.2 | 2.0 | 1.8 | 1.9 | 2.5 | 7.1 | 11.1 | 8.9 | 4.4 | 2.1 | 1.2 | 1.6 | 0.4 | 0.8 |
| Samoa | .. | .. | .. | 0.0 | 0.0 | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | .. | .. | .. | .. | .. |
| Solomon Islands | .. | .. | .. | 0.1 | 0.1 | 0.4 | 0.1 | 0.0 | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 |
| Tonga | .. | 0.0 | .. | 4.4 | 1.4 | 4.9 | 9.4 | 6.7 | 8.1 | 6.0 | 6.7 | 4.3 | 7.6 | 3.1 | 2.4 | .. | 0.6 |
| Tuvalu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Vanuatu | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | 0.0 | .. | .. |
| Other economies | 474.5 | 51.3 | 1.6 | 0.2 | 0.2 | 0.3 | 3.5 | 0.7 | 0.3 | 1.5 | 2.1 | 6.4 | 3.9 | 4.0 | 7.6 | 2.8 | 6.6 |
| Afghanistan | .. | .. | 1.0 | 0.9 | 1.9 | 0.4 | 12.5 | 2.7 | 2.5 | 10.1 | 2.6 | 2.2 | 2.0 | 20.4 | 7.0 | 7.0 | 1.2 |
| Bhutan | .. | .. | .. | .. | 2.4 | 4.3 | .. | .. | .. | 10.7 | .. | 152.1 | .. | 8.3 | .. | .. | .. |
| Brunei Darussalam | .. | .. | 17.7 | 0.7 | 0.2 | 0.3 | 0.4 | 0.3 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Iran (Islamic Rep. of) | 397.0 | 44.5 | 1.5 | 0.2 | 0.1 | 0.2 | 7.6 | 0.5 | 0.1 | 1.5 | 3.0 | 20.6 | 5.7 | 184.4 | 216.2 | 28.7 | 22.6 |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | 314.5 | 5.6 | 0.7 | 0.0 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 1.0 | 6.5 | 8.1 | 3.5 | 1.1 | 0.9 | 5.6 |
| Developed economies | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Australia | 1.7 | 4.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| Japan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| New Zealand | .. | 0.6 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 |
| Total | 0.5 | 0.6 | 1.5 | 1.5 | 1.6 | 1.2 | 1.2 | 1.5 | 1.7 | 1.7 | 2.1 | 2.2 | 1.9 | 1.6 | 1.6 | 1.6 | 1.5 |

Source: United Nations, COMTRADE database.

Note: .. = Data (imports or exports) are unknown.

Table 21. Trade indices for natural rubber by country and area, 1976-1992

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|-----------------------------------|-------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|---------|---------|
| Developing economies | 3.2 | 3.0 | 2.9 | 3.1 | 3.0 | 3.3 | 3.3 | 3.3 | 3.5 | 3.4 | 3.1 | 3.3 | 3.0 | 2.9 | 2.9 | 3.0 | 2.4 |
| East Asia | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| China | .. | .. | .. | 0.0 | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Democratic People's Rep. of Korea | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hong Kong | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Macau | .. | .. | .. | .. | .. | .. | .. | 0.0 | 0.2 | 0.6 | 1.4 | 2.7 | 0.1 | 0.4 | 0.2 | 0.1 | 0.7 |
| Rep. of Korea | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| South-East Asia | 7.9 | 7.5 | 4.0 | 4.2 | 4.3 | 4.6 | 5.0 | 5.2 | 5.7 | 6.6 | 7.2 | 6.8 | 6.2 | 5.4 | 5.4 | 6.2 | 4.8 |
| Indonesia | .. | 41.874.2 | 8.759.8 | 1.998.9 | 2.686.7 | 1.248.5 | 705.0 | 815.4 | 2.245.8 | 4.229.0 | 2.412.5 | 10.372.2 | 1.460.8 | 905.8 | 885.2 | 777.2 | 510.0 |
| Malaysia | 5.3 | 5.8 | 43.5 | 51.0 | 41.7 | 60.8 | 56.7 | 72.9 | 43.6 | 61.0 | 57.9 | 49.8 | 54.8 | 16.2 | 11.3 | 16.8 | 13.3 |
| Philippines | 3.6 | 2.3 | 2.3 | 1.6 | 4.0 | 3.5 | 5.0 | 6.5 | 8.9 | 56.0 | 41.2 | 6.5 | 12.8 | 4.9 | 74.0 | 32.4 | 9.9 |
| Singapore | 0.2 | 0.3 | 0.0 | 1.1 | 1.1 | 1.2 | 1.3 | 1.2 | 1.3 | 1.3 | 1.3 | 1.2 | 1.2 | 1.1 | 1.1 | 1.0 | 1.0 |
| Thailand | 456.6 | 481.9 | 4.838.1 | 8.481.0 | 8.216.5 | 7.745.8 | 3.356.5 | 422.6 | 259.2 | 469.9 | 510.8 | 834.8 | 732.9 | 2.420.3 | 2.921.7 | 2.572.1 | 482.5 |
| South Asia | .. | 18.5 | 0.6 | 2.7 | 7.2 | 2.7 | 2.0 | 2.3 | 2.6 | 2.1 | 1.6 | 1.4 | 1.2 | 1.2 | 1.1 | 1.8 | 1.6 |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| India | .. | .. | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.3 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | .. | 48.8 | .. | .. | .. | .. | .. | .. | .. | 2.8 |
| Nepal | .. | .. | .. | 16.6 | .. | .. | .. | 0.1 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pakistan | .. | .. | .. | .. | .. | .. | 0.0 | .. | 0.0 | .. | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 |
| Sri Lanka | .. | .. | .. | 2.093.8 | 2.166.6 | 4.082.7 | 2.053.7 | 1.700.1 | 5.430.7 | 9.441.2 | 5.941.9 | 65.962.1 | 4.727.6 | 43.7 | 37.6 | 151.1 | 3.172.2 |
| Inko-China | .. | 26.9 | .. | .. | .. | 1.731.0 | .. | .. | .. | .. | .. | .. | .. | .. | 33.0 | 501.5 | 18.7 |
| Cambodia | .. | 13.2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 249.9 | .. | .. | .. |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.1 | 2.6 | .. |
| Viet Nam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 30.3 | 1.267.1 | 10.6 | 481.8 |
| Pacific islands | .. | .. | .. | 94.3 | 34.1 | 29.8 | 48.9 | 22.3 | 26.6 | 112.1 | 82.4 | 5.6 | 7.8 | 15.5 | 11.4 | 3.8 | 18.1 |
| Fiji | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Marshall Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Micronesia (Federated States of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nauru | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | .. | .. | .. | 141.9 | 432.0 | 345.9 | 82.3 | 57.3 | 33.9 | 257.3 | 118.1 | 5.6 | 8.0 | 17.7 | 13.7 | 428.3 | 163.3 |
| Samoa | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Solomon Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Vanuatu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other economies | 6.8 | 0.2 | 0.8 | 1.2 | 0.8 | 0.7 | 0.3 | 0.2 | 0.2 | 0.5 | 0.4 | 0.4 | 0.3 | 0.3 | 0.2 | 0.3 | 0.7 |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | .. | 2.948.6 | 2.300.7 | 805.7 | 15.4 | 246.3 | .. | 287.0 | 0.1 | 4.0 | .. | 0.1 | .. | 0.3 | 0.1 |
| Iran (Islamic Rep. of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | 0.0 | .. | .. |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 391.5 | .. | 4.950.3 | 30.4 | 43.8 |
| Developed economies | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Australia | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 |
| Japan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| New Zealand | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 1.2 | 1.1 | 1.9 | 2.3 | 2.2 | 2.3 | 2.4 | 2.3 | 2.4 | 2.3 | 2.2 | 2.3 | 2.1 | 2.0 | 2.0 | 2.0 | 1.6 |

Source: United Nations, COMTRADE database.
 Note: .. = Data (imports or exports) are unknown.

Table 22. Balassa's index of RCA for rice by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| East Asia | 0.1 | 0.3 | 2.4 | 2.3 | 2.0 | 0.8 | 0.9 | 0.9 | 1.6 | 2.8 | 1.9 | 1.4 | 1.0 | 0.5 | 0.5 | 0.8 |
| China | 0.1 | 0.1 | 3.8 | 2.6 | 1.5 | 1.5 | 1.7 | 1.2 | 1.3 | 4.5 | 3.1 | 2.3 | 1.7 | 0.7 | 0.8 | 1.3 |
| Democratic People's Rep. of Korea | .. | .. | .. | 3.4 | 8.5 | .. | .. | .. | 5.1 | .. | .. | 1.3 | 2.9 | 6.1 | 6.3 | 1.5 |
| Hong Kong | 0.0 | 0.0 | 0.0 | 6.3 | 7.0 | 0.0 | 0.0 | 1.0 | 1.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Macau | .. | .. | .. | .. | .. | 0.3 | 0.8 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.9 | 1.0 |
| Rep. of Korea | 0.0 | 0.6 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| South-East Asia | 3.9 | 4.6 | 3.5 | 4.6 | 4.5 | 4.6 | 4.7 | 5.3 | 4.7 | 5.3 | 5.5 | 5.3 | 5.9 | 6.2 | 5.2 | 4.7 |
| Indonesia | .. | 0.0 | .. | .. | 0.1 | 0.2 | 0.0 | 0.0 | .. | 2.4 | 1.0 | 0.4 | 0.0 | 0.3 | 0.4 | 0.0 |
| Malaysia | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Philippines | 0.0 | 0.1 | 0.5 | 1.3 | 1.6 | 0.7 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 0.6 | 0.0 | 0.2 | 0.0 | 0.1 |
| Singapore | .. | 0.0 | 0.0 | 0.3 | 0.3 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 |
| Thailand | 11.4 | 15.3 | 11.7 | 15.0 | 14.2 | 12.1 | 12.2 | 15.2 | 15.3 | 16.3 | 13.5 | 14.7 | 16.6 | 15.2 | 13.2 | 11.7 |
| South Asia | 0.0 | 0.0 | 0.9 | 2.6 | 2.3 | 4.2 | 7.4 | 8.3 | 6.6 | 7.6 | 8.5 | 10.9 | 10.1 | 4.4 | 8.9 | 11.6 |
| Bangladesh | .. | .. | 0.0 | .. | 0.0 | 3.2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| India | 0.0 | 0.0 | 1.4 | 2.5 | 3.1 | 5.5 | 5.6 | 2.6 | 3.3 | 4.4 | 4.4 | 7.9 | 6.6 | 0.0 | 7.0 | 7.3 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | .. | 0.0 | 1.0 | 1.8 | 13.8 | .. | 0.4 | 8.1 | 4.2 | 1.1 | .. | .. | 0.0 | 0.5 | .. |
| Pakistan | .. | 0.0 | 0.0 | 6.6 | 1.7 | 1.8 | 22.5 | 45.8 | 27.3 | 39.6 | 36.8 | 40.4 | 35.9 | 33.0 | 36.6 | 52.0 |
| Sri Lanka | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Indo-China | .. | .. | .. | .. | 0.0 | 0.3 | 0.8 | 0.1 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.2 | 11.3 | 9.3 |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Viet Nam | .. | .. | .. | .. | 0.0 | 0.3 | 0.9 | 0.1 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.2 | 11.9 | 9.7 |
| Pacific islands | .. | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Fiji | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Kiribati | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | 0.0 | .. | 0.0 | .. | 0.1 | 0.0 |
| Samoa | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Solomon Islands | .. | .. | 1.2 | 0.8 | 1.2 | 1.1 | 1.6 | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | 0.0 | 0.0 |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | 0.0 | .. | 0.0 | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | 0.0 | .. | .. |
| Vanuatu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.2 | .. |
| Other countries | .. | 0.0 | 0.0 | 6.1 | 5.4 | 4.0 | 5.2 | 10.9 | 5.8 | 3.1 | 0.5 | 1.9 | 0.4 | 0.8 | 0.8 | 0.3 |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Iran (Islamic Rep. of) | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | .. | 0.0 | 22.5 | 15.2 | 9.5 | 13.1 | 31.9 | 26.0 | 11.9 | 3.5 | 18.8 | 7.4 | 7.4 | 3.2 | 1.3 |
| Developed economies | 0.0 | 0.1 | 0.4 | 1.6 | 1.4 | 1.7 | 1.3 | 1.1 | 0.8 | 0.5 | 0.9 | 0.7 | 0.5 | 0.4 | 0.3 | 0.2 |
| Japan | 0.0 | 0.3 | 1.0 | 3.2 | 6.3 | 7.3 | 3.9 | 3.7 | 1.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Australia | 0.0 | 0.1 | 0.3 | 1.3 | 0.7 | 0.9 | 1.3 | 0.9 | 1.0 | 0.9 | 1.5 | 1.3 | 0.8 | 0.7 | 0.6 | 0.3 |
| New Zealand | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Source: United Nations, COMTRADE database.

Note: .. = Data (imports and exports) are unknown.

Table 23. Balassa's index of RCA for wheat by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| East Asia | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| China | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Hong Kong | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.0 |
| Macau | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Rep. of Korea | 0.0 | .. | .. | 0.0 | .. | .. | .. | .. | 0.0 | 0.1 | 0.0 | .. | 0.0 | .. | .. | .. |
| South-East Asia | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Indonesia | .. | .. | 0.0 | .. | 0.0 | .. | .. | 0.0 | 0.0 | .. | 0.0 | .. | .. | .. | .. | .. |
| Malaysia | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Philippines | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | 0.1 | .. | .. | .. |
| Singapore | .. | .. | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Thailand | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| South Asia | .. | 0.0 | 0.5 | 0.3 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.3 |
| Bangladesh | .. | .. | .. | .. | .. | 0.0 | 0.0 | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. |
| India | .. | 0.0 | 0.7 | 0.4 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.2 | 0.0 | .. | 0.1 | 0.4 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.4 | 0.0 | 0.0 | .. | .. | .. | .. | .. |
| Pakistan | .. | .. | .. | .. | .. | .. | 0.0 | 0.8 | 0.4 | 0.1 | .. | 0.1 | .. | .. | .. | .. |
| Sri Lanka | .. | .. | .. | 0.0 | 0.0 | .. | 0.0 | 0.0 | .. | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | .. |
| Indo-China | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Viet Nam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. |
| Pacific islands | .. | .. | 0.0 | .. | .. | .. | 0.0 | .. | 0.0 | .. | .. | .. | 0.0 | .. | .. | .. |
| Fiji | .. | .. | 0.0 | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. |
| Samoa | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Solomon Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | 0.0 | .. | 0.0 | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | 0.0 | .. | .. |
| Vanuatu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other countries | .. | .. | .. | .. | .. | .. | 0.0 | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Iran (Islamic Rep. of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | 0.1 | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | .. | .. | .. | .. | .. | 0.1 | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. |
| Developed economies | 0.3 | 0.3 | 0.5 | 2.9 | 2.3 | 1.6 | 2.1 | 1.3 | 2.6 | 2.5 | 3.3 | 2.8 | 1.7 | 2.5 | 2.4 | 1.8 |
| Japan | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Australia | 0.5 | 0.5 | 0.8 | 4.9 | 3.6 | 2.6 | 3.5 | 2.3 | 4.6 | 4.1 | 5.7 | 5.2 | 3.1 | 4.5 | 4.1 | 3.3 |
| New Zealand | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Source: United Nations, COMTRADE database.

Note: .. = Imports and exports data either unknown.

Table 24. Balassa's index of RCA for tea by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| East Asia | 0.1 | 0.1 | 0.5 | 0.8 | 1.1 | 1.0 | 1.0 | 1.1 | 0.9 | 4.7 | 5.5 | 4.5 | 4.3 | 4.0 | 3.7 | 3.5 |
| China | 0.1 | 0.1 | 0.9 | 1.3 | 1.7 | 1.7 | 1.7 | 1.8 | 1.5 | 7.4 | 8.7 | 7.5 | 7.3 | 6.8 | 6.2 | 5.8 |
| Democratic People's Rep. of Korea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hong Kong | 0.1 | 0.1 | 0.2 | 0.3 | 0.4 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 |
| Macau | .. | .. | 0.4 | 0.2 | 0.2 | 1.3 | 0.3 | 0.6 | 0.3 | 1.0 | 0.6 | 0.4 | 0.5 | 1.1 | 8.8 | 14.6 |
| Rep. of Korea | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 |
| South-East Asia | 0.0 | 0.0 | 0.1 | 1.2 | 1.5 | 1.4 | 1.3 | 1.5 | 1.6 | 1.4 | 1.3 | 1.4 | 1.2 | 1.3 | 1.4 | 1.2 |
| Indonesia | 0.0 | 0.0 | 0.2 | 6.0 | 7.7 | 10.9 | 10.8 | 9.9 | 10.3 | 7.0 | 5.5 | 7.1 | 6.0 | 7.1 | 7.4 | 5.8 |
| Malaysia | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Philippines | 0.0 | .. | .. | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Singapore | .. | 0.0 | 0.1 | 1.2 | 1.4 | 1.2 | 1.1 | 1.3 | 1.2 | 1.3 | 1.1 | 1.5 | 0.9 | 0.8 | 1.1 | 0.9 |
| Thailand | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| South Asia | 0.3 | 0.3 | 14.3 | 22.5 | 27.6 | 24.1 | 24.5 | 26.2 | 24.3 | 23.2 | 23.6 | 26.9 | 27.9 | 11.8 | 29.8 | 30.7 |
| Bangladesh | 0.0 | 0.0 | 55.0 | 41.1 | 57.3 | 51.2 | 55.9 | 45.6 | 28.3 | 22.8 | 20.2 | 17.4 | 20.1 | 7.7 | 17.5 | 22.3 |
| India | 0.1 | 0.1 | 19.8 | 15.6 | 21.7 | 19.9 | 18.5 | 21.7 | 20.3 | 18.8 | 20.4 | 22.6 | 22.6 | 1.0 | 23.8 | 20.3 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | 0.2 | 0.5 | .. | .. | .. | 2.9 | .. | .. | 0.0 |
| Nepal | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Pakistan | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | .. | 0.0 | .. | .. | 0.0 | 0.0 |
| Sri Lanka | 1.4 | 1.2 | 1.6 | 72.6 | 85.9 | 81.0 | 82.3 | 70.2 | 59.1 | 59.4 | 74.1 | 85.1 | 95.2 | 81.6 | 87.0 | 125.1 |
| Indo-China | .. | .. | 0.6 | 0.9 | 2.2 | 2.0 | 1.5 | 1.2 | 0.9 | 1.2 | 0.6 | 0.5 | 0.7 | 0.3 | 0.3 | 0.3 |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | 0.0 | .. |
| Viet Nam | .. | .. | 0.7 | 0.9 | 2.3 | 2.0 | 1.5 | 1.3 | 0.9 | 1.2 | 0.6 | 0.6 | 0.7 | 0.3 | 0.3 | 0.3 |
| Pacific islands | 0.0 | 0.0 | 0.0 | 1.2 | 1.5 | 2.2 | 2.4 | 2.4 | 2.1 | 2.0 | 1.3 | 1.3 | 1.0 | 1.0 | 1.5 | 0.8 |
| Fiji | 0.0 | 0.0 | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | .. | .. | 0.0 | 2.1 | 3.1 | 4.5 | 4.9 | 4.6 | 3.6 | 3.5 | 2.3 | 2.5 | 2.0 | 1.8 | 3.8 | 2.0 |
| Samoa | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Solomon Islands | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | 0.0 | .. | 0.0 | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | .. | 0.0 | .. |
| Vanuatu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other countries | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.2 | 0.1 | 0.0 | 1.1 | 2.1 | 0.3 | 0.2 | 0.3 |
| Afghanistan | .. | .. | .. | 0.0 | .. | .. | 0.0 | 0.1 | 0.1 | .. | 0.0 | 0.0 | .. | 0.0 | 0.0 | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | 0.1 | .. | 0.1 | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | .. | .. | .. | 0.5 | 5.7 | 5.9 | 0.7 | 0.7 | 0.3 | 1.0 | 0.1 | 0.4 | 0.5 | .. |
| Iran (Islamic Rep. of) | 0.0 | .. | 0.0 | 0.1 | 0.3 | 0.2 | 0.4 | 0.1 | 0.3 | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 |
| Mongolia | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. |
| Myanmar | .. | .. | 0.0 | 0.0 | .. | .. | 0.2 | 0.4 | 0.4 | 0.2 | 0.1 | 10.8 | 40.3 | 2.1 | 0.9 | 1.5 |
| Developed economies | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 |
| Japan | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.4 |
| Australia | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| New Zealand | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Source: United Nations, COMTRADE database.

Note: .. = Imports and exports data either unknown.

Table 25. Balassa's index of RCA for coffee and coffee substitutes by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| East Asia | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| China | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Democratic People's Rep. of Korea | .. | .. | .. | 0.0 | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | 0.0 | .. | .. |
| Hong Kong | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Macau | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.4 |
| Rep. of Korea | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
| South-East Asia | 0.1 | 0.2 | 0.2 | 1.3 | 1.4 | 1.3 | 1.1 | 1.4 | 1.3 | 1.3 | 1.9 | 1.4 | 1.4 | 1.2 | 1.3 | 1.1 |
| Indonesia | 0.7 | 0.4 | 0.5 | 6.6 | 7.1 | 8.3 | 7.1 | 6.8 | 5.4 | 6.2 | 6.3 | 5.7 | 5.7 | 5.7 | 5.7 | 5.2 |
| Malaysia | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |
| Philippines | 0.0 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 | 0.7 | 0.7 | 0.9 | 1.0 | 14.0 | 0.3 | 0.9 | 0.3 | 0.3 | 0.2 |
| Singapore | 0.0 | 0.0 | 0.0 | 0.9 | 0.9 | 1.5 | 1.3 | 1.6 | 1.3 | 1.3 | 2.0 | 1.5 | 1.6 | 0.7 | 0.9 | 0.9 |
| Thailand | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.3 | 0.2 | 0.3 | 0.4 | 0.2 |
| South Asia | 0.0 | 0.0 | 0.9 | 0.9 | 1.4 | 1.2 | 1.2 | 1.1 | 0.9 | 1.2 | 1.0 | 1.3 | 1.5 | 0.1 | 1.4 | 1.3 |
| Bangladesh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | 0.1 | .. | 0.0 | 0.0 | .. | 0.0 | .. | .. | .. | .. |
| India | 0.0 | 0.0 | 1.5 | 1.3 | 2.0 | 1.9 | 1.8 | 1.6 | 1.4 | 1.7 | 1.5 | 2.0 | 2.3 | 0.1 | 2.1 | 1.9 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | .. |
| Pakistan | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 |
| Sri Lanka | 0.0 | 0.0 | 0.0 | 0.2 | 0.1 | 0.2 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.1 | 0.4 | 0.1 | 0.1 | 0.2 |
| Indo-China | 1.1 | 0.5 | 0.4 | 0.8 | 1.0 | 0.1 | 0.2 | 0.2 | 0.0 | 0.4 | 0.4 | 0.2 | 0.3 | 0.3 | 0.2 | 0.4 |
| Cambodia | .. | .. | 2.1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lao People's Democratic Rep. | 5.3 | 3.2 | 2.1 | 18.0 | 15.0 | .. | 3.5 | 4.2 | .. | 6.8 | .. | 0.0 | 0.2 | 0.2 | 0.2 | 0.8 |
| Viet Nam | 0.8 | 0.4 | 0.4 | 0.5 | 0.8 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.4 | 0.2 | 0.3 | 0.3 | 0.1 | 0.3 |
| Pacific islands | 0.3 | 0.0 | 0.1 | 1.2 | 1.3 | 4.7 | 4.7 | 4.5 | 3.3 | 3.5 | 5.1 | 6.2 | 5.8 | 7.9 | 8.0 | 6.6 |
| Fiji | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | 0.7 | 0.1 | 0.1 | 2.2 | 2.5 | 9.9 | 9.6 | 8.7 | 5.7 | 6.0 | 8.8 | 12.3 | 12.1 | 15.0 | 20.3 | 16.0 |
| Samoa | 0.1 | .. | .. | 0.0 | 0.0 | .. | .. | .. | .. | .. | 1.0 | 0.0 | 0.0 | .. | .. | 0.0 |
| Solomon Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tonga | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | 0.0 | .. | 0.0 | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | 0.0 | .. | .. |
| Vanuatu | .. | .. | .. | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | .. | 0.1 | 0.1 | 0.0 | .. | 0.2 | 0.1 |
| Other countries | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5.7 |
| Brunei Darussalam | 0.0 | .. | 0.0 | 0.2 | .. | .. | .. | .. | .. | 0.0 | 0.1 | .. | .. | .. | .. | 0.0 |
| Iran (Islamic Rep. of) | 0.0 | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | 0.0 | 0.2 |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.1 | .. | .. | .. | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 |
| Developed economies | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 |
| Japan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.3 | 0.5 |
| Australia | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| New Zealand | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Source: United Nations, COMTRADE database.

Note: .. = Imports and exports data either unknown.

Table 26. Balassa's index of RCA for cocoa beans by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| East Asia | .. | .. | .. | .. | 0.0 | .. | .. | 0.0 | .. | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| China | .. | .. | .. | .. | 0.0 | .. | .. | 0.0 | .. | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 |
| Democratic People's Rep. of Korea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hong Kong | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | 0.0 | .. | 0.0 | .. | 0.0 | .. | 0.0 |
| Macau | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 |
| Rep. of Korea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | .. | .. | .. | .. |
| South-East Asia | 0.0 | 0.0 | 0.4 | 0.7 | 0.8 | 1.1 | 1.5 | 1.7 | 1.6 | 1.9 | 2.2 | 2.7 | 3.2 | 2.4 | 2.9 | 3.2 |
| Indonesia | 0.0 | 0.0 | 0.0 | 0.4 | 0.5 | 1.0 | 1.5 | 2.1 | 2.3 | 2.2 | 1.9 | 2.3 | 2.9 | 3.0 | 5.0 | 5.8 |
| Malaysia | 0.1 | 0.2 | 2.1 | 2.4 | 3.1 | 3.7 | 4.9 | 4.8 | 3.6 | 4.7 | 6.4 | 8.1 | 9.0 | 7.2 | 8.2 | 7.8 |
| Philippines | .. | .. | .. | .. | .. | .. | .. | 0.0 | 0.1 | 0.1 | 1.9 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 |
| Singapore | 0.0 | .. | 0.0 | 0.6 | 0.7 | 2.0 | 2.7 | 2.2 | 2.1 | 2.2 | 2.4 | 3.3 | 4.8 | 3.7 | 3.1 | 4.7 |
| Thailand | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| South Asia | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. |
| India | .. | .. | .. | .. | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | .. | .. | .. | 0.0 | .. | 0.0 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pakistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Sri Lanka | .. | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| Indo-China | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Viet Nam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pacific islands | 0.7 | 1.4 | 0.8 | 2.0 | 2.1 | 8.8 | 9.8 | 10.7 | 8.2 | 8.1 | 7.2 | 8.9 | 8.9 | 9.4 | 9.5 | 10.9 |
| Fiji | .. | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.1 | 0.3 | 0.3 | 0.3 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | 0.0 | 1.1 | 0.8 | 2.8 | 3.2 | 17.4 | 19.7 | 18.9 | 13.4 | 13.2 | 11.7 | 16.3 | 18.4 | 17.8 | 22.3 | 24.9 |
| Samoa | 31.5 | 27.5 | 16.0 | 15.0 | 15.5 | 14.2 | 0.1 | 19.5 | 0.7 | 0.3 | 1.2 | 0.7 | 0.2 | 0.3 | 0.3 | 0.1 |
| Solomon Islands | .. | .. | .. | 0.0 | .. | 0.0 | 0.4 | 0.2 | 2.9 | 4.3 | 6.1 | 9.3 | .. | .. | 0.1 | 0.2 |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | 0.1 | 0.1 | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | 0.0 | .. | 0.0 | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | 0.0 | .. | .. |
| Vanuatu | .. | .. | .. | .. | 3.8 | 5.0 | 3.5 | 7.4 | 2.7 | .. | 0.3 | .. | .. | .. | 27.6 | 30.5 |
| Other countries | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | .. | .. |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Iran (Islamic Rep. of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | 0.3 | .. | .. |
| Developed economies | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.0 |
| Japan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | .. | 0.0 | .. |
| Australia | .. | .. | .. | .. | .. | 0.0 | 0.0 | .. | 0.0 | .. | .. | 0.0 | .. | .. | .. | 0.0 |
| New Zealand | .. | .. | .. | .. | 0.0 | 0.0 | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | 0.0 |

Source: United Nations, COMTRADE database.

Note: .. = Imports and exports data either unknown.

Table 27. Balassa's index of RCA for vegetable oils by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| East Asia | 0.0 | 0.0 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 |
| China | 0.0 | 0.0 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 | 0.4 | 0.3 | 0.3 | 0.2 | 0.1 | 0.1 | 0.3 | 0.2 |
| Democratic People's Rep. of Korea | .. | .. | .. | 0.0 | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hong Kong | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 |
| Macau | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.8 | 0.8 | 0.2 | 0.0 | 0.1 | 0.1 | 0.0 | 0.8 | 0.1 | 0.1 |
| Rep. of Korea | 0.0 | 0.0 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| South-East Asia | 0.2 | 0.8 | 2.4 | 3.0 | 3.0 | 2.6 | 2.4 | 2.8 | 2.7 | 2.9 | 2.7 | 2.2 | 2.6 | 2.3 | 2.4 | 2.4 |
| Indonesia | 0.2 | 0.1 | 0.1 | 1.6 | 2.0 | 1.3 | 1.2 | 1.1 | 0.8 | 2.1 | 1.0 | 1.8 | 2.5 | 2.3 | 1.8 | 2.3 |
| Malaysia | 0.7 | 0.8 | 7.7 | 7.2 | 8.0 | 8.0 | 7.9 | 6.8 | 6.9 | 8.0 | 7.2 | 7.1 | 7.9 | 8.2 | 8.8 | 8.8 |
| Philippines | 0.1 | 2.8 | 4.7 | 4.6 | 3.4 | 3.3 | 3.0 | 3.9 | 3.5 | 3.0 | 37.3 | 0.3 | 3.6 | 0.3 | 3.7 | 3.0 |
| Singapore | 0.0 | 0.0 | 0.2 | 2.5 | 3.0 | 2.2 | 2.0 | 1.8 | 2.2 | 2.9 | 1.8 | 1.8 | 1.7 | 2.0 | 1.5 | 1.1 |
| Thailand | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| South Asia | 0.0 | 0.0 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 |
| Bangladesh | .. | 0.0 | 0.0 | .. | .. | .. | .. | 0.0 | .. | .. | .. | 0.0 | 0.0 | .. | .. | 0.0 |
| India | 0.0 | 0.0 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.0 | 0.1 | 0.2 | 0.3 |
| Maldives | .. | .. | .. | 0.0 | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 |
| Nepal | .. | .. | 0.1 | 0.3 | 0.3 | 0.4 | .. | 0.5 | 0.2 | 0.3 | 0.9 | 0.9 | 0.9 | 0.9 | 1.2 | 0.9 |
| Pakistan | .. | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 |
| Sri Lanka | 0.0 | 0.0 | 0.1 | 0.7 | 0.1 | 0.3 | 0.5 | 0.5 | 0.1 | 0.6 | 0.7 | 0.3 | 0.1 | 0.6 | 0.2 | 0.0 |
| Indo-China | .. | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Viet Nam | .. | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Pacific islands | 0.1 | 0.2 | 0.4 | 0.2 | 0.2 | 1.0 | 1.4 | 1.5 | 2.1 | 2.0 | 1.2 | 1.3 | 1.6 | 1.6 | 1.3 | 1.9 |
| Fiji | .. | 0.8 | 1.6 | 0.8 | 0.4 | 0.4 | 0.5 | 0.8 | 1.1 | 0.6 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | 0.2 | .. | .. | 0.0 | 0.0 | 1.7 | 2.4 | 2.2 | 2.7 | 2.7 | 1.7 | 2.1 | 2.8 | 2.7 | 3.0 | 4.4 |
| Samoa | 0.0 | .. | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 5.5 | 1.7 | 3.4 | 2.1 | 3.0 | 2.4 | 1.8 | 1.9 | 0.3 |
| Solomon Islands | .. | .. | .. | .. | .. | .. | 0.0 | .. | 2.0 | 1.8 | 1.1 | 1.2 | 1.4 | .. | 0.0 | 0.0 |
| Tonga | .. | .. | .. | 2.1 | 4.8 | 2.7 | 3.6 | 4.9 | 4.2 | 6.0 | 3.6 | 3.4 | 2.7 | 1.7 | 0.6 | 0.5 |
| Tuvalu | .. | 0.0 | .. | 0.0 | 0.0 | .. | .. | 0.0 | 0.0 | 0.3 | .. | .. | .. | 0.0 | .. | .. |
| Vanuatu | .. | .. | .. | .. | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | .. | .. | .. | .. |
| Other countries | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. |
| Iran (Islamic Rep. of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. |
| Myanmar | .. | .. | .. | 0.0 | 0.0 | .. | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Developed economies | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Japan | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 |
| Australia | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| New Zealand | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Source: United Nations, COMTRADE database.

Note: .. = Imports and exports data either unknown.

Table 28. Balassa's index of RCA for spices by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| East Asia | 0.5 | 0.6 | 1.2 | 2.2 | 2.4 | 2.7 | 3.7 | 4.3 | 3.4 | 3.3 | 2.3 | 1.4 | 1.5 | 2.1 | 1.9 | 1.9 |
| China | 0.5 | 0.7 | 1.5 | 3.2 | 3.6 | 4.2 | 5.9 | 6.8 | 5.3 | 5.1 | 3.5 | 2.2 | 2.4 | 3.3 | 3.1 | 3.1 |
| Democratic People's Rep. of Korea | 0.0 | 0.1 | 0.2 | 0.1 | 0.3 | 0.7 | 0.6 | 0.7 | 0.3 | 0.2 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.4 |
| Hong Kong | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.5 | 0.3 | 0.9 | 0.4 | 0.2 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 |
| Macau | 26.8 | 15.0 | 19.1 | 19.2 | 23.8 | 28.7 | 19.8 | 16.7 | 13.7 | 7.6 | 7.4 | 2.6 | 2.4 | 2.8 | 1.5 | 1.4 |
| Rep. of Korea | 0.2 | 0.4 | 0.9 | 1.0 | 0.6 | 0.5 | 0.9 | 0.9 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 | 0.8 | 0.4 | 0.4 |
| South-East Asia | 0.4 | 0.5 | 2.2 | 5.5 | 5.2 | 4.7 | 4.8 | 5.0 | 4.1 | 4.6 | 6.2 | 5.8 | 5.7 | 5.1 | 5.1 | 4.4 |
| Indonesia | 0.4 | 0.4 | 1.6 | 8.7 | 10.1 | 13.7 | 14.5 | 14.3 | 12.4 | 10.2 | 13.5 | 16.5 | 15.1 | 12.9 | 13.3 | 12.0 |
| Malaysia | 1.6 | 1.6 | 9.0 | 7.3 | 6.2 | 4.5 | 3.7 | 4.0 | 2.5 | 4.1 | 4.8 | 4.4 | 4.0 | 4.3 | 4.1 | 3.0 |
| Philippines | 0.0 | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 0.6 | 0.1 | 0.0 | 0.2 | 0.2 |
| Singapore | 0.1 | 0.2 | 0.6 | 17.1 | 14.7 | 14.7 | 14.5 | 13.7 | 8.8 | 9.5 | 12.3 | 11.9 | 13.0 | 12.5 | 10.6 | 8.7 |
| Thailand | 0.1 | 0.1 | 0.4 | 0.4 | 0.2 | 0.5 | 0.6 | 0.8 | 0.9 | 0.8 | 0.7 | 0.7 | 0.8 | 0.7 | 0.9 | 0.8 |
| South Asia | 0.5 | 0.6 | 9.6 | 13.9 | 12.5 | 8.2 | 7.7 | 9.2 | 9.8 | 11.1 | 9.7 | 11.3 | 11.3 | 3.3 | 9.3 | 10.8 |
| Bangladesh | 2.3 | 4.3 | 2.5 | 1.1 | 2.0 | 0.2 | 0.2 | 0.3 | 0.6 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| India | 0.4 | 0.6 | 14.6 | 17.7 | 14.9 | 8.7 | 7.7 | 10.0 | 13.4 | 15.1 | 12.7 | 14.7 | 13.4 | 1.4 | 9.2 | 9.7 |
| Maldives | -- | -- | -- | -- | 0.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nepal | -- | 0.5 | 2.7 | 6.0 | 13.5 | 6.8 | 3.4 | 7.6 | 10.7 | 5.4 | 6.2 | 8.1 | 8.8 | 5.8 | 19.7 | 16.1 |
| Pakistan | 1.4 | 0.8 | 1.1 | 5.0 | 3.9 | 1.1 | 5.3 | 4.9 | 3.5 | 3.8 | 2.6 | 4.0 | 6.0 | 4.5 | 6.2 | 9.1 |
| Sri Lanka | 0.0 | 0.1 | 0.1 | 8.7 | 13.1 | 17.8 | 12.6 | 12.5 | 6.2 | 5.1 | 7.4 | 8.5 | 14.4 | 12.9 | 14.8 | 22.6 |
| Indo-China | 1.2 | 1.1 | 1.5 | 0.9 | 1.3 | 6.9 | 7.0 | 1.7 | 1.7 | 4.5 | 1.3 | 3.3 | 1.7 | 1.8 | 1.6 | 2.9 |
| Cambodia | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.1 | 0.6 | -- |
| Lao People's Democratic Rep. | -- | 0.0 | 0.9 | 2.1 | 22.2 | 0.6 | 2.4 | 0.1 | -- | 1.4 | -- | 0.2 | 0.1 | 0.1 | -- | 0.4 |
| Viet Nam | 1.3 | 1.3 | 1.7 | 0.9 | 1.0 | 6.9 | 7.2 | 1.7 | 1.7 | 4.6 | 1.3 | 3.4 | 1.8 | 1.9 | 1.6 | 3.0 |
| Pacific islands | 0.0 | 0.6 | 0.4 | 0.4 | 0.5 | 1.1 | 1.6 | 1.1 | 1.2 | 1.2 | 1.2 | 1.0 | 1.0 | 1.1 | 2.1 | 1.9 |
| Fiji | 0.0 | 2.2 | 1.5 | 1.4 | 1.3 | 2.6 | 3.9 | 3.0 | 2.7 | 2.6 | 2.5 | 1.8 | 2.2 | 2.8 | 4.0 | 4.6 |
| Kiribati | -- | -- | -- | -- | -- | 0.0 | -- | -- | -- | -- | 0.0 | -- | -- | -- | -- | -- |
| Papua New Guinea | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.3 | 0.3 | 0.4 | 1.0 | 1.1 | 0.8 | 0.7 | 0.4 | 0.4 | 0.8 | 0.4 |
| Samoa | -- | -- | -- | 0.0 | 0.0 | -- | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -- | -- | -- | -- |
| Solomon Islands | -- | -- | -- | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | -- | -- | -- | -- | -- | -- | 0.0 | 0.0 |
| Tonga | -- | 0.0 | -- | 1.0 | 0.9 | 4.8 | 7.3 | 10.1 | 4.7 | 5.4 | 6.5 | 3.0 | 5.9 | 2.3 | 1.8 | -- |
| Tuvalu | -- | 0.0 | -- | 0.0 | 0.0 | -- | -- | 0.0 | 0.0 | 0.0 | -- | -- | -- | 0.0 | -- | -- |
| Vanuatu | -- | -- | -- | -- | 0.0 | -- | -- | -- | -- | -- | -- | 0.0 | -- | -- | 0.0 | -- |
| Other countries | 0.4 | 0.4 | 1.0 | 0.6 | 0.7 | 0.6 | 3.0 | 1.3 | 1.0 | 0.8 | 1.4 | 3.3 | 3.3 | 2.3 | 3.8 | 4.5 |
| Afghanistan | -- | -- | 0.4 | 0.2 | 0.7 | 0.1 | 6.6 | 1.6 | 1.0 | 1.3 | 1.1 | 0.8 | 0.7 | 0.4 | 1.6 | 1.9 |
| Bhutan | -- | -- | -- | -- | 10.1 | 4.3 | 30.4 | 44.7 | 56.4 | 13.9 | 15.5 | 34.6 | 31.6 | 7.4 | 0.7 | 13.0 |
| Brunei Darussalam | 62.8 | 17.3 | 18.7 | 24.0 | 9.3 | 20.4 | 22.4 | 8.9 | 2.3 | 1.4 | 2.2 | 0.9 | 0.1 | 0.2 | 0.2 | 0.5 |
| Iran (Islamic Rep. of) | 1.7 | 1.1 | 2.9 | 1.9 | 2.5 | 3.1 | 6.3 | 3.8 | 1.6 | 1.1 | 2.4 | 4.9 | 2.9 | 3.1 | 6.8 | 5.2 |
| Mongolia | -- | -- | -- | -- | -- | -- | -- | -- | 0.0 | -- | -- | -- | -- | -- | -- | -- |
| Myanmar | 0.0 | 0.1 | 0.6 | 0.1 | 0.0 | 0.2 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 6.7 | 27.8 | 4.1 | 0.6 | 5.4 |
| Developed economies | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Japan | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.5 |
| Australia | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| New Zealand | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Source: United Nations, COMTRADE database.

Note: .. = Imports and exports data either unknown.

Table 29. Balassa's index of RCA for natural rubber by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|-------|------|------|-------|-------|---------|---------|
| East Asia | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| China | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Democratic People's Rep. of Korea | .. | .. | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. | 0.1 | .. | 1.7 | 0.1 | 0.0 |
| Hong Kong | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Macao | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Rep. of Korea | 0.0 | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| South-East Asia | 6.5 | 6.3 | 24.1 | 41.3 | 37.8 | 35.5 | 34.2 | 32.7 | 30.8 | 32.9 | 36.1 | 33.7 | 31.4 | 27.5 | 25.5 | 22.9 |
| Indonesia | 1.2 | 1.1 | 1.7 | 25.2 | 23.2 | 20.1 | 20.4 | 22.1 | 24.3 | 27.6 | 35.6 | 37.6 | 37.8 | 34.0 | 32.5 | 34.2 |
| Malaysia | 8.4 | 8.5 | 92.6 | 83.2 | 83.6 | 89.5 | 79.4 | 69.5 | 58.0 | 60.5 | 71.3 | 63.1 | 61.3 | 48.3 | 41.1 | 32.7 |
| Philippines | 0.0 | 0.3 | 0.4 | 0.4 | 0.7 | 1.0 | 1.0 | 0.6 | 0.6 | 1.6 | 1.6 | 0.2 | 1.2 | 0.5 | 1.4 | 1.5 |
| Singapore | 0.4 | 0.6 | 0.5 | 37.8 | 34.2 | 30.7 | 27.3 | 23.1 | 20.9 | 19.2 | 18.2 | 15.3 | 14.5 | 13.3 | 11.8 | 9.2 |
| Thailand | 37.1 | 37.6 | 42.4 | 45.9 | 44.0 | 42.7 | 44.7 | 44.6 | 42.8 | 50.8 | 47.0 | 44.5 | 39.0 | 36.6 | 37.9 | 34.6 |
| South Asia | 0.2 | 0.3 | 0.4 | 5.6 | 5.6 | 6.6 | 6.3 | 4.8 | 4.7 | 4.7 | 4.4 | 3.6 | 3.2 | 2.7 | 2.7 | 3.2 |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| India | 0.2 | 0.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | 1.1 | 0.1 | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | .. | .. | 0.5 | .. | .. | .. | 0.1 | .. | .. | .. | .. | .. | .. | 0.0 | .. |
| Pakistan | .. | .. | .. | .. | .. | .. | 0.0 | .. | 0.0 | .. | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.0 |
| Sri Lanka | 0.8 | 0.6 | 2.3 | 66.6 | 68.9 | 83.4 | 80.5 | 61.4 | 48.1 | 51.5 | 55.1 | 49.1 | 44.0 | 41.4 | 37.3 | 40.2 |
| Indo-China | 1.4 | 1.0 | 0.6 | 9.3 | 12.5 | 13.0 | 5.2 | 6.8 | 6.6 | 2.5 | 0.3 | 0.2 | 1.0 | 4.5 | 12.3 | 7.4 |
| Cambodia | 12.5 | 9.2 | 1.0 | .. | .. | .. | .. | 1.5 | 21.8 | 156.6 | 13.2 | 21.9 | 144.5 | 604.0 | 3,125.2 | 1,597.3 |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | 0.2 | .. | 0.2 | .. | 0.1 | .. | 0.3 | 0.1 | 1.5 | 2.0 |
| Viet Nam | 0.8 | 0.6 | 0.6 | 10.0 | 13.4 | 14.3 | 5.7 | 7.1 | 6.7 | 1.9 | 0.2 | 0.1 | 0.5 | 3.4 | 7.5 | 4.4 |
| Pacific islands | .. | .. | .. | 1.1 | 1.2 | 1.6 | 0.8 | 0.9 | 1.0 | 1.4 | 1.4 | 1.0 | 1.0 | 1.0 | 0.7 | 0.7 |
| Fiji | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | .. | .. | .. | 2.2 | 2.5 | 3.5 | 1.8 | 1.7 | 2.0 | 2.8 | 2.7 | 1.8 | 2.1 | 2.2 | 1.5 | 1.6 |
| Samoa | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Solomon Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | .. | .. | .. | .. |
| Vanuatu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other countries | 0.0 | 0.0 | 0.1 | 0.3 | 0.6 | 0.5 | 0.3 | 0.2 | 0.3 | 0.4 | 0.6 | 0.5 | 0.7 | 0.7 | 0.5 | 0.5 |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Blizan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | 0.5 | .. | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Iran (Islamic Rep. of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | .. | .. | 0.0 | .. |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | 0.8 | 0.5 | 13.5 | 19.7 | 25.0 | 20.9 | 18.9 | 16.4 | 15.2 | 22.6 | 23.1 | 35.0 | 57.2 | 43.9 | 28.8 | 23.1 |
| Developed economies | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Japan | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Australia | 0.0 | 0.0 | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| New Zealand | .. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Source: United Nations, COMTRADE database.

Note: .. = Imports and exports data either unknown.

Table 30. Index of revealed competitive advantage for rice by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| East Asia | -1.5 | -0.2 | 1.3 | 0.9 | -0.4 | -4.1 | -0.7 | -0.3 | 0.5 | 1.8 | 0.5 | -0.2 | -0.3 | -1.2 | -0.3 | -0.1 |
| China | -1.8 | 0.1 | 3.8 | 2.3 | 1.4 | 0.8 | 0.7 | 1.1 | 0.7 | 4.0 | 1.7 | 0.4 | 0.2 | -2.3 | 0.6 | 0.6 |
| Democratic People's Rep. of Korea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hong Kong | -0.9 | -0.6 | -2.7 | 3.8 | 4.5 | -2.3 | -2.3 | -1.1 | -0.7 | -2.0 | -2.1 | -1.9 | -2.0 | -1.6 | -1.7 | -1.5 |
| Macao | -4.1 | -4.0 | -2.8 | -2.9 | -2.1 | -2.2 | 0.8 | -2.4 | -1.8 | -1.6 | -1.4 | -2.3 | -1.7 | -1.0 | -0.6 | -0.2 |
| Rep. of Korea | -2.8 | -0.2 | 0.9 | -2.0 | -6.6 | -13.4 | -2.6 | -1.3 | 2.3 | 0.0 | 0.0 | -0.0 | 0.0 | -0.0 | 0.0 | -0.0 |
| South-East Asia | 0.8 | 0.5 | 0.5 | -2.5 | -1.7 | 2.1 | 2.2 | 0.9 | 1.6 | 2.4 | 4.1 | 3.9 | 3.9 | 4.1 | 2.7 | 2.9 |
| Indonesia | -6.2 | -9.5 | -3.4 | -22.2 | -21.4 | -4.9 | -4.2 | -14.3 | -8.0 | 1.6 | 0.6 | -0.9 | -0.7 | -3.2 | -0.7 | -2.8 |
| Malaysia | -1.9 | -2.7 | -6.2 | -3.6 | 2.4 | 3.0 | 4.5 | 3.4 | -4.0 | -4.1 | 2.5 | -2.0 | -3.5 | -3.7 | -3.5 | -4.0 |
| Philippines | -1.9 | -0.4 | 0.5 | 1.3 | 1.5 | 0.7 | 0.0 | 0.5 | -3.7 | -12.4 | -0.0 | 0.6 | -3.8 | -1.2 | -7.1 | -0.9 |
| Singapore | -2.2 | -2.1 | -1.7 | -1.6 | -1.5 | -1.6 | -1.6 | 1.4 | 1.3 | 1.1 | -1.6 | -1.7 | -1.8 | -1.7 | -1.8 | -1.4 |
| Thailand | 11.4 | 15.3 | 11.6 | 15.0 | 14.2 | 12.1 | 12.2 | 15.2 | 15.3 | 16.3 | 13.5 | 14.7 | 16.6 | 15.2 | 13.2 | 11.7 |
| South Asia | -0.4 | -1.2 | 0.7 | -0.4 | 1.0 | 2.8 | 5.1 | 5.8 | 3.2 | 5.8 | 7.3 | 7.6 | 5.0 | 1.4 | 7.6 | 10.2 |
| Bangladesh | -0.6 | -7.0 | -0.7 | -20.8 | 3.8 | 1.5 | -10.6 | -2.4 | -12.9 | -5.5 | 2.6 | -17.0 | -4.0 | 6.7 | -0.4 | -0.9 |
| India | -0.0 | -0.0 | 1.3 | 2.4 | 3.0 | 4.3 | 5.6 | -0.2 | 0.4 | 3.9 | 4.3 | 7.8 | -1.4 | -3.1 | 4.8 | 6.6 |
| Maldives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Nepal | .. | -0.0 | 9.8 | 0.0 | .. | -1.1 | -0.0 | 5.7 | -5.1 | -7.4 | -0.7 | -6.9 | -15.7 | -7.3 | -6.2 | -4.4 |
| Pakistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Sri Lanka | -0.0 | 0.0 | 0.0 | 6.6 | 1.7 | 1.8 | 22.5 | 45.6 | 27.3 | 39.6 | 36.8 | 40.4 | 35.9 | 33.0 | 36.6 | 52.0 |
| Sri Lanka | -3.7 | -4.3 | -0.2 | -7.4 | -5.0 | -5.1 | -5.5 | 6.0 | -1.6 | -5.2 | -6.6 | -4.0 | -8.5 | -5.5 | -4.7 | -5.6 |
| Indo-China | -1.1 | -2.8 | -1.5 | -5.6 | -8.8 | -2.6 | -2.0 | 4.3 | -4.9 | -0.4 | -6.4 | -8.4 | -5.8 | -5.2 | 10.4 | 3.2 |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Laos People's Democratic Rep. | -16.2 | -10.5 | 5.8 | -9.6 | -11.4 | -0.8 | -19.5 | -27.4 | -17.7 | -17.2 | -43.7 | -24.3 | -50.2 | -24.8 | -3.4 | -28.8 |
| Viet Nam | -0.0 | -2.1 | -0.8 | -5.7 | -7.5 | -0.1 | 0.9 | -0.1 | -3.4 | 0.6 | -6.0 | -6.2 | -1.8 | 0.2 | 11.9 | 9.0 |
| Pacific islands | -0.2 | -0.8 | -0.7 | -2.8 | -3.3 | -3.1 | -3.7 | -3.3 | -3.9 | -3.0 | -4.1 | -5.1 | -4.9 | -3.8 | -2.7 | -0.7 |
| Fiji | -0.9 | -3.9 | -4.1 | 3.2 | -3.5 | -2.9 | -3.5 | -4.2 | -3.7 | -2.7 | -4.7 | -4.7 | -4.5 | -3.4 | -4.4 | -4.1 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | -0.1 | -0.0 | .. | -5.8 | -7.3 | -6.6 | -8.2 | -7.2 | -8.4 | -7.1 | -11.0 | -13.5 | -12.1 | -9.7 | -6.2 | 0.0 |
| Samoa | -1.8 | -3.0 | -1.8 | -1.1 | -2.1 | -1.2 | 0.3 | -2.2 | -0.5 | -0.7 | 0.0 | 0.0 | .. | .. | -0.1 | -0.0 |
| Solomon Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Vanuatu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Other countries | -0.1 | 0.5 | -0.3 | 6.0 | 3.8 | 2.0 | 3.3 | 7.8 | 2.4 | 1.2 | -2.2 | -4.1 | -3.0 | -3.1 | -1.8 | -3.8 |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | -3.3 | -4.0 | -3.8 | -3.4 | -3.7 | -3.2 | -2.2 | -2.2 | -2.1 | -2.9 | -3.5 | -2.6 | -3.0 | -2.3 | -3.1 | -3.8 |
| Iran (Islamic Rep. of) | -0.0 | -0.6 | -0.3 | -0.0 | -1.8 | -2.3 | -2.1 | -3.6 | -3.9 | -2.2 | -3.4 | -7.5 | -4.2 | -4.4 | -2.9 | -4.6 |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | -0.0 | -0.0 | 0.0 | 22.5 | 15.2 | 9.5 | 13.1 | 31.9 | 26.0 | 11.9 | 3.5 | 12.7 | 6.2 | 6.7 | 3.1 | 1.1 |
| Developed economies | -0.0 | 0.1 | 0.3 | 1.6 | 1.4 | 1.6 | 1.2 | 1.1 | 0.6 | 0.5 | 0.8 | 0.7 | 0.4 | 0.3 | 0.3 | 0.1 |
| Japan | -0.0 | 0.3 | 0.8 | 5.2 | 6.3 | 7.2 | 3.8 | 3.7 | 1.1 | 0.0 | 0.1 | 0.0 | -0.0 | -0.0 | 0.0 | 0.0 |
| Australia | 0.0 | 0.1 | 0.3 | 1.3 | 0.7 | 0.9 | 1.2 | 0.8 | 0.8 | 0.7 | 1.2 | 0.9 | 0.4 | 0.3 | 0.0 | -0.2 |
| New Zealand | -0.0 | -0.0 | -0.0 | -0.6 | -0.6 | -0.6 | -0.5 | -0.6 | -0.6 | -0.4 | -0.5 | -0.8 | -0.6 | -0.7 | -0.6 | -0.7 |

Source: United Nations, COMTRADE database.

Note: .. = Imports and exports data either unknown.

Table 31. Index of revealed competitive advantage for wheat by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|------|------|------|------|
| East Asia | -0.9 | -0.9 | -0.7 | -1.4 | -1.0 | -0.7 | -0.8 | -0.5 | -1.2 | -2.7 | -3.6 | -3.7 | -3.2 | -3.2 | -3.1 | -2.4 |
| China | .. | .. | 0.0 | -1.7 | -1.0 | -0.6 | -0.8 | -0.2 | -1.7 | -7.4 | -9.4 | -8.4 | -7.2 | -7.8 | -8.8 | -6.8 |
| Democratic People's Rep. of Korea | .. | .. | -1.9 | -2.9 | -3.1 | -0.3 | .. | .. | -0.3 | -0.1 | -3.3 | -1.6 | -1.7 | -0.8 | -1.8 | -1.5 |
| Hong Kong | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 |
| Macau | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | .. | -0.0 | -0.0 | -0.0 | .. | -0.0 | -0.0 | .. | .. | -0.0 |
| Rep. of Korea | -4.0 | -4.6 | -2.9 | -2.3 | -2.0 | -1.4 | -2.0 | -1.8 | -2.3 | -3.2 | -4.0 | -4.1 | -3.3 | -1.8 | -2.0 | -2.4 |
| South-East Asia | -0.1 | -0.4 | -0.7 | -1.2 | -1.1 | -0.9 | -0.8 | -1.2 | -1.0 | -1.1 | -1.6 | -1.4 | -1.2 | -1.0 | -1.4 | -1.5 |
| Indonesia | .. | .. | 0.0 | -1.4 | -1.5 | -1.1 | -1.3 | -3.0 | -3.3 | -4.6 | -5.8 | -5.3 | -3.9 | -4.1 | -4.9 | -4.9 |
| Malaysia | .. | .. | -1.1 | -1.0 | -0.8 | -0.7 | -0.6 | -0.7 | -0.6 | -0.8 | -1.0 | -1.0 | -1.1 | -1.1 | -1.2 | -1.5 |
| Philippines | .. | -3.8 | -4.0 | -4.0 | -3.4 | -2.8 | -2.4 | -2.4 | -3.0 | -2.7 | -4.7 | -2.5 | -3.0 | -0.0 | -3.5 | -3.9 |
| Singapore | .. | .. | -0.0 | -0.3 | -0.3 | -0.3 | -0.0 | -0.1 | -0.1 | -0.1 | -0.2 | -0.1 | -0.2 | -0.2 | -0.1 | -0.2 |
| Thailand | -1.6 | -0.7 | -1.0 | -1.3 | -0.7 | -1.1 | -0.6 | -0.8 | -0.5 | -0.6 | -0.5 | -0.7 | -0.6 | -0.7 | -0.6 | -0.7 |
| South Asia | .. | -0.4 | -1.0 | -1.5 | -1.2 | -1.4 | -1.7 | -3.1 | -1.3 | -1.8 | -2.0 | -2.6 | -2.5 | -2.5 | -2.3 | -1.4 |
| Bangladesh | .. | -5.3 | -5.4 | -8.4 | -4.3 | -3.2 | -4.6 | -3.0 | -4.7 | -2.6 | -3.3 | -11.0 | -0.3 | -0.3 | -0.3 | -0.6 |
| India | .. | 0.0 | -0.4 | -0.7 | -0.6 | -1.2 | -1.1 | -4.5 | -0.7 | -0.2 | -0.3 | 0.1 | -3.3 | -0.1 | -0.2 | 0.4 |
| Maldives | .. | .. | .. | -0.0 | .. | .. | -0.0 | -0.0 | -0.1 | -0.0 | .. | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 |
| Nepal | .. | .. | 0.0 | 0.0 | 0.0 | 0.0 | .. | -0.0 | 0.4 | 0.0 | -0.2 | -1.2 | -0.0 | .. | .. | -0.7 |
| Pakistan | .. | .. | -0.0 | -1.1 | -0.1 | -0.2 | -1.1 | -0.4 | -0.3 | -2.9 | -2.9 | -1.8 | -2.9 | -6.0 | -4.6 | -2.7 |
| Sri Lanka | .. | .. | -0.7 | -1.0 | -1.0 | -3.1 | -2.7 | -2.3 | -2.7 | -3.9 | -3.5 | -3.2 | -3.5 | -2.5 | -3.1 | -3.0 |
| Indo-China | .. | .. | -1.4 | -1.3 | -1.6 | -0.2 | .. | -0.1 | .. | -0.1 | -1.3 | .. | -0.2 | -0.2 | -0.2 | -0.6 |
| Cambodia | .. | 0.0 | 0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | .. |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | -0.0 | .. | .. |
| Viet Nam | .. | .. | -1.7 | -1.6 | -2.4 | -0.3 | .. | .. | .. | -0.1 | .. | .. | -0.3 | -0.3 | -0.3 | -0.8 |
| Pacific islands | -0.0 | -0.2 | -0.2 | -0.3 | -0.2 | -0.3 | -0.4 | -0.4 | -0.4 | -0.4 | -0.5 | -0.5 | -0.5 | -0.7 | -0.7 | -0.6 |
| Fiji | .. | -1.2 | -1.4 | -1.4 | -1.2 | -1.0 | -1.3 | -1.5 | -1.3 | -1.6 | -1.9 | -2.4 | -2.0 | -2.7 | -1.9 | -1.9 |
| Kiribati | .. | .. | .. | .. | .. | -0.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | .. | .. | .. | -0.2 | -0.2 | -0.3 | -0.5 | -0.5 | -0.5 | -0.6 | -0.7 | -0.7 | -0.7 | -0.9 | -1.0 | -1.0 |
| Samoa | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.0 | -0.0 |
| Solomon Islands | .. | .. | .. | .. | .. | .. | -0.0 | .. | -0.0 | -0.0 | -0.0 | -0.0 | -1.4 | -0.8 | -0.5 | -1.4 |
| Tonga | .. | .. | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | .. | .. | -0.0 | .. | .. |
| Tuvalu | .. | 0.0 | .. | 0.0 | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | 0.0 | .. | .. |
| Vanuatu | .. | .. | .. | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | .. | .. | .. | .. | .. | .. |
| Other countries | .. | .. | .. | -0.2 | -0.6 | -0.4 | -0.5 | -0.5 | -1.2 | -0.9 | -1.4 | -1.9 | -1.6 | -0.8 | -1.7 | -0.9 |
| Afghanistan | .. | .. | .. | -0.4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | -0.0 | -0.1 | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | .. | .. | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 |
| Iran (Islamic Rep. of) | .. | .. | .. | -0.3 | -0.8 | -0.5 | -0.7 | -0.6 | -1.4 | -1.1 | -2.0 | -2.5 | -2.2 | -1.0 | -2.0 | -1.2 |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | .. | .. | -0.3 | .. | .. | 0.1 | .. | 0.0 | .. | .. | .. | .. | .. | .. | .. |
| Developed economies | -0.7 | -0.5 | -0.4 | 2.1 | 1.6 | 0.9 | 1.4 | 0.6 | 2.0 | 1.8 | 2.6 | 2.2 | 1.2 | 2.0 | 1.9 | 1.4 |
| Japan | -1.1 | -0.9 | -0.9 | -0.9 | -0.8 | -0.8 | -0.7 | -0.7 | -0.6 | -0.7 | -0.7 | -0.6 | -0.6 | -0.6 | -0.5 | -0.5 |
| Australia | 0.5 | 0.5 | 0.8 | 4.9 | 3.6 | 2.6 | 3.5 | 2.3 | 4.6 | 4.1 | 5.7 | 5.2 | 3.1 | 4.5 | 4.1 | 3.3 |
| New Zealand | .. | .. | 0.0 | -0.5 | -0.4 | -0.3 | -0.4 | -0.6 | -0.5 | -0.4 | -0.1 | -0.5 | -0.7 | -1.1 | -0.8 | -0.9 |

Source: United Nations, COMTRADE database.
 Note: .. = Imports and exports data either unknown.

Table 32. Index of revealed competitive advantage for tea by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|
| East Asia | 0.1 | 0.1 | 0.2 | 0.4 | 0.7 | 0.6 | 0.7 | 0.7 | 0.6 | 4.1 | 4.7 | 3.7 | 3.5 | 3.6 | 3.2 | 3.0 |
| China | 0.1 | 0.1 | 0.9 | 1.3 | 1.7 | 1.6 | 1.7 | 1.8 | 1.5 | 7.1 | 8.0 | 6.8 | 6.6 | 6.6 | 6.0 | 5.6 |
| Democratic People's Rep. of Korea | -- | -- | -- | -- | -- | -0.0 | -0.0 | -0.0 | 0.0 | -- | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 |
| Hong Kong | 0.1 | 0.1 | -0.7 | -0.8 | -0.7 | -1.0 | -0.9 | -0.8 | -0.7 | -0.8 | 1.3 | -1.3 | -1.2 | -1.0 | -0.9 | -0.9 |
| Macau | 0.0 | 0.7 | 0.2 | -0.4 | -1.2 | 0.1 | 0.3 | 0.0 | 0.0 | 0.5 | 0.2 | -0.5 | -0.1 | 0.2 | 0.2 | 13.7 |
| Rep. of Korea | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 |
| South-East Asia | 0.0 | 0.0 | -0.2 | 0.5 | 0.7 | 0.6 | 0.6 | 0.8 | 1.0 | 0.9 | 0.8 | 0.8 | 0.8 | 0.8 | 0.9 | 0.7 |
| Indonesia | 0.0 | 0.0 | 0.1 | 0.0 | 1.7 | 10.9 | 10.8 | 9.8 | 10.3 | 7.0 | 5.4 | 7.0 | 6.0 | 7.1 | 6.7 | 5.7 |
| Malaysia | 0.0 | 0.0 | -0.5 | -0.8 | -0.8 | -0.7 | -0.9 | -0.9 | -0.6 | -0.6 | -0.6 | -0.7 | -0.5 | -0.6 | -0.4 | -0.5 |
| Philippines | 0.0 | 0.1 | 0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.0 | -0.0 | -0.0 |
| Singapore | 0.0 | -0.0 | -0.0 | -0.0 | -0.2 | -0.4 | -0.2 | 0.0 | 0.3 | 0.5 | 0.3 | 0.4 | 0.2 | -0.0 | 0.1 | 0.2 |
| Thailand | 0.8 | -0.4 | 0.6 | -0.4 | -0.2 | -0.2 | -0.2 | -0.2 | -0.1 | -0.1 | -0.1 | -0.2 | -0.1 | -0.1 | -0.1 | -0.1 |
| South Asia | 0.2 | 0.3 | 13.7 | 19.8 | 25.1 | 20.1 | 19.2 | 20.3 | 19.3 | 16.0 | 18.6 | 21.9 | 23.9 | 5.2 | 23.7 | 22.7 |
| Bangladesh | 0.0 | 0.0 | 55.0 | 41.1 | 57.2 | 51.2 | 55.0 | 45.6 | 28.3 | 22.8 | 20.2 | 17.4 | 20.0 | 7.7 | 17.5 | 22.3 |
| India | 0.1 | 0.1 | 19.4 | 15.6 | 21.6 | 15.8 | 18.5 | 21.6 | 20.2 | 13.7 | 20.2 | 22.5 | 22.6 | 0.9 | 23.7 | 19.8 |
| Maldives | -- | -- | -- | -0.9 | -1.0 | -1.8 | -1.5 | -2.8 | -4.2 | -2.1 | -2.1 | -2.0 | -2.0 | -3.7 | -4.3 | -4.5 |
| Nepal | -- | 0.0 | 2.5 | 4.1 | -2.7 | -2.3 | -2.5 | -3.7 | -2.1 | -2.2 | 2.4 | 4.9 | 2.2 | -0.1 | -0.8 | -1.8 |
| Pakistan | 0.0 | -- | -2.7 | -7.7 | -11.3 | -14.7 | -18.8 | -24.1 | -17.8 | -14.6 | 14.4 | -19.4 | -15.5 | -18.8 | -15.5 | -21.4 |
| Sri Lanka | 1.4 | 1.2 | 1.6 | 72.6 | 55.6 | 81.0 | 82.2 | 69.9 | 57.4 | 58.3 | 74.1 | 55.0 | 95.2 | 81.6 | 86.3 | 124.8 |
| Indo-China | -- | -0.0 | 0.6 | 0.9 | 2.2 | 2.0 | 1.5 | 1.2 | 0.8 | 1.1 | 0.6 | 0.5 | 0.6 | 0.3 | 0.3 | 0.3 |
| Cameroon | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Laos People's Democratic Rep. | -- | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 |
| Viet Nam | -- | -- | 0.7 | 0.9 | 2.3 | 2.0 | 1.5 | 1.3 | 0.9 | 1.2 | 0.6 | 0.6 | 0.1 | 0.3 | 0.3 | 0.3 |
| Pacific islands | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 1.8 | 2.1 | 2.1 | 1.8 | 1.7 | 1.0 | 1.0 | 0.6 | 0.5 | 1.2 | 0.5 |
| Fiji | 0.0 | 0.0 | -0.9 | -0.8 | -0.8 | -1.1 | -1.6 | -0.8 | -1.1 | -1.3 | -1.5 | -1.6 | -1.5 | -2.2 | -1.6 | -1.6 |
| Kiribati | -- | -- | -- | -2.0 | -1.8 | -1.1 | -0.1 | -2.0 | -2.5 | -1.9 | -2.4 | -1.5 | -2.4 | -2.0 | -2.4 | -2.5 |
| Papua New Guinea | -- | -- | 0.0 | 2.0 | 2.6 | 4.4 | 4.8 | 4.4 | 3.4 | 4.8 | 3.4 | 2.7 | 2.3 | 1.8 | 2.5 | 1.5 |
| Samoa | -0.4 | 0.7 | -0.5 | -0.7 | -0.6 | -0.8 | -0.2 | -0.7 | -0.6 | -0.1 | -0.1 | -0.2 | -0.4 | -0.5 | -0.4 | -0.5 |
| Solomon Islands | 0.0 | 0.0 | 0.0 | 0.8 | -0.8 | -0.7 | -0.4 | -0.7 | -0.5 | -0.5 | -0.8 | 1.0 | -0.8 | -1.0 | -1.1 | -0.4 |
| Tonga | -- | -- | -- | -0.2 | -0.2 | -0.2 | -0.1 | -0.1 | -0.1 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.1 |
| Tuvalu | -- | 0.0 | -- | -1.7 | -1.4 | -- | -- | 0.0 | -1.3 | 0.0 | -- | -- | -- | -1.6 | -- | -- |
| Vanuatu | -- | -- | -- | -0.2 | -0.3 | -0.2 | -0.0 | -0.2 | -0.3 | -0.1 | -0.3 | -0.3 | -0.7 | -0.3 | -0.6 | -0.6 |
| Other countries | 0.0 | 0.0 | 3.0 | 2.6 | -2.9 | -2.5 | -1.4 | -2.4 | -2.9 | 3.0 | 2.7 | 3.6 | -2.8 | -1.2 | -4.1 | -7.7 |
| Afghanistan | -- | -- | -25.9 | -13.4 | -14.2 | -15.2 | 9.7 | -12.1 | -4.4 | 5.2 | -3.5 | 8.5 | -7.6 | 7.8 | 7.2 | -16.0 |
| Bhutan | -- | -- | -- | -- | -- | -- | -- | -- | 0.2 | 0.1 | 0.1 | -- | -- | -- | -- | -- |
| Burund Darussalam | -- | -0.1 | -0.5 | -0.5 | 0.1 | 0.1 | 2.1 | 2.4 | 0.4 | 0.2 | -0.2 | 0.5 | -2.8 | -0.2 | 0.0 | -0.6 |
| Iran (Islamic Rep. of) | -0.9 | -0.6 | -2.9 | -2.2 | -2.3 | -4.5 | -5.5 | -2.4 | -3.0 | -2.3 | -3.1 | -2.7 | -4.8 | -0.1 | -4.8 | 9.3 |
| Mongolia | -- | -- | -- | -- | -- | -- | 0.9 | -- | -- | -- | 0.0 | -4.6 | -0.0 | -0.3 | -4.4 | -0.5 |
| Myanmar | -- | -0.9 | -0.9 | 0.9 | -0.9 | -0.9 | 0.2 | 0.4 | 0.2 | 0.2 | 0.1 | 10.7 | 40.2 | 1.8 | 0.9 | 1.5 |
| Developed economies | 0.2 | 0.2 | -0.2 | -0.6 | -0.7 | -0.6 | -0.6 | -0.5 | -0.5 | -0.6 | -0.6 | -0.6 | -0.4 | -0.5 | -0.4 | -0.5 |
| Japan | 0.9 | 0.9 | -0.1 | -0.1 | -0.2 | -0.1 | -0.0 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.1 | -0.2 | -0.2 | -0.3 |
| Australia | 0.9 | 0.9 | -0.2 | -0.2 | -0.6 | -0.6 | -0.2 | -0.6 | -2.6 | -2.0 | -2.7 | -2.8 | -0.7 | -1.6 | -0.5 | -1.8 |
| New Zealand | 0.9 | 0.9 | -0.1 | -0.5 | -0.7 | -0.5 | -0.9 | -0.1 | -2.4 | -2.1 | -2.5 | -2.2 | -1.7 | -2.8 | -1.6 | -1.7 |

Source: United Nations, COMTRADE database.

Note: -- = Imports and exports data either unknown.

Table 33. Index of revealed competitive advantage for coffee by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| East Asia | 0.0 | -0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.3 | -0.2 | -0.2 | -0.3 | -0.2 | -0.3 | -0.3 |
| China | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | -0.1 | -0.0 | -0.4 | -0.1 | -0.1 | 0.1 | 0.1 | -0.0 | -0.0 |
| Democratic People's Rep. of Korea | .. | .. | .. | -0.0 | -0.0 | -0.0 | -0.1 | -0.6 | -1.5 | -2.4 | -0.2 | -0.3 | -1.0 | -0.4 | -0.0 | -0.0 |
| Hong Kong | 0.0 | -0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.1 | -0.1 | 0.2 | 0.1 | -0.1 | -0.1 |
| Macau | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 |
| Rep. of Korea | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.3 | -0.2 | -0.2 | -0.4 | -0.5 | -0.6 | -0.6 | -0.6 | -0.7 | -0.7 |
| South-East Asia | 0.1 | 0.1 | 0.1 | 1.0 | 1.1 | 0.8 | 0.7 | 0.9 | 0.7 | 0.8 | 1.2 | 1.0 | 1.1 | 0.9 | 0.9 | 0.8 |
| Indonesia | 0.7 | 0.4 | 0.5 | 6.6 | 7.1 | 8.2 | 7.1 | 7.1 | 6.8 | 5.4 | 6.2 | 6.3 | 5.7 | 5.7 | 5.7 | 5.2 |
| Malaysia | 0.0 | -0.0 | -0.2 | -0.2 | -0.3 | -0.5 | -0.5 | -0.4 | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 | -0.2 | -0.2 | -0.2 |
| Philippines | 0.0 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 | 0.7 | 0.7 | 0.9 | 1.0 | 14.0 | 0.3 | 0.9 | 0.3 | 0.3 | 0.2 |
| Singapore | -0.0 | -0.3 | -0.2 | 0.2 | 0.2 | 0.6 | 0.5 | 0.6 | 0.2 | 0.3 | 0.6 | 0.6 | 1.0 | 0.3 | 0.1 | 0.1 |
| Thailand | -0.1 | -0.1 | -0.1 | -0.0 | -0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.1 |
| South Asia | 0.0 | 0.0 | 0.9 | 0.9 | 1.4 | 1.2 | 1.2 | 1.0 | 0.8 | 1.1 | 1.0 | 1.3 | 1.5 | 0.1 | 1.4 | 1.1 |
| Bangladesh | 0.0 | 0.0 | 0.0 | 0.0 | -0.0 | -0.0 | 0.0 | -0.0 | 0.0 | -0.1 | -0.0 | 0.0 | -0.0 | -0.0 | -0.0 | -1.1 |
| India | 0.0 | 0.0 | 1.5 | 1.3 | 2.0 | 1.9 | 1.8 | 1.6 | 1.4 | 1.7 | 1.5 | 2.0 | 2.3 | 0.1 | 2.1 | 1.9 |
| Maldives | .. | .. | -0.0 | -0.0 | -0.0 | -0.0 | -0.1 | -0.0 | -0.1 | -0.1 | -0.2 | -0.4 | -0.4 | -0.1 | -0.1 | -0.3 |
| Nepal | .. | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.1 | -0.1 | -0.1 | -0.0 | -0.1 | -0.1 | 0.0 | -0.1 | -0.0 |
| Pakistan | .. | .. | .. | -0.0 | .. | -0.0 | -0.0 | -0.1 | -0.1 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 |
| Sri Lanka | 0.0 | 0.0 | 0.0 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.3 | 0.2 | 0.1 | 0.3 | 0.1 | 0.1 | 0.1 |
| Indo-China | 1.1 | 0.5 | 0.4 | 0.8 | 1.0 | 0.1 | 0.2 | 0.2 | 0.0 | 0.4 | 0.4 | 0.2 | 0.3 | 0.3 | 0.1 | 0.3 |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lao People's Democratic Rep. | 5.3 | 3.2 | 2.1 | 18.0 | 14.9 | -0.0 | 3.5 | 4.2 | .. | 6.8 | -0.0 | -0.0 | 0.2 | 0.1 | 0.2 | 0.7 |
| Viet Nam | 0.8 | 0.4 | 0.4 | 0.5 | 0.8 | 0.1 | 0.0 | 0.0 | 0.0 | 0.2 | 0.4 | 0.2 | 0.3 | 0.3 | 0.1 | 0.3 |
| Pacific islands | 0.3 | 0.0 | 0.0 | 1.1 | 1.2 | 4.6 | 4.6 | 4.4 | 3.2 | 3.4 | 5.0 | 6.0 | 5.7 | 7.7 | 7.9 | 6.4 |
| Fiji | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 |
| Kiribati | .. | .. | .. | -0.2 | -0.2 | -0.1 | -0.1 | -0.3 | -0.3 | -0.2 | -0.2 | -0.3 | -0.3 | -0.3 | -0.4 | -0.6 |
| Papua New Guinea | 0.7 | 0.1 | 0.1 | 1.9 | 2.4 | 9.6 | 9.4 | 8.4 | 5.5 | 5.8 | 8.7 | 12.1 | 11.7 | 14.8 | 20.0 | 15.9 |
| Samoa | -0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.0 | -0.1 | -0.0 | -0.1 | 0.0 | -0.1 | -0.0 | -0.0 | -0.0 | -0.1 |
| Solomon Islands | .. | -0.0 | .. | -0.1 | -0.1 | -0.3 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 |
| Tonga | .. | .. | .. | -0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.0 | -0.0 | -0.1 | -0.1 | -0.1 | -0.1 |
| Tuvalu | .. | 0.0 | .. | -0.1 | -0.2 | .. | .. | -0.1 | -0.0 | -0.2 | .. | .. | .. | 0.0 | .. | -0.0 |
| Vanuatua | .. | .. | .. | -0.0 | -0.0 | -0.0 | -0.1 | -0.1 | -0.1 | -0.0 | 0.1 | -0.1 | -0.0 | -0.0 | 0.2 | -0.0 |
| Other countries | 0.0 | 0.0 | -0.0 | 0.0 | 0.0 | -0.0 | -0.0 | 0.0 | -0.0 | -0.0 | -0.0 | 0.0 | -0.0 | -0.0 | -0.0 | 0.1 |
| Afghanistan | .. | .. | -0.0 | -0.0 | -0.0 | -0.0 | .. | .. | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | .. | -0.0 | -0.0 |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5.7 |
| Brunei Darussalam | 0.0 | .. | -0.1 | 0.1 | -0.2 | -0.2 | -0.2 | -0.1 | -0.1 | -0.1 | -0.0 | -0.2 | -0.2 | -0.3 | -0.3 | -0.3 |
| Iran (Islamic Rep. of) | 0.0 | -0.0 | 0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | 0.0 | .. | .. | -0.0 | 0.2 |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | -0.0 |
| Myanmar | -0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | -0.1 | 0.1 | -0.0 | -0.0 | -0.0 | 0.3 | 0.0 | 0.0 | -0.0 | -0.0 |
| Developed economies | -0.5 | -0.6 | -0.4 | -0.8 | -0.8 | -0.8 | -0.9 | -0.8 | -0.9 | -0.8 | -0.8 | -0.8 | -0.8 | -0.8 | -0.7 | -0.7 |
| Japan | -0.6 | -0.7 | -0.4 | -0.7 | -0.8 | -0.7 | -0.8 | -0.8 | -0.8 | -0.8 | -0.8 | -0.7 | -0.7 | -0.6 | -0.5 | -0.3 |
| Australia | 0.0 | 0.0 | -0.0 | -2.2 | -2.1 | -2.3 | -2.1 | -2.0 | -1.9 | -1.7 | -1.8 | -1.9 | -2.0 | -1.7 | -1.8 | -1.8 |
| New Zealand | 0.0 | -0.0 | -0.1 | -1.5 | -1.2 | -1.3 | -0.9 | -1.3 | -1.1 | -1.0 | -1.0 | -0.9 | -0.7 | -0.7 | -0.8 | -0.8 |

Source: United Nations, COMTRADE database.
 Note: .. = Imports and exports data either unknown.

Table 34. Index of revealed competitive advantage for cocoa beans by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| East Asia | -0.0 | -0.0 | -0.0 | -0.1 | -0.1 | -0.0 | -0.0 | -0.1 | -0.1 | -0.3 | -0.9 | -0.3 | -0.3 | -0.3 | -0.2 | -0.4 |
| China | .. | .. | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.1 | -0.1 | -1.0 | -3.2 | -0.9 | -0.9 | -0.8 | -0.4 | -1.3 |
| Democratic People's Rep. of Korea | .. | .. | .. | -0.0 | .. | .. | .. | .. | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | .. | .. | .. |
| Hong Kong | .. | .. | .. | .. | -0.0 | -0.0 | -0.0 | 0.0 | -0.0 | 0.0 | -0.0 | -0.0 | -0.0 | 0.0 | -0.0 | -0.0 |
| Macau | .. | .. | .. | .. | .. | .. | .. | .. | .. | -0.0 | .. | .. | .. | .. | .. | 0.0 |
| Rep. of Korea | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 | -0.2 |
| South-East Asia | 0.0 | -0.2 | 0.1 | 0.1 | 0.0 | -0.3 | -0.2 | -0.0 | 0.5 | 0.8 | 0.7 | 1.0 | 0.6 | 0.8 | 1.4 | 1.4 |
| Indonesia | 0.0 | 0.0 | 0.0 | 0.3 | 0.2 | 0.7 | 1.0 | 1.6 | 2.2 | 2.2 | 1.9 | 2.3 | 2.9 | 3.0 | 5.0 | 5.7 |
| Malaysia | 0.1 | 0.2 | 2.1 | 2.4 | 3.0 | 3.6 | 4.8 | 4.5 | 3.5 | 4.7 | 6.4 | 8.1 | 9.0 | 7.0 | 8.2 | 7.7 |
| Philippines | .. | -2.1 | -1.7 | -2.2 | -1.6 | -4.9 | -4.3 | -1.8 | -0.4 | -0.4 | 1.7 | -0.1 | -0.2 | -0.4 | -1.3 | -1.8 |
| Singapore | 0.0 | .. | -0.5 | -0.3 | -0.7 | -0.3 | -0.1 | -1.5 | -0.3 | -0.8 | -0.8 | -1.4 | -0.6 | -1.0 | -1.9 | 0.7 |
| Thailand | .. | .. | -0.0 | -0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.2 | -0.4 |
| South Asia | .. | 0.0 | -0.1 | -0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.0 |
| Bangladesh | .. | .. | .. | .. | .. | .. | .. | .. | .. | -0.0 | .. | .. | .. | .. | .. | .. |
| India | .. | .. | -0.2 | -0.1 | -0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | .. | .. | .. | 0.0 | .. | -0.1 |
| Maldives | .. | .. | .. | .. | -0.0 | 0.0 | .. | .. | -0.0 | 0.0 | .. | .. | .. | -0.0 | .. | .. |
| Nepal | .. | .. | .. | .. | .. | 0.5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Pakistan | .. | .. | .. | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | .. | .. | .. | -0.0 |
| Sri Lanka | .. | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| Indo-China | .. | .. | .. | .. | .. | .. | .. | -0.0 | .. | .. | .. | .. | .. | .. | .. | .. |
| Cambodia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| LaO People's Democratic Rep. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Viet Nam | .. | .. | .. | .. | .. | .. | .. | -0.0 | .. | .. | .. | .. | .. | .. | .. | .. |
| Pacific islands | 0.7 | 1.4 | 0.8 | 2.0 | 2.1 | 8.8 | 9.8 | 10.7 | 8.2 | 8.1 | 7.2 | 8.9 | 8.9 | 9.4 | 9.5 | 10.9 |
| Fiji | .. | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.1 | 0.3 | 0.3 | 0.3 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | 0.0 | 1.1 | 0.8 | 2.8 | 3.2 | 17.4 | 19.7 | 18.9 | 13.4 | 13.2 | 11.7 | 16.3 | 18.4 | 17.8 | 22.3 | 24.9 |
| Samoa | 31.5 | 27.5 | 16.0 | 15.0 | 15.5 | 14.2 | 0.1 | 19.5 | 0.7 | 0.3 | 1.2 | 0.7 | 0.2 | 0.3 | 0.3 | 0.0 |
| Solomon Islands | .. | .. | .. | 0.0 | .. | 0.0 | 0.4 | 0.2 | 2.9 | 4.7 | 6.1 | 9.3 | .. | .. | 0.1 | 0.2 |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | 0.1 | 0.1 | .. | .. | .. | .. | .. | .. |
| Tuvalu | .. | 0.0 | .. | 0.0 | 0.0 | .. | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | 0.0 | .. | .. |
| Vanuatu | .. | .. | .. | .. | 3.8 | 5.0 | 3.5 | 7.4 | 2.7 | .. | 0.3 | .. | .. | .. | 27.6 | 30.5 |
| Other countries | .. | 0.0 | -0.0 | -0.0 | .. | .. | .. | -0.0 | .. | -0.0 | -0.0 | -0.0 | 0.0 | 0.0 | .. | .. |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | .. | 0.0 | -0.1 | -0.0 | .. | .. | .. | -0.0 | .. | .. | -0.0 | .. | .. | -0.0 | .. | .. |
| Iran (Islamic Rep. of) | .. | .. | .. | .. | .. | .. | .. | .. | .. | -0.0 | .. | -0.0 | -0.0 | -0.0 | .. | .. |
| Mongolia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Myanmar | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0.0 | 0.3 | .. | .. |
| Developed economies | -0.4 | -0.5 | -0.3 | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 | -0.4 | -0.4 | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 |
| Japan | -0.4 | -0.5 | -0.3 | -0.3 | -0.3 | -0.4 | -0.4 | -0.4 | -0.4 | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 | -0.3 |
| Australia | -0.0 | -0.0 | -0.4 | -2.6 | -2.4 | -2.3 | -1.4 | -1.0 | -0.6 | -0.1 | -0.1 | -0.1 | -0.0 | -0.0 | -0.0 | -0.0 |
| New Zealand | -0.0 | -0.0 | -0.1 | -3.9 | -4.1 | -2.7 | -2.3 | -2.1 | -2.5 | -2.4 | -1.9 | -0.3 | -0.1 | -0.0 | -0.0 | -0.0 |

Source: United Nations, COMTRADE database.

Note: .. = Imports and exports data either unknown.

Table 35. Index of revealed competitive advantage for vegetable oils by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| East Asia | -0.0 | -0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.0 | -0.2 | -0.4 | -0.5 | -0.4 | -0.8 | -0.9 | -0.7 |
| China | 0.0 | -0.0 | 0.1 | -0.0 | -0.0 | 0.1 | 0.0 | 0.1 | 0.2 | -0.1 | -0.7 | -1.1 | -0.7 | -1.8 | -2.6 | -2.1 |
| Democratic People's Rep. of Korea | -0.0 | - | -0.0 | -0.3 | -0.2 | -0.1 | -0.5 | -0.7 | -0.9 | -1.0 | -0.7 | -0.4 | -0.4 | -0.4 | -0.4 | -0.2 |
| Hong Kong | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 |
| Macau | -0.3 | -0.2 | -0.2 | -0.2 | -0.1 | -0.0 | 0.8 | 0.4 | -0.1 | -0.1 | -0.1 | -0.1 | 0.1 | 0.6 | 0.1 | -0.1 |
| Rep. of Korea | -0.1 | -0.1 | -0.1 | -0.0 | -0.1 | -0.1 | -0.3 | -0.3 | -0.3 | -0.4 | 0.5 | -0.4 | -0.4 | -0.3 | -0.4 | -0.5 |
| South-East Asia | 0.1 | 0.7 | 1.8 | 2.3 | 2.3 | 2.1 | 2.0 | 2.3 | 1.7 | 2.1 | 2.2 | 1.3 | 1.7 | 1.4 | 1.9 | 1.7 |
| Indonesia | 0.2 | -0.0 | -0.6 | 1.4 | 2.0 | 1.1 | 1.2 | 1.0 | 0.2 | 1.8 | 0.9 | 0.5 | 0.3 | 0.7 | 1.7 | 1.9 |
| Malaysia | 0.7 | 0.8 | 7.6 | 7.1 | 7.9 | 7.9 | 7.8 | 7.7 | 6.5 | 6.7 | 7.8 | 6.6 | 6.5 | 7.3 | 7.6 | 8.1 |
| Philippines | 0.1 | 2.7 | 4.5 | 4.4 | 3.1 | 3.1 | 2.9 | 3.6 | 3.1 | 2.8 | 37.1 | 0.1 | 3.4 | 0.2 | 3.4 | 2.7 |
| Singapore | -0.0 | -0.1 | -1.0 | 0.8 | 1.4 | 1.0 | 1.0 | 0.8 | 0.6 | 1.3 | 0.8 | 0.6 | 0.6 | 0.8 | 0.5 | -0.1 |
| Thailand | -0.4 | -0.5 | -0.3 | -0.6 | -1.4 | -0.9 | -0.4 | -0.6 | -0.8 | -0.3 | -0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 |
| South Asia | 0.0 | -0.1 | -4.0 | -2.7 | -4.2 | -3.7 | -2.2 | -4.2 | -4.2 | -3.4 | -3.8 | -4.8 | -3.9 | -2.1 | -3.1 | -2.6 |
| Bangladesh | - | -1.9 | -1.8 | -2.9 | -2.3 | -3.2 | -2.1 | -2.3 | -2.8 | -1.8 | -2.8 | -3.2 | -1.3 | -0.5 | -2.6 | -0.7 |
| India | 0.0 | 0.0 | -7.3 | -4.8 | -6.9 | -5.8 | -1.7 | -5.4 | -4.7 | -4.7 | -5.8 | -6.8 | -4.8 | -1.6 | -3.5 | -2.0 |
| Maldives | - | -0.0 | -0.3 | -0.3 | -0.2 | -0.1 | -0.2 | -0.3 | -0.7 | -0.7 | -0.7 | -0.7 | -1.6 | -1.8 | -0.9 | -1.4 |
| Nepal | -0.0 | - | 0.0 | 0.2 | 0.0 | -0.1 | -0.0 | 0.2 | -0.4 | -0.3 | 0.5 | -0.6 | -0.1 | 0.1 | 0.4 | -0.1 |
| Pakistan | - | -0.0 | -1.2 | -1.6 | -3.0 | 2.3 | -4.5 | -5.5 | -5.5 | -4.6 | -4.0 | -4.5 | -7.0 | -4.7 | 0.7 | -5.7 |
| Sri Lanka | -0.0 | 0.0 | 0.1 | 0.7 | 0.0 | 0.2 | 0.4 | 0.2 | -0.1 | 0.5 | 0.6 | 0.1 | -0.1 | 0.5 | 0.0 | -0.3 |
| Indo-China | -0.0 | 0.0 | 0.2 | 0.0 | -0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.2 | -0.0 | 0.0 | 0.0 | -0.0 | 0.0 | -0.1 |
| Cambodia | - | 0.0 | 0.0 | - | - | - | - | - | - | - | - | - | 0.0 | 0.0 | 0.0 | - |
| Lao People's Democratic Rep. | -0.0 | - | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | - | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.1 |
| Viet Nam | - | 0.0 | 0.3 | 0.0 | -0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.2 | -0.0 | 0.0 | 0.0 | -0.0 | 0.0 | -0.1 |
| Pacific islands | 0.10 | 0.09 | 0.22 | 0.13 | 0.09 | 0.86 | 1.25 | 1.41 | 1.88 | 1.78 | 1.08 | 1.13 | 1.46 | 1.40 | 1.13 | 1.68 |
| Fiji | -0.03 | 0.27 | 0.71 | 0.26 | -0.19 | -0.20 | -0.10 | 0.11 | 0.24 | -0.35 | -0.33 | -0.49 | -0.66 | -0.54 | -0.68 | -0.60 |
| Kiribati | - | - | -0.00 | -0.03 | -0.03 | -0.02 | -0.01 | -0.02 | -0.04 | -0.03 | -0.04 | -0.04 | -0.05 | -0.08 | -0.10 | -0.09 |
| Papua New Guinea | 0.22 | -0.00 | -0.00 | -0.04 | -0.06 | 1.65 | 2.29 | 2.09 | 2.57 | 2.55 | 1.56 | 1.93 | 2.66 | 2.57 | 2.85 | 4.18 |
| Samoa | -0.07 | -0.04 | -0.01 | 0.00 | 0.01 | 0.03 | 0.20 | 0.20 | 0.41 | 1.70 | 3.36 | 2.04 | 2.94 | 2.39 | 1.81 | 1.89 |
| Solomon Islands | -0.43 | -0.34 | -0.28 | -0.37 | -0.41 | -0.32 | -0.36 | -0.46 | 1.53 | 1.10 | 0.70 | 0.78 | 1.14 | -0.28 | -0.62 | -0.91 |
| Tonga | - | - | -0.01 | 2.05 | 4.81 | 2.67 | 3.56 | 4.82 | 4.19 | 5.98 | 3.49 | 3.33 | 2.61 | 1.60 | 0.52 | 0.40 |
| Tuvalu | - | 0.00 | - | -0.03 | -0.06 | - | - | -0.11 | -0.27 | 0.14 | - | - | - | -0.24 | - | - |
| Vanuatu | -0.00 | -0.01 | -0.00 | -0.01 | 0.42 | -0.15 | -0.19 | -0.12 | -0.17 | 0.01 | -0.05 | -0.11 | -0.14 | -0.06 | -0.06 | -0.02 |
| Other countries | -0.00 | -0.00 | -0.03 | -0.06 | -0.10 | -0.07 | -0.06 | -0.03 | -0.04 | -0.08 | -0.09 | -0.02 | -0.05 | -0.18 | -0.25 | -0.27 |
| Afghanistan | - | - | - | - | - | - | -0.00 | -0.17 | - | - | -0.97 | - | - | -0.41 | -0.01 | -0.25 |
| Bhutan | - | - | - | - | - | -0.11 | - | - | - | - | - | - | - | - | - | - |
| Brunei Darussalam | - | - | -0.26 | -0.30 | -0.25 | -0.22 | -0.25 | -0.21 | -0.23 | -0.25 | -0.21 | -0.17 | -0.21 | -0.30 | -0.18 | -0.24 |
| Iran (Islamic Rep. of) | -0.00 | -0.00 | -0.00 | -0.01 | -0.02 | -0.03 | -0.00 | -0.00 | -0.00 | -0.00 | - | -0.00 | -0.02 | -0.14 | -0.04 | -0.01 |
| Mongolia | - | - | - | - | - | - | - | - | - | - | - | -0.05 | - | - | - | -0.00 |
| Myanmar | -0.00 | -0.09 | -2.04 | -4.08 | -4.98 | -3.07 | -2.99 | -2.92 | -3.46 | -2.97 | -4.17 | -1.10 | -2.04 | -5.06 | -8.52 | -9.16 |
| Developed economies | -0.10 | -0.11 | -0.12 | -0.16 | -0.13 | -0.16 | -0.16 | -0.15 | -0.15 | -0.13 | -0.08 | -0.07 | -0.10 | -0.10 | -0.11 | -0.11 |
| Japan | 0.01 | 0.02 | 0.03 | 0.07 | 0.15 | -0.02 | 0.02 | 0.06 | 0.04 | 0.03 | 0.12 | 0.07 | 0.04 | 0.06 | 0.07 | 0.10 |
| Australia | -0.00 | -0.17 | -0.42 | -1.01 | -0.75 | -0.73 | -0.66 | -0.73 | -0.56 | -0.39 | -0.39 | -0.51 | -0.62 | -0.58 | -0.71 | -0.72 |
| New Zealand | -0.02 | -0.02 | -0.09 | -0.77 | -0.74 | -0.70 | -0.54 | -0.99 | -0.74 | -0.84 | -0.69 | -0.59 | -0.63 | -0.58 | -0.53 | -0.56 |

Source: United Nations, COMTRADE database.

Note: .. = Imports and exports data either unknown.

Table 36. Index of revealed competitive advantage for spices by country and area, 1976-1991

| Country/Area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| East Asia | 0.4 | 0.5 | 0.5 | 0.8 | 1.7 | 1.7 | 2.3 | 3.0 | 1.8 | 1.5 | 0.8 | 0.3 | 0.4 | 1.2 | 1.1 | 1.0 |
| China | 0.5 | 0.7 | 1.5 | 3.1 | 1.5 | 3.9 | 5.2 | 6.6 | 5.1 | 4.9 | 3.4 | 1.8 | 1.9 | 3.1 | 3.0 | 2.8 |
| Democratic People's Rep. of Korea | 0.0 | 0.1 | 0.0 | 0.1 | 0.3 | 0.9 | -1.0 | 0.7 | 0.1 | 0.1 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | 0.0 |
| Hong Kong | 0.2 | 0.2 | -0.7 | -1.0 | -0.8 | -1.5 | -2.2 | -2.0 | -2.5 | -2.7 | -2.6 | -1.6 | -1.8 | -1.7 | -1.2 | -1.3 |
| Macao | 25.0 | 13.3 | 17.7 | 18.2 | 22.6 | 26.5 | 19.8 | 15.3 | 13.1 | 7.3 | 7.1 | 2.5 | 2.3 | 2.1 | 1.5 | 1.3 |
| Rep. of Korea | -0.1 | 0.1 | -0.8 | -2.9 | -0.5 | 0.0 | -0.5 | -0.1 | -0.9 | -1.3 | -0.5 | -0.7 | -0.6 | 0.2 | -0.3 | -0.3 |
| South-East Asia | 0.1 | 0.3 | -1.2 | -2.7 | -1.7 | -2.9 | -2.4 | 0.2 | 0.2 | -1.4 | 1.8 | 2.0 | 2.5 | 1.4 | 0.8 | 0.5 |
| Indonesia | 0.4 | 0.4 | 1.5 | -1.8 | 0.2 | -2.4 | 3.0 | 13.9 | 11.8 | -0.1 | 11.2 | 14.5 | 14.0 | 12.1 | 12.2 | 11.1 |
| Malaysia | 1.5 | 1.6 | 5.9 | 3.9 | 3.2 | 1.8 | 0.1 | -0.0 | -0.4 | 0.9 | 2.0 | 2.2 | 1.9 | 1.8 | 1.5 | 0.3 |
| Philippines | 0.0 | -0.3 | -0.5 | -0.6 | 0.5 | -0.4 | 0.4 | 0.4 | 0.4 | -0.2 | 0.4 | -2.3 | -0.2 | -0.1 | -0.1 | -0.1 |
| Singapore | 0.0 | 0.1 | -7.0 | 4.3 | 4.1 | 4.1 | 3.5 | 3.6 | 2.5 | 1.0 | 4.5 | 5.0 | 6.7 | 4.5 | 1.1 | 1.4 |
| Thailand | -5.0 | -1.1 | -0.5 | -1.2 | 0.4 | -1.1 | -1.4 | -1.3 | 0.0 | -0.3 | -0.1 | -0.0 | 0.4 | 0.3 | 0.4 | 0.5 |
| South Asia | 0.5 | 0.4 | 8.0 | 11.2 | 5.9 | 4.6 | 3.9 | 4.7 | 6.0 | 8.8 | 6.6 | 8.7 | 7.5 | 0.2 | 4.7 | 3.8 |
| Bangladesh | 2.3 | 2.5 | 1.3 | -1.3 | 0.1 | -4.1 | -2.3 | -2.4 | -3.4 | -1.3 | -3.0 | -3.6 | -2.3 | 2.1 | -7.2 | 13.0 |
| India | 0.4 | 0.6 | 13.9 | 14.7 | 11.2 | 5.0 | 4.8 | 5.6 | 10.4 | 12.7 | 8.7 | 12.7 | 6.7 | -0.7 | 5.6 | 4.5 |
| Maldives | -- | -- | -2.7 | -1.1 | -0.4 | -2.1 | -0.7 | -0.4 | -0.7 | -0.4 | -0.9 | -0.6 | -1.6 | -1.3 | -7.9 | 18.1 |
| Nepal | -0.0 | 0.5 | -6.3 | -3.1 | 4.4 | 0.8 | -4.1 | 1.5 | 3.6 | -1.5 | 0.6 | 0.6 | -0.4 | -5.0 | 9.8 | 0.0 |
| Pakistan | 1.4 | 0.7 | 0.5 | 3.8 | 0.7 | -1.5 | 0.9 | 0.6 | 0.7 | 1.7 | 0.6 | 0.5 | 2.1 | 1.1 | 2.6 | 5.1 |
| Sri Lanka | 0.0 | 0.1 | -3.4 | 3.0 | 6.9 | 14.3 | 5.7 | 4.4 | -3.5 | 1.4 | 4.2 | 3.5 | 7.9 | 8.9 | 11.0 | 14.4 |
| Indo-China | 1.2 | 1.1 | 1.5 | 5.9 | 1.3 | 6.9 | 6.9 | 1.7 | 1.7 | 4.4 | 1.3 | 3.3 | 1.6 | 1.3 | 1.5 | 2.7 |
| Cambodia | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -5.1 | -- | -- |
| Lao People's Democratic Rep. | -0.9 | 0.0 | 0.9 | 2.1 | 22.2 | 0.6 | 3.2 | 0.1 | -0.0 | 1.4 | -- | 0.0 | 0.1 | 0.1 | -0.1 | 0.4 |
| Viet Nam | 1.3 | 1.3 | 1.7 | 5.9 | 1.0 | 6.9 | 7.2 | 1.7 | 1.7 | 4.6 | 1.3 | 3.4 | 3.8 | 1.9 | 1.6 | 2.9 |
| Pacific Islands | 0.0 | 0.3 | 0.1 | 0.2 | 0.2 | 0.7 | 1.2 | 0.7 | 0.8 | 0.9 | 0.9 | 0.7 | 0.6 | 0.7 | 1.7 | 1.5 |
| Fiji | 0.0 | 0.7 | 0.1 | 0.1 | -0.4 | 1.0 | 2.2 | 1.0 | 1.0 | 1.2 | 1.2 | 0.6 | 0.7 | 1.4 | 2.2 | 2.2 |
| Kiribati | -- | -0.0 | -0.0 | -0.2 | -0.6 | -0.5 | -0.2 | -0.3 | -0.5 | -0.6 | -0.6 | -1.0 | -0.8 | -0.8 | -0.8 | -1.0 |
| Papua New Guinea | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.7 | 0.6 | 0.6 | 0.5 | 0.5 | 0.0 | 0.4 | -0.4 |
| Samoa | -0.4 | -0.9 | -0.4 | -0.4 | -0.5 | -0.5 | -0.2 | -0.4 | -0.3 | -0.3 | -0.2 | -0.3 | -0.5 | -0.4 | -0.6 | -0.3 |
| Solomon Islands | -- | -- | -- | -0.5 | -0.6 | -0.6 | -0.4 | -0.6 | -0.6 | -0.6 | -0.6 | -0.6 | -0.6 | -0.6 | -0.6 | -0.6 |
| Tonga | -- | -0.6 | -0.2 | 0.8 | 0.4 | 0.5 | 7.0 | 0.6 | 0.5 | 5.0 | 0.1 | 2.7 | 5.7 | 2.0 | 1.6 | -0.4 |
| Tuvalu | -- | 0.0 | -- | -0.0 | -0.2 | -- | -- | -0.0 | -0.2 | -0.0 | -- | -- | -- | -0.0 | -- | -- |
| Vanuatu | -- | -0.0 | -- | -0.1 | -0.3 | 0.4 | -0.4 | -0.3 | -0.3 | -0.1 | -0.1 | -0.1 | -0.3 | -0.3 | -0.3 | -0.2 |
| Other countries | 0.4 | 0.4 | 0.9 | 0.1 | 0.1 | 0.1 | 2.9 | 1.9 | 0.2 | 0.7 | 1.1 | 3.2 | 3.0 | 2.2 | 3.7 | 4.1 |
| Afghanistan | -- | -- | -0.1 | -0.1 | -0.1 | -0.2 | 0.1 | 0.3 | 0.1 | 1.1 | 0.6 | 0.6 | 0.5 | 0.4 | 1.5 | 1.8 |
| Bhutan | -- | -- | -- | -- | 0.1 | 3.6 | 26.4 | 44.7 | 26.4 | 13.1 | 15.5 | 34.6 | 31.6 | 7.0 | 0.7 | 13.0 |
| Brunei Darussalam | 02.3 | 17.3 | 10.4 | 29.1 | 3.9 | 10.9 | 20.9 | 7.9 | 1.6 | 0.5 | 1.0 | 2.0 | -1.1 | -1.6 | -1.0 | -1.0 |
| Iran (Islamic Rep. of) | 1.7 | 1.1 | 2.7 | 1.9 | 1.9 | 2.7 | 6.3 | 3.5 | 0.8 | 1.0 | 2.2 | 0.9 | 2.8 | 3.1 | 1.8 | 5.1 |
| Mongolia | -- | -- | -- | -- | -- | -- | -- | -- | 0.6 | -- | -- | -- | -0.0 | -0.0 | -0.0 | -0.0 |
| Myanmar | 0.0 | 0.1 | 0.1 | -0.9 | -1.5 | -0.4 | -4.1 | -5.2 | -2.9 | -1.5 | -0.5 | -1.7 | -2.7 | -3.0 | -0.7 | -0.9 |
| Developed economies | -0.6 | -0.9 | -0.8 | -0.6 | -0.6 | -0.5 | -0.7 | -0.7 | -0.5 | -0.6 | -0.6 | -0.6 | -0.6 | -0.6 | -0.6 | -0.5 |
| Japan | -0.6 | -0.9 | -0.7 | 0.5 | -0.5 | -0.2 | 0.0 | 0.5 | -0.4 | -0.4 | -0.4 | -0.5 | -0.4 | -0.4 | -0.3 | -0.1 |
| Australia | -0.9 | -0.9 | -0.2 | -1.9 | -1.4 | -1.2 | -1.1 | -1.1 | -1.1 | -1.4 | -1.4 | -1.4 | -1.4 | -1.2 | -1.2 | -1.6 |
| New Zealand | 0.0 | -0.9 | -0.2 | 1.0 | -1.0 | -0.9 | -0.7 | -0.8 | -1.0 | -0.8 | -1.0 | -1.0 | -1.0 | -1.0 | -0.9 | -1.0 |

Source: United Nations, COMTRADE database.

Note: -- = Imports and exports data either unknowns.

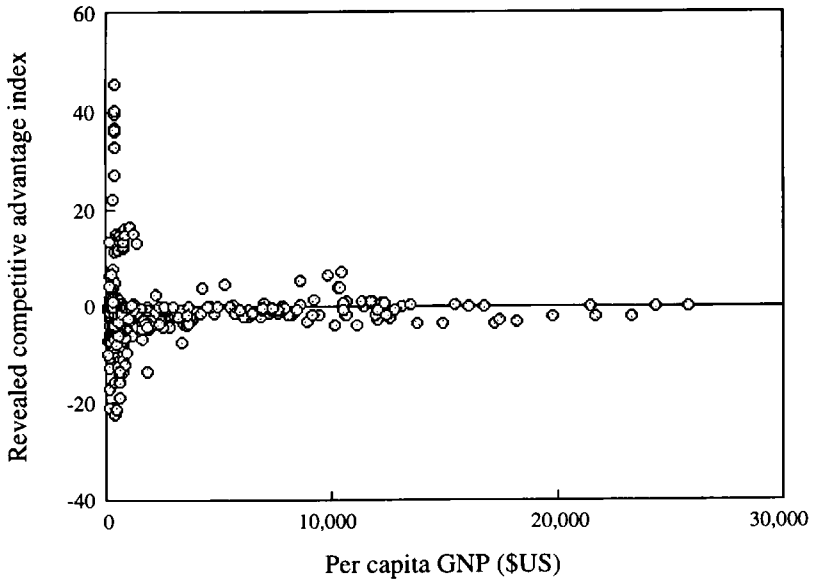
Table 37. Index of revealed competitive advantage for natural rubber by country and area, 1976-1991

| Country/area | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|-----------------------------------|------|------|-------|------|------|------|------|------|------|-------|------|------|-------|-------|--------|--------|
| East Asia | -1.2 | -1.3 | -2.0 | -3.1 | -3.5 | -2.2 | -2.6 | -2.9 | -2.4 | -2.6 | -3.2 | -2.7 | -2.6 | -2.2 | -2.2 | -2.1 |
| China | -0.7 | -0.6 | -3.8 | -6.3 | -7.0 | -3.6 | -4.9 | -6.1 | -4.3 | -4.3 | -5.7 | -5.2 | -4.8 | -4.5 | -4.7 | -4.0 |
| Democratic People's Rep. of Korea | .. | .. | -0.3 | -6.5 | -8.2 | -2.2 | -5.1 | -6.4 | -6.4 | -2.3 | -1.4 | -2.4 | -4.2 | 0.4 | -1.1 | -0.6 |
| Hong Kong | -0.0 | -0.0 | -0.2 | -0.2 | -0.2 | -0.1 | -0.3 | -0.2 | -0.1 | -0.1 | -0.1 | -0.1 | -0.5 | -0.3 | -0.2 | -0.6 |
| Macau | -0.1 | -0.1 | -0.0 | -0.2 | -0.0 | -0.1 | 0.0 | -0.0 | -0.0 | -0.0 | 0.0 | 0.0 | -0.0 | -0.0 | -0.0 | -0.0 |
| Rep. of Korea | -3.0 | -3.1 | -2.4 | -3.0 | -3.6 | -2.9 | 0.0 | -2.9 | -2.6 | -2.6 | -3.3 | -3.0 | -2.9 | -2.4 | -2.8 | -2.6 |
| South-East Asia | 5.7 | 5.5 | 18.2 | 31.1 | 28.8 | 28.6 | 28.6 | 27.2 | 25.6 | 28.0 | 31.2 | 28.8 | 26.7 | 23.2 | 21.6 | 19.7 |
| Indonesia | 1.2 | 1.1 | 1.7 | 25.2 | 23.2 | 20.0 | 20.4 | 22.1 | 24.3 | 27.6 | 35.6 | 37.6 | 37.8 | 34.0 | 32.4 | 34.1 |
| Malaysia | 6.2 | 6.7 | 90.0 | 81.0 | 81.3 | 88.1 | 78.1 | 68.6 | 56.6 | 59.4 | 69.8 | 61.4 | 60.0 | 45.3 | 37.6 | 30.9 |
| Philippines | 0.0 | 0.2 | 0.3 | 0.2 | 0.6 | 0.8 | 0.9 | 0.5 | 0.6 | 1.6 | 1.5 | 0.2 | 1.1 | 0.4 | 1.4 | 1.5 |
| Singapore | -0.9 | -0.9 | -14.5 | 12.1 | 11.3 | 13.8 | 13.1 | 8.7 | 8.4 | 7.9 | 6.8 | 4.2 | 4.1 | 3.7 | 3.3 | 1.6 |
| Thailand | 37.1 | 37.5 | 42.4 | 45.8 | 44.0 | 42.7 | 44.7 | 44.6 | 42.7 | 50.7 | 46.9 | 44.4 | 39.0 | 36.6 | 37.9 | 34.6 |
| South Asia | 0.2 | 0.3 | -0.0 | 4.3 | 5.2 | 5.5 | 4.8 | 3.5 | 3.7 | 3.6 | 2.9 | 2.0 | 1.5 | 1.3 | 0.9 | 1.9 |
| Bangladesh | .. | -0.1 | -0.3 | -0.4 | -0.4 | -0.5 | -0.4 | -0.1 | -0.3 | -0.2 | -0.3 | -0.5 | -0.5 | -0.5 | -0.4 | -5.1 |
| India | 0.2 | 0.4 | -0.4 | -1.6 | -0.0 | -1.3 | -2.1 | -1.6 | -1.0 | -1.2 | -1.8 | -1.8 | -1.9 | -1.3 | -1.8 | -0.0 |
| Maldives | .. | .. | .. | -0.0 | .. | .. | .. | 1.1 | 0.1 | .. | .. | .. | .. | -0.0 | -0.0 | -0.0 |
| Nepal | .. | .. | .. | 0.5 | -0.0 | .. | -0.2 | -0.0 | -0.1 | -0.2 | -0.3 | -0.5 | -0.3 | -0.3 | -0.6 | -0.3 |
| Pakistan | .. | .. | -0.1 | -1.5 | -1.5 | -1.3 | -1.1 | -1.3 | -1.4 | -1.6 | -2.0 | -2.3 | -1.9 | -2.3 | -2.6 | -2.0 |
| Sri Lanka | 0.8 | 0.6 | 2.3 | 66.6 | 68.9 | 83.4 | 80.4 | 61.4 | 48.1 | 51.5 | 55.1 | 49.1 | 44.0 | 40.7 | 36.7 | 40.1 |
| Indo-China | 1.4 | 1.0 | 0.6 | 9.3 | 12.5 | 13.0 | 5.2 | 6.8 | 6.6 | 2.5 | 0.3 | 0.2 | 1.0 | 4.4 | 12.3 | 7.1 |
| Cambodia | 12.5 | 8.6 | 1.0 | .. | .. | -0.0 | .. | 1.5 | 21.8 | 156.6 | 13.2 | 21.9 | 144.5 | 603.7 | 3125.2 | 1597.3 |
| Lao People's Democratic Rep. | .. | .. | .. | .. | .. | .. | 0.2 | .. | 0.2 | .. | 0.1 | .. | 0.3 | -0.2 | 1.2 | 2.0 |
| Viet Nam | 0.8 | 0.6 | 0.6 | 10.0 | 13.4 | 14.3 | 5.7 | 7.1 | 6.7 | 1.9 | 0.2 | 0.1 | 0.5 | 3.3 | 7.5 | 4.0 |
| Pacific islands | -0.0 | -0.0 | -0.0 | 1.1 | 1.2 | 1.5 | 0.8 | 0.9 | 1.0 | 1.4 | 1.4 | 0.9 | 0.9 | 0.9 | 0.6 | 0.6 |
| Fiji | .. | -0.0 | .. | -0.0 | -0.0 | -0.0 | .. | -0.1 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | -0.1 |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Papua New Guinea | .. | .. | .. | 2.2 | 2.5 | 3.5 | 1.8 | 1.7 | 2.0 | 2.8 | 2.7 | 1.5 | 1.8 | 2.1 | 1.4 | 1.6 |
| Samoa | -0.1 | -0.0 | -0.0 | -0.0 | -0.1 | -0.0 | .. | -0.0 | -0.0 | .. | .. | .. | -0.0 | .. | .. | .. |
| Solomon Islands | .. | .. | .. | -0.0 | .. | -0.0 | .. | .. | -0.1 | .. | .. | .. | .. | .. | .. | .. |
| Tonga | .. | .. | .. | .. | -1.1 | -1.9 | .. | .. | .. | .. | .. | .. | .. | -0.0 | .. | .. |
| Tuvalu | .. | .. | .. | .. | .. | .. | 0.0 | 0.0 | 0.0 | .. | .. | .. | .. | .. | .. | .. |
| Vanuatu | .. | .. | .. | .. | -0.0 | -0.0 | -0.2 | -0.0 | -0.0 | .. | .. | .. | .. | .. | .. | .. |
| Other countries | 0.0 | -0.0 | -0.1 | -0.2 | -0.4 | -0.3 | -1.5 | -1.1 | -1.0 | -0.7 | -0.8 | -0.9 | -1.4 | -1.1 | -2.3 | -1.0 |
| Afghanistan | .. | .. | .. | .. | .. | .. | .. | -0.0 | -0.0 | -0.0 | -0.0 | -0.0 | .. | .. | -0.0 | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brunei Darussalam | 0.5 | .. | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | 0.0 | 0.0 | -0.0 | 0.0 | -0.0 |
| Iran (Islamic Rep. of) | -0.0 | -0.0 | -0.3 | -0.6 | -1.1 | -1.0 | -2.0 | -1.5 | -1.4 | -1.3 | -1.7 | -1.7 | -2.5 | -2.0 | -3.1 | -1.6 |
| Mongolia | .. | .. | .. | -0.1 | -0.2 | -0.1 | .. | .. | .. | -0.1 | -0.2 | -0.3 | -0.1 | -0.0 | -0.1 | -0.1 |
| Myanmar | 0.8 | 0.5 | 13.5 | 19.7 | 25.0 | 20.9 | 18.9 | 16.4 | 15.2 | 22.6 | 23.1 | 35.0 | 57.2 | 43.9 | 28.8 | 22.6 |
| Developed economies | -1.2 | -1.2 | -1.6 | -1.8 | -1.9 | -1.8 | -1.7 | -2.0 | -1.8 | -1.9 | -2.1 | -2.1 | -2.0 | -1.9 | -1.9 | -2.2 |
| Japan | -1.4 | -1.4 | -1.8 | -1.7 | -1.9 | -1.9 | -1.7 | -2.1 | -1.9 | -2.1 | -2.3 | -2.3 | -2.2 | -2.0 | -2.1 | -2.4 |
| Australia | 0.0 | 0.0 | -0.4 | -1.6 | -1.4 | -1.3 | -1.1 | -0.9 | -0.8 | -0.8 | -0.8 | -0.9 | -0.9 | -0.7 | -0.7 | -0.8 |
| New Zealand | .. | -0.0 | -0.7 | -1.4 | -1.1 | -1.0 | -1.0 | -0.8 | -0.8 | -0.8 | -0.8 | -0.7 | -0.5 | -0.8 | -0.5 | -0.6 |

Source: United Nations, COMTRADE database.

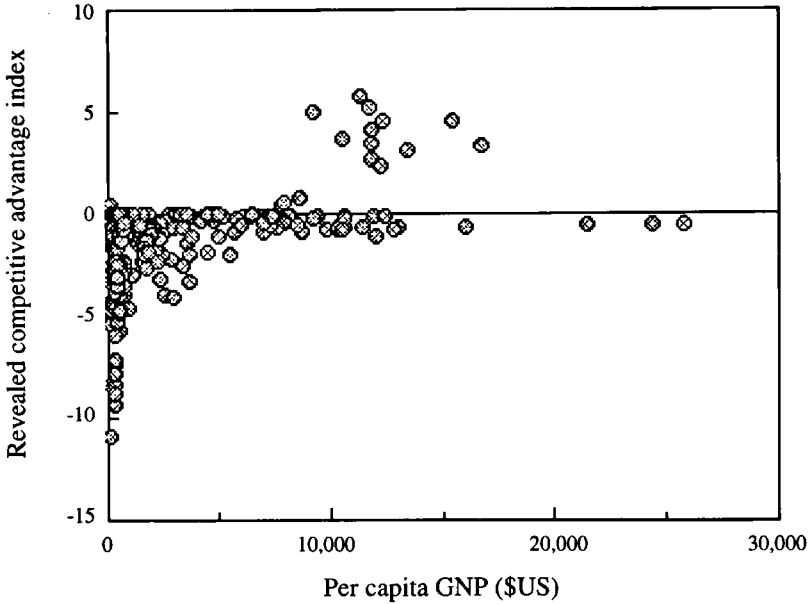
Note: .. = Imports and exports data either unknown.

ANNEX 2



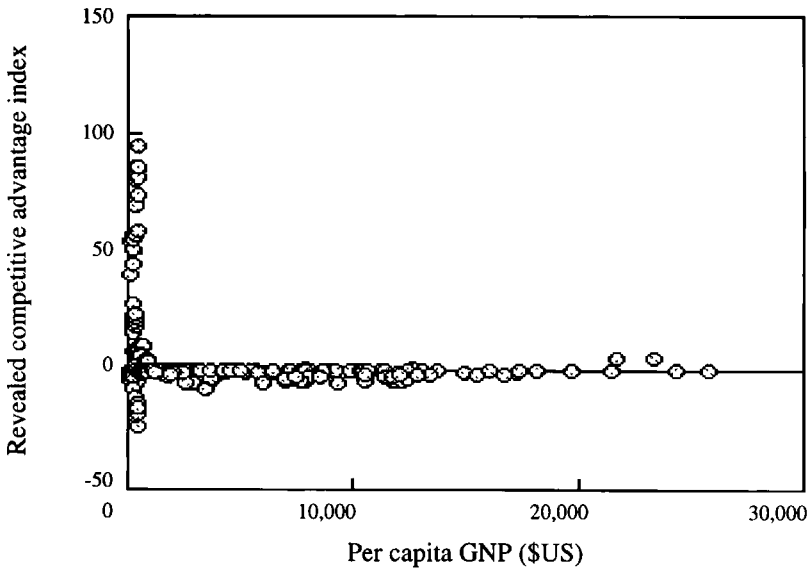
Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Annex figure 1. Revealed competitive advantage for rice related to per capita GNP, 1976-1992



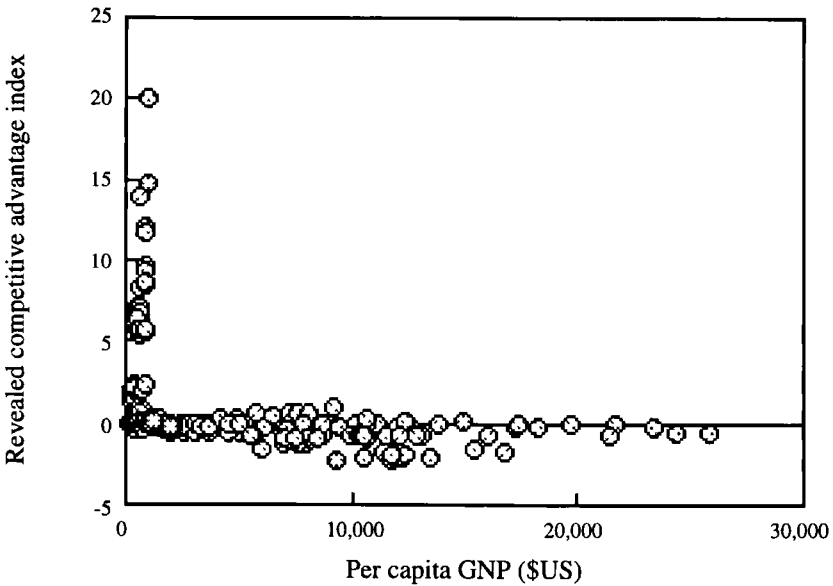
Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Annex figure 2. Revealed competitive advantage for wheat related to per capita GNP, 1976-1992



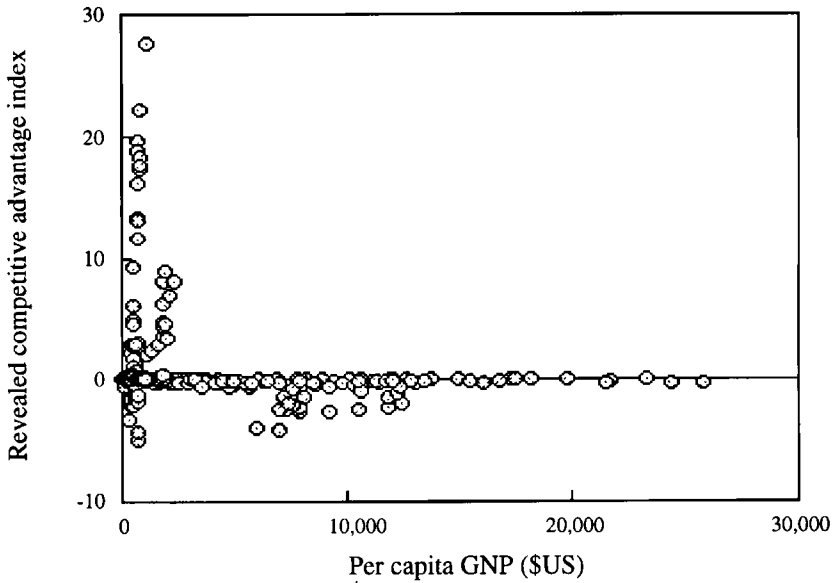
Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Annex figure 3. Revealed competitive advantage for tea related to per capita GNP, 1976-1992



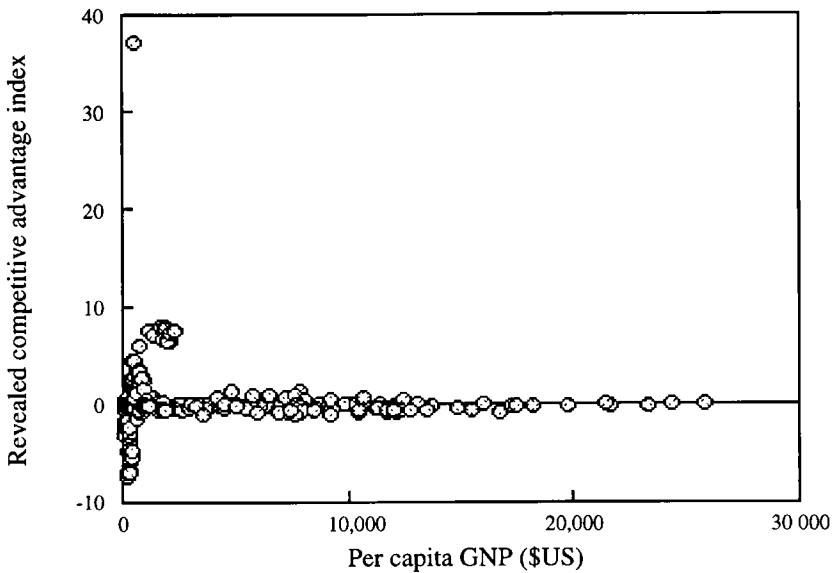
Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Annex figure 4. Revealed competitive advantage for coffee related to per capita GNP, 1976-1992



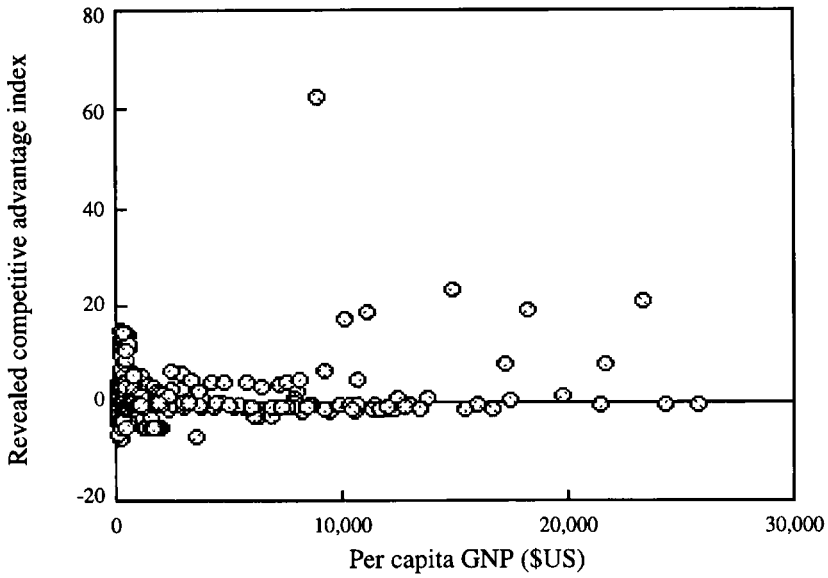
Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Annex figure 5. Revealed competitive advantage for cocoa related to per capita GNP, 1976-1992



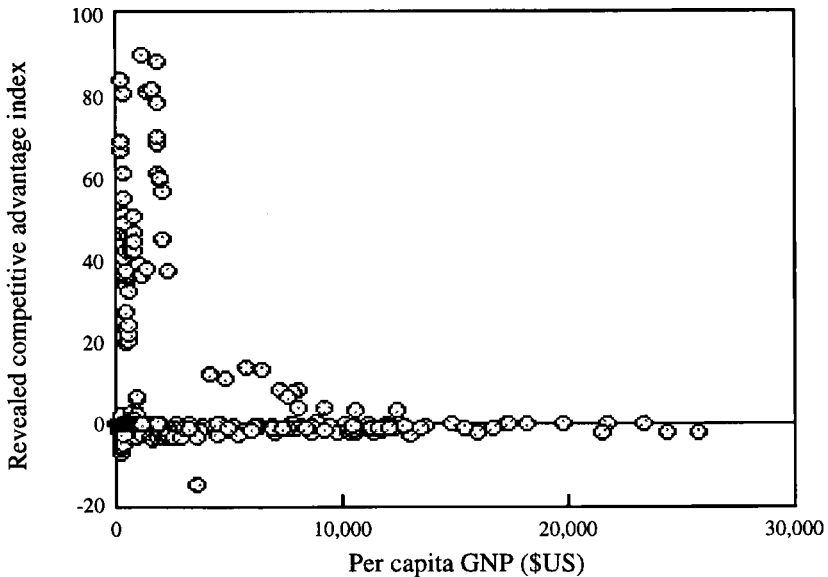
Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Annex figure 6. Revealed competitive advantage for vegetable oils related to per capita GNP, 1976-1992



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Annex figure 7. Revealed competitive advantage for spices related to per capita GNP, 1976-1992



Source: Food and Agriculture Organization of the United Nations, AGROSTAT.

Annex figure 8. Revealed competitive advantage for natural rubber related to per capita GNP, 1976-1992

II. COMPENDIUM OF EXPERT PAPERS

A. THE URUGUAY ROUND AGREEMENT ON AGRICULTURE AND PROSPECTS FOR ASIAN AND PACIFIC AGRICULTURAL TRADE¹

This paper describes the principal elements of the Uruguay Round Agreement on Agriculture and provides a preliminary assessment of its implications for international agricultural markets and the agricultural trade of Asian and Pacific countries. The assessment takes into account trade liberalization commitments made by the member countries of the Organization for Economic Cooperation and Development (OECD), because they are the major import markets for world trade.

There are two reasons why this analysis is preliminary. First, more detailed study is required on the Schedules of Commitments of Uruguay Round participants and the policy measures Governments will adopt to conform to their obligations in order to draw definitive conclusions. Second, a precise quantitative assessment of the impact of trade flows of each country for specific products requires the use of the proper econometric simulation models.

1. Principal elements of the Uruguay Round Agreement on Agriculture

The Agreement on Agriculture signed on 15 April 1994 as part of the Final Act of the Uruguay Round describes the general framework of rules for international trade in agriculture. The main provisions cover: (1) market access; (2) domestic support and export competition commitments and disciplines; (3) special market access safeguards; (4) due restraint; (5) special and differential treatment; (6) establishment of a Committee on Agriculture; (7) consultation and dispute settlement; and (8) continuation of the reform process.

The coverage of the Agreement on Agriculture includes most agricultural products. However, certain products and categories are excluded from coverage: fishery products, forest products, rubber, jute, sisal, abaca and coir. Products not covered are subject to the general rules provided in the General Agreement on Tariffs and Trade (GATT) 1994 and other multilateral trade agreements.

Developed countries have made commitments to expand market access and to reduce support and export subsidies, which would be completed by 2000, assuming that

¹ Based on a paper presented by International Trade Division, UNCTAD, Geneva.

the Agreement establishing the World Trade Organization (WTO) comes into effect in 1995. The developing countries' commitments should be implemented by 2004. The main features of the Agreement on Agriculture are summarized in table 1.

(a) **Market access commitments**

Commitments on market access have three elements: (1) tariffication, (2) tariff reduction and (3) access opportunities. Under the tariffication commitments, specific non-tariff barriers (such as quotas, variable levies, minimum import prices, discretionary licensing, restrictions applied through state trading measures, voluntary export restraint agreements, etc.) are abolished and converted into equivalent tariffs. The basic approach is to set tariffs equal to the 1986-1988 difference between the internal price and the import unit value c.i.f. converted into the national currency. Adjustments may be made for quality and variety.

All tariffs will be reduced by an average of 36 per cent over the six-year implementation period, with a minimum rate of 15 per cent reduction for each tariff item. For most developing countries, the required reductions will be from 10 to 24 per cent. Tariff reductions will be made in equal annual installments.

Special provisions concerning minimum and current access opportunities have been included since "tariffication" may result in prohibitively high duties. Where there are no significant imports, a *minimum access* opportunity representing 3 per cent of domestic consumption in the base period, 1986-1988, will be established for 1995. The share will rise to 5 per cent of the base period figure at the end of the implementation period.

Minimum access opportunities will be allocated on a most-favoured nation basis and implemented on the basis of tariff quotas. In the case where current access opportunities are more than the minimum, they will be maintained and may be increased during the implementation process.

A special treatment clause (annex 5 of the Agreement) allows exceptions to the tariffication obligation for certain designated products that reflect (1) non-trade concerns, such as food security and environmental protection and (2) a predominant staple in the traditional diet of people in a developing country. Although it was phrased in general terms, this clause was intended to take into particular account the problems of Japan and the Republic of Korea in the rice sector. The two countries are obliged to open a minimum access commitment for rice over the implementation period (six years for Japan and ten years for the Republic of Korea). The continuation of such special treatment beyond the implementation period will be subject to negotiation.

Special safeguard provisions relating to market access are also included in the Agreement. Under certain conditions, additional duties can be imposed when there are import surges or low import prices, as compared with levels in 1986-1988. In the case of

Table 1. Summary of major elements in the Agreement on Agriculture

| Market access | Export competition | Domestic support |
|---|---|--|
| <ol style="list-style-type: none"> 1. Base period: 1986-1988 2. Implementation period: 1995-2000 <ul style="list-style-type: none"> • Commitments on access to be implemented in equal annual installments 3. Tariffication of NTMs <ul style="list-style-type: none"> • Special treatment clause: no tariffication of NTMs for certain products Valid during implementation period^a • Safeguard provision: for tariffied products only Valid during implementation period 4. Reduction of agricultural tariffs (including those resulting from tariffication) on simple average basis by 36 per cent (with minimum reduction of 15 per cent per tariff line) 5. Minimum access commitments: 3 per cent of domestic consumption in first year, rising to 5 per cent by end of implementation period <ul style="list-style-type: none"> • For non-tariffied products: initially 4 per cent, rising to 8 per cent by end of implementation period (6 years) • For products that are a predominant staple in the traditional diet of a developing country: initially 1 per cent, rising to 4 per cent by end of implementation period (10 years) | <ol style="list-style-type: none"> 1. Base period: 1986-1990 or 1991-1992 2. Implementation period: 1995-2000 <ul style="list-style-type: none"> • Flexibility in implementing reduction commitments^b 3. Reduction of <i>outlays</i> on export subsidies: by 36 per cent of base period level; initial cut of at least 6 per cent in first year of implementation period; in equal annual installments thereafter 4. Reduction of <i>quantity</i> of subsidized exports: by 21 per cent base period level; initial cut of at least 3.5 per cent in first year of implementation period; in equal annual installments thereafter 5. Non-circumvention of commitments: Undertake not to circumvent export subsidy commitments by such means as tying food aid to commercial exports, etc.; internationally agreed discipline to govern export credits; develop export credit guarantees or insurance programmes | <ol style="list-style-type: none"> 1. Base period: 1986-1988 2. Implementation period: 1995-2000 <ul style="list-style-type: none"> • Commitments on reduction to be implemented in equal annual installments 3. Reduction of total AMS: (comprising both product-specific and non-product specific AMS) by 20 per cent 4. "Green box" measures: exempted from inclusion in calculation of total AMS to be reduced 5. Payments under production-limiting programmes: exempt from reduction commitment, if they are based on fixed area and yields, or number of head for livestock, or on a maximum of 85 per cent of base level of production 6. <i>De minimis</i> provision: exempt from reduction commitments AMS which does not exceed 5 per cent of the value of production of a basic product (in the case of product-specific support), or of the value of total agricultural production (in the case of non-product specific domestic support) |
| <ol style="list-style-type: none"> 6. Current access guarantee: maintain current access opportunities (that is, quantity of imports in 1986-1988 base period) which exceed the minimum access | <p>Due restraint ("peace clause") provision – valid during the implementation period</p> <ol style="list-style-type: none"> 1. "Green box" policies (in conformity with Annex 2 of the Agreement) are non-actionable for purposes of countervailing duties and other GATT challenges 2. All domestic support measures in conformity with the Agreement, including direct payments under production-limiting programmes as well as within the <i>de minimis</i> levels, are exempt from the imposition of countervailing duties as long as they do not cause injury or threat thereof, and are also exempt from other actions under the GATT so long as support to specific commodities do not exceed that decided in 1992 3. Export subsidies within the constraints of the Agreement are exempt from challenges under the GATT and subject to countervailing duties only if they cause injury or the threat thereof | |

S & D provisions: Reduction commitments for developing countries are two thirds of those applied to developed countries (LDCs) are not required to undertake reduction commitments. Developing countries have flexibility up to 10 years (2004) to implement reduction commitments.

Source: United Nations Conference on Trade and Development.

Notes: ^a Other exceptions to the general requirement of tariffication are: (1) cases in which countries can invoke any general, non-agriculture specific provisions of GATT 1994; for example, the balance-of-payments provisions and (2) the special treatment for LDCs which exempts them from undertaking reduction commitments.

^b (1) Cuts in export subsidies may begin from the 1991-1992 average, if higher than the base period level, but must be reduced to the final commitment levels by end of implementation period in equal annual installments and (2) export subsidies in any year may exceed the corresponding annual commitment levels provided that such subsidies on a cumulative basis (from beginning of implementation period to the year in question) do not exceed by more than 3 per cent in the case of *outlays* and more than 1.75 per cent in the case of quantities, the corresponding commitment levels (on a cumulative basis) specified in the country's schedule.

AMS is aggregate measure of support

NTMs are non-tariff measures.

S & D are special and differential.

import surges (defined by special trigger levels above average imports in the previous three years and the most recent change in consumption), additional duties can be imposed, but they cannot exceed one third of the ordinary customs duties in effect. In the case of low import prices, an additional duty can be charged which increases progressively as the price level drops below the 1986-1988 level. This special safeguard provision will remain in force for the duration of the reform process, as modified by the outcome of negotiations.

(b) Domestic support

The general approach adopted towards reduction of domestic support has been to divide policies into (1) policies which have minimal or no production or trade-distorting effects ("Green Box" Policies) and (2) policies subject to reduction commitments.² The total support given to agriculture in 1986-1988 by the latter policies, measured by the aggregate measure of support (AMS), is subject to reduction commitments of 20 per cent for developed countries over the period from 1995 to 2000 and 13.3 per cent for developing countries over the period from 1995 to 2004. Reduction commitments refer to sector-wide levels of support, not to individual commodities.

Exempted "Green Box" policies include general services (research, training, extension, inspection, marketing, promotion and infrastructure), food security stocks, domestic food aid and certain direct payments to producers ("decoupled") income insurance and safety net programmes, disaster relief, producer or resource retirement schemes, investment aids, environmental programmes and regional assistance). Other policies excluded from the AMS relevant to developing countries include investment subsidies and agricultural input subsidies available for poor farmers. Policies which account for less than 5 per cent of the value of production for developed countries and less than 10 per cent for developing countries are also excluded under the *de minimis* provision. Finally, direct payments to production-limiting programmes have been excluded, provided that they are decoupled or payments are made on 85 per cent or less of production or on a fixed number of livestock in the base period.

(c) Export subsidies

The Agreement on Agriculture lists exports subsidies that are to be reduced, including: (1) direct subsidies; (2) sale from stocks by governments at prices lower than the domestic market price; (3) export payments financed by obligatory levies; (4) subsidized marketing costs; and (5) special domestic transport charges. In the case of developed countries, the volume of exports benefiting from such subsidies must be reduced by 21 per cent and the expenditure on export subsidies by 36 per cent. For the developing countries, the percentage reductions are two-thirds of those applied to the developed countries.

² This is one innovation of the Agreement on Agriculture. Traditionally, GATT has been concerned with trade measures, not purely domestic production matters, except where these have a trade impact (see for example, Article XVI on Subsidies).

Reductions will be implemented on a product-specific basis according to the specific commitments included in the Schedules, which specify the budgetary outlay and financial commitment levels for each year. However, in certain cases exporters would be allowed to maintain a higher level of subsidized exports in the years up to 1999, if they start to make reductions from the subsidized levels of 1991-1992 or 1986-1990, whichever is higher. However, they would still be required to achieve the same final level of reduction by the year 2000. For products not subject to reduction commitments, no export subsidies can be used in the future.

The Agreement on Agriculture also includes some important provisions on food aid: (1) it should not be tied in any way to commercial exports; (2) food aid transactions should be carried out in accordance with FAP Principles of Surplus Disposal; and (3) such aid should be provided in grant form or on terms no less concessional than those provided for in Article IV of the Food Aid Convention 1986. Member countries have undertaken to work towards internationally agreed upon disciplines on export credit and credit guarantees.

Article 12 on "Disciplines on Export Prohibition and Restriction" concerns limits on exports of foodstuffs taken under Article XI 2 (a) of the GATT, which allows restrictions "temporarily applied to prevent or relieve critical shortages of foodstuffs or other products essential to the exporting contracting party". Exporters must consider the effects on importing members' food security.

(d) Special and differential treatment for developing countries

Provisions covering special and differential treatment (S and D) for developing countries consist of three elements. First, developing countries are given more time to adjust (10 years, not 6 years) and are expected to make smaller reductions in support. Generally, this is two-thirds of the commitments expected from developed countries. Developing countries are also allowed 10 per cent domestic support, instead of 5 per cent (as the *de minimis* level). The least developed countries are completely exempt from reduction commitments.

Second, developing countries benefit from more favourable treatment with respect to the various types of policies considered "acceptable" under the Agreement. Developing countries are allowed to provide subsidies to reduce marketing costs of agricultural products and differential internal transport costs. The "Green Box" category has special provisions for developing countries on public stockholding for food security purposes and domestic food aid.

When calculating their total AMS, developing countries may exclude the following: (1) investment subsidies (generally available to agriculture); (2) domestic support to producer to encourage diversification from growing illicit narcotic crops; and (3) agricultural input subsidies provided to low-income producers.

Third, there are special provisions in the "Decision on Measures Concerning the Possible Negative Effects of the Reform Programme on Least Developed and Net Food Importing Countries". This is intended to ease any adverse effects from the agricultural reform programme for a specific group of countries.

(e) Due restraint

The due restraint provision ("peace clause") of Article 13 relates to domestic support measures which are exempted from reduction commitments that are considered non-actionable subsidies and are exempt from Articles II and XVI of the GATT 1994 and Part III of the Agreement on Subsidies and Countervailing Duties. Domestic support measures subject to reduction commitments and other exempted subsidies, including export subsidies applied within the limits of the commitments or otherwise in conformity with the Agreement, are also exempted from the provisions of the Agreement on Subsidies and Countervailing Duties and from claims of nullification and impairment of tariff concessions. (However, countervailing duties may be imposed upon a determination of injury or threat thereof.) The Agreement also specifies that member countries will exercise due restraint in the application of their rights in relation to other domestic support measures and export subsidies included in the reform programme and applied by another country.

(f) Other provisions

A Committee on Agriculture will be established to review progress in implementation of commitments. Any member country may raise any matter relevant to the implementation of commitments under the reform programme. The provision of the Understanding on Rules and Procedures Governing the Settlement of Disputes apply to consultations and the settlement of disputes relevant to the Agreement on Agriculture. The Agreement also includes a continuation clause which provides that negotiations for continuing the reform process will be initiated one year before the end of the implementation period.

(g) Agreement on sanitary and phytosanitary measures

Article 14 of the Agriculture Agreement commits member countries to the Agreement on Sanitary and Phytosanitary Measures (SPS), which recognized that governments have the right to take sanitary measures only to the extent necessary to protect human, animal and plant life. Such measures should not be used to discriminate against member countries when identical or similar conditions prevail.

In order to harmonize sanitary and phytosanitary measures, member countries are encouraged to base their measures on international standards, guidelines and recommendations, including the Codex Alimentarius and the International Plant Protection Convention (IPPC). Member countries may introduce or maintain measures

which result in higher standards as a consequence of decisions based on an appropriate risk assessment, as spelled out by the Agreement on SPS.

Member countries are expected to accept as equivalent the sanitary and phytosanitary measures of others, if the exporter demonstrates to the importing country that the exporting country's measures achieve a level of protection appropriate to the importer. The Agreement on SPS also contains requirements on transparency of measures, such as publishing regulations, establishing national inquiry points and having notification procedures. A Committee on Sanitary and Phytosanitary Measures will monitor the process of international harmonization.

2. OECD commitments and implications for global agricultural trade

The member countries of the OECD account for more than two thirds of world agricultural trade and are also the principal markets for most of the agricultural products exported from Asian and Pacific countries and areas. Therefore, it is worthwhile to assess the Schedules of Commitments of major OECD-member countries. The discussion in this section is a preliminary study that focuses on three main areas.

(a) Market access

The impact of tariffication on gaining access to OECD markets is not likely to be strong in the short or medium term, since the resulting tariffs have been set at prohibitive levels in many cases. Table 2 shows the levels set in four major OECD markets for 23 products. Where such tariff reductions could have a major impact on trade flows, governments have taken the option of reducing them by only 15 per cent over the implementation period, and have given notification that they intend to use special safeguard provisions in the form of additional duties.

The impact of access commitments (minimum and current access tariff quotas) on additional trade flows may be significant for some products, particularly those where increased quantities represent a significant share of world trade, such as beef, dairy products and peanuts. For other products, such as wheat and sugar, the market share covered by increases under the minimum access commitment is rather small. Actual trade flows could be less than indicated by the access commitments. The access commitments only require that countries provide access opportunities through "low" rate tariff quotas. This does not guarantee that the quantities would actually be imported. The selected products and their total access commitments are listed in table 3.

(b) Domestic support

A reduction in domestic support should, in principle, reduce high costs for domestic supplies and entail an increase in demand for imports. However, AMS reduction commitments are sector-wide and not product-specific, so that it is possible to

Table 3. Aggregate access commitments of OECD member countries and percentage share of 1992 world exports for selected products

| | Total access commitments (thousand tons) | | Percentage share of 1992 world exports | |
|--------------------------|---|---------|---|-------|
| | Initial | Final | Initial | Final |
| Beef and veal | 240.9 | 904.3 | 3.0 | 11.2 |
| Pig meat | 17.8 | 87.4 | 0.5 | 2.4 |
| Sheep meat | 280.4 | 280.6 | 30.9 | 30.9 |
| Poultry meat | 63.3 | 77.5 | 2.1 | 2.6 |
| Sausages | 0.1 | 4.6 | 0.04 | 2.0 |
| Milk | 1 554.2 | 1 901.7 | 27.7 | 33.9 |
| Butter | 81.2 | 94.4 | 6.3 | 7.4 |
| Cheese | 68.2 | 154.2 | 3.1 | 6.9 |
| Whey | 3.6 | 3.6 | 0.5 | 0.5 |
| Wheat and wheat products | 6 658.6 | 6 924.4 | 5.6 | 5.8 |
| Maize | 2 531.3 | 2 531.3 | 3.5 | 3.5 |
| Rice | 380.0 | 759.0 | 2.4 | 4.8 |
| Sorghum | 335.0 | 335.0 | 3.5 | 3.5 |
| Peanuts | 60.5 | 112.3 | 5.4 | 10.1 |
| Oilseeds | 180.6 | 180.6 | 0.5 | 0.5 |
| Vegetable oils | 21.3 | 21.3 | 0.1 | 0.1 |
| Sugar | 1 390.2 | 1 412.2 | 8.4 | 8.5 |

Source: UNCTAD Secretariat, compiled based on Part IV of Schedules of Concession annexed to the Marrakesh Protocol of April 1994.

shift support among different products, thus permitting much lower reductions to targeted sectors. In addition, a large set of domestic subsidies is exempted from the reduction commitment, particularly payments under "production-limiting programmes".

Table 4 shows the schedule of reductions in total AMS for OECD member countries from 1995 to 2000. The total base level AMS for these countries is \$US 158 billion (taking into account the exemptions), and this should be reduced to \$US 129 billion by the year 2000.

(c) **Export subsidies**

The quantity levels and budgetary support levels have been established for each year of the implementation period, which introduces a high degree of predictability. As shown in table 5, the amount of trade covered by export subsidy commitments is significant for a number of commodities, such as wheat, beef and dairy products. The amount of exports being subsidized will have to decline by 21 per cent by 2000, and this

Table 4. Total AMS reduction commitments of domestic support by selected OECD member countries and groups (\$US billion)^a

| | Base ^b | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|--------------------|-------------------|--------|--------|--------|--------|--------|--------|
| Austria | 2.33 | 2.26 | 2.18 | 2.10 | 2.02 | 1.94 | 1.87 |
| Australia | 0.42 | 0.41 | 0.40 | 0.38 | 0.37 | 0.35 | 0.34 |
| Canada | 4.09 | 3.95 | 3.81 | 3.68 | 3.54 | 3.40 | 3.27 |
| European Community | 81.32 | 79.05 | 76.78 | 74.51 | 72.24 | 69.96 | 67.69 |
| Finland | 3.62 | 3.50 | 3.38 | 3.26 | 3.14 | 3.02 | 2.90 |
| Japan | 33.76 | 32.63 | 31.51 | 30.38 | 29.26 | 28.13 | 27.01 |
| Norway | 2.08 | 2.00 | 1.94 | 1.87 | 1.80 | 1.73 | 1.66 |
| Sweden | 3.14 | 3.04 | 2.93 | 2.83 | 2.72 | 2.62 | 2.51 |
| Switzerland | 3.36 | 3.25 | 3.13 | 3.02 | 2.91 | 2.80 | 2.69 |
| United States | 23.88 | 23.08 | 22.29 | 21.49 | 20.69 | 19.90 | 19.10 |
| Total | 158.00 | 153.17 | 148.35 | 143.52 | 138.69 | 133.85 | 129.04 |

Source: UNCTAD Secretariat, compiled based on Part IV of Schedules of Concession annexed to the Marrakesh Protocol of April 1994.

Notes: ^a Expressed in \$US based on average annual exchange rates for 1986-1988.

^b Base period is 1986-1988 average.

Table 5. Aggregate volumes and reductions in subsidized exports of selected commodities under OECD country commitments

| | Aggregate volume of subsidized exports (thousand tons) | | Percentage of 1992 world exports | | Reduction as a percentage of 1992 world exports |
|-----------------------|--|--------|----------------------------------|------|---|
| | Base | 2000 | Base | 2000 | |
| Wheat and wheat flour | 48 230 | 38 100 | 40.4 | 31.9 | 8.5 |
| Coarse grains | 20 195 | 15 955 | 18.2 | 14.4 | 3.8 |
| Butter and butter oil | 673 | 533 | 52.5 | 41.6 | 10.9 |
| Skim milk powder | 578 | 275 | 32.5 | 15.5 | 17.0 |
| Cheese | 555 | 440 | 25.0 | 19.8 | 5.2 |
| Pork | 573 | 452 | 15.8 | 12.5 | 3.3 |
| Poultry | 404 | 320 | 13.3 | 10.5 | 2.8 |
| Bovine meat | 1 165 | 921 | 14.4 | 11.4 | 3.0 |
| Oilseeds | 2 257 | 1 783 | 6.1 | 4.8 | 1.3 |
| Vegetable oils | 296 | 234 | 1.6 | 1.3 | 0.3 |
| Sugar | 1 617 | 1 277 | 9.8 | 7.7 | 2.1 |

Source: UNCTAD Secretariat, compiled based on Part IV of Schedules of Concession annexed to the Marrakesh Protocol of April 1994.

is likely to have an impact on trade flows and export prices. Governments may use a variety of policy measures to meet their commitments. The policies adopted by the major food exporting countries of OECD will be important factors influencing food supplies and prices.

The provisions on market access and domestic support will still allow OECD countries to retain high rates of protection and subsidization for selected products. The Agreement on Agriculture constitutes an important first step towards stability and predictability in trade of agricultural products. It establishes binding "standstill and rollback" of protectionist measures in this sector, and can be the basis for further negotiations aimed at more meaningful liberalization and reform.

(d) Agricultural commitments of Asian and Pacific countries in the Uruguay Round

Trade in agricultural products among Asian and Pacific countries constitutes a significant and growing share of their total agricultural trade. As a result, commitments made in the Uruguay Round will have important trade implications. Apart from Japan, Australia and New Zealand, the relevant provisions of the Agreement are those that apply to developing countries. This includes the lower reduction commitments, policies on domestic support and export subsidies and a longer period for implementation.

It is possible to make a preliminary assessment of the Schedules of Commitments accept by the major agricultural countries of Asia and the Pacific. Commitments on market access have three noteworthy elements. First, the level of security for trade in agricultural products will now be greater in the Asian and Pacific region, because there will be virtually no non-tariff barrier affecting agricultural trade and almost all agricultural products will be subject to legally binding tariff ceilings. (Prior to the Uruguay Round, only 36 per cent of imports were under ceiling rates in Asia.) Under the provisions of Annex 5 of the Agreement, Japan, the Republic of Korea and the Philippines have not yet bound their tariffs and have not eliminated all non-tariff measures on rice.

Second is the element concerning agricultural tariffs. Table 6 provides information on the commitments of selected Asian and Pacific countries concerning tariffs on selected agricultural products. In a number of cases, the tariffication process has resulted in a number of high tariffs which have been cut minimally. In particular, this refers to wheat and wheat products in Japan, wheat products and tea in the Republic of Korea and various products in India, Indonesia, Pakistan, Sri Lanka and Thailand. In many instances, the tariffs shown in the table diverge considerably from currently applied most-favoured nation tariffs, which are much lower. These lower tariffs may continue to apply in the future, although they are not obligatory as part of market access agreed to in the Uruguay Round.

Third is the element concerning quantitative commitments made by Asian and Pacific countries under the Uruguay Round market access provisions. Table 7 provides information on aggregate quota commitments for selected agricultural products of various Asian and Pacific countries and the increase in quota levels from the beginning to the end of the implementation period.

The market access levels are highest for wheat and wheat products (in Japan); rice and rice products (in Japan, the Republic of Korea, Thailand and Indonesia) and oilseeds (in the Republic of Korea). From the beginning to the end of the implementation period, market access opportunity levels for rice and rice products would show the largest percentage improvement at 64.8 per cent, followed by vegetable oils at 8.2 per cent, tea at 5.3 per cent and spices and coffee extracts, both at 4.7 per cent.

Apart from Australia and Indonesia, countries in the Asian and Pacific region do not maintain export subsidies on agricultural products. Australian export subsidies apply to dairy products and Indonesian export subsidies apply to rice. In both cases, the export subsidies are to be reduced according to the different formulae for developed and developing countries.

Information is given in table 8 concerning Asian and Pacific countries who apply non-exempt forms of domestic support to agricultural producers. The table also shows the reduction commitments they have agreed to. The reduction commitments in the base period in the total level of support to producers is the greatest for Japan, at \$US 33.8 billion., followed by the Republic of Korea, Thailand and Australia.

Table 6. Uruguay Round market access commitments of selected Asia-Pacific countries for selected agricultural products
Tariff averages (per cent)

| Product | Australia | | Japan | | | | India | | Indonesia | | | |
|---------------------|-----------|-------|--------------|-------|-------------|-------|---------|-------|--------------|-------|-------------|-------|
| | | | Within-quota | | Above-quota | | | | Within-quota | | Above-quota | |
| | Initial | Final | Initial | Final | Initial | Final | Initial | Final | Initial | Final | Initial | Final |
| Rice | 2.0 | 1.0 | 18.4 | 18.4 | Annex 5 | | 0.0 | 0.0 | 90.0 | 90.0 | 180.0 | 160.0 |
| Rice products | | | | | | | | 150.0 | | | 70.0 | 40.0 |
| Wheat | 0.0 | 0.0 | 6.7 | 6.7 | 325.7 | 298.4 | | 100.0 | | | 30.0 | 27.0 |
| Wheat products | 3.0 | 0.4 | | | 339.5 | 288.3 | | 150.0 | | | 56.7 | 35.7 |
| Oil seeds | 2.0 | 1.0 | | | 0.0 | 0.0 | | 100.0 | | | 45.0 | 40.0 |
| Vegetable oils | 5.8 | 4.6 | | | 14.0 | 6.5 | | 217.5 | | | 55.2 | 39.6 |
| Spices | 0.0 | 0.0 | | | 4.8 | 2.2 | 140.0 | 131.7 | | | 100.0 | 43.1 |
| Cocoa | 2.0 | 1.0 | | | 0.0 | 0.0 | 140.0 | 100.0 | | | 70.0 | 40.0 |
| Cocoa products | | | | | 20.6 | 13.4 | | 150.0 | | | 80.8 | 40.0 |
| Coffee | 2.0 | 0.5 | | | 10.0 | 6.0 | 140.0 | 133.3 | | | 100.0 | 43.3 |
| Coffee extracts | 6.3 | 2.0 | | | 52.5 | 40.6 | | 150.0 | | | 90.0 | 60.0 |
| Tea | 0.0 | 0.0 | | | 13.1 | 10.4 | | 150.0 | | | 100.0 | 50.0 |
| Tea extracts | 2.0 | 1.0 | | | | | | 150.0 | | | 90.0 | 60.0 |
| Rubber | | | | | 0.0 | 0.0 | 100.0 | 28.8 | | | | |
| Rubber manufactures | 27.0 | 16.5 | | | 4.1 | 0.4 | 99.2 | 35.4 | | | | |

Table 6. (continued)
Tariff averages (per cent)

| Product | Republic of Korea | | | | Malaysia | | | | New Zealand | | Pakistan | |
|---------------------|-------------------|-------|-------------|-------|--------------|-------|-------------|-------|-------------|-------|----------|-------|
| | Within-quota | | Above-quota | | Within-quota | | Above-quota | | | | | |
| | Initial | Final | Initial | Final | Initial | Final | Initial | Final | Initial | Final | Initial | Final |
| Rice | 5.0 | 5.0 | | | | | 45.0 | 40.0 | 0.0 | 0.0 | | 100.0 |
| Rice products | | | | | | | 20.0 | 5.0 | | | | 100.0 |
| Wheat | | | 11.8 | 9.0 | | | 3.0 | 1.7 | 0.0 | 0.0 | | 150.0 |
| Wheat products | 8.0 | 8.0 | 223.5 | 193.5 | 5.0 | 5.0 | 39.8 | 31.9 | 21.7 | 15.7 | | 100.0 |
| Oil seeds | 28.3 | 28.3 | 96.3 | 83.8 | | | 8.2 | 3.6 | 0.0 | 0.0 | | 100.0 |
| Vegetable oils | 40.0 | 40.0 | 43.1 | 33.7 | | | 9.4 | 7.5 | 10.1 | 1.3 | | 100.0 |
| Spices | | | 30.0 | 19.7 | | | 6.2 | 2.9 | 10.0 | 5.9 | | 100.0 |
| Cocoa | | | 25.0 | 16.4 | | | 30.0 | 10.0 | 0.0 | 0.0 | | 100.0 |
| Cocoa products | | | 32.7 | 22.4 | | | | | 23.7 | 13.2 | | 100.0 |
| Coffee | | | 52.5 | 41.7 | 5.0 | 5.0 | 18.4 | 15.6 | 12.5 | 6.0 | | 100.0 |
| Coffee extracts | | | 55.0 | 49.3 | | | 26.5 | 17.5 | 34.2 | 14.2 | | 100.0 |
| Tea | 40.0 | 40.0 | 319.1 | 287.2 | | | 35.0 | 30.0 | 5.0 | 0.0 | | 150.0 |
| Tea extracts | | | 52.5 | 47.0 | | | 35.0 | 20.0 | 33.5 | 16.0 | | 100.0 |
| Rubber | | | 10.0 | 2.0 | | | | | 7.2 | 4.6 | | |
| Rubber manufactures | | | 25.4 | 12.2 | | | | | 40.1 | 15.6 | 72.0 | 50.0 |

Table 6. (continued)
Tariff averages (per cent)

| Product | Philippines | | | | Singapore | | Sri Lanka | | Thailand | | | |
|---------------------|--------------|-------|-------------|-------|-----------|-------|-----------|-------|--------------|-------|-------------|-------|
| | Within-quota | | Above-quota | | | | | | Within-quota | | Above-quota | |
| | Initial | Final | Initial | Final | Initial | Final | Initial | Final | Initial | Final | Initial | Final |
| Rice | 50.0 | 50.0 | Annex 5 | | 27.0 | 10.0 | 66.0 | 50.0 | 30.0 | 30.0 | 58.0 | 52.0 |
| Rice products | | | 50.0 | 40.0 | 27.0 | 10.0 | 66.0 | 50.0 | | | 40.0 | 30.0 |
| Wheat | | | 43.3 | 26.7 | 27.0 | 10.0 | 66.0 | 50.0 | | | 85.2 | 27.0 |
| Wheat products | | | 50.0 | 40.0 | 27.0 | 10.0 | 66.0 | 50.0 | | | 57.0 | 37.6 |
| Oil seeds | | | 48.8 | 38.7 | 27.0 | 10.0 | 66.0 | 50.0 | 20.0 | 20.0 | 40.6 | 30.0 |
| Vegetable oils | | | 54.3 | 41.1 | 27.0 | 10.0 | 66.0 | 50.0 | 20.0 | 20.0 | 49.9 | 45.3 |
| Spices | | | 44.4 | 34.4 | 27.0 | 10.0 | 66.0 | 50.0 | 27.0 | 27.0 | 36.0 | 32.2 |
| Cocoa | | | 50.0 | 40.0 | 27.0 | 10.0 | 66.0 | 50.0 | | | 30.0 | 27.0 |
| Cocoa products | | | 56.7 | 41.7 | 27.0 | 10.0 | 66.0 | 50.0 | | | 46.7 | 32.0 |
| Coffee | 50.0 | 40.0 | 100.0 | 40.0 | 27.0 | 10.0 | 66.0 | 50.0 | 30.0 | 30.0 | 100.0 | 90.0 |
| Coffee extracts | | | 100.0 | 50.0 | 27.0 | 10.0 | 66.0 | 50.0 | 40.0 | 40.0 | 55.0 | 49.0 |
| Tea | | | 50.0 | 40.0 | 27.0 | 10.0 | 66.0 | 50.0 | 30.0 | 30.0 | 100.0 | 90.0 |
| Tea extracts | | | 50.0 | 40.0 | 27.0 | 10.0 | 66.0 | 50.0 | | | 60.0 | 40.0 |
| Rubber | | | | | 20.0 | 10.0 | | | | | | |
| Rubber manufactures | | | 30.0 | 43.3 | 20.0 | 10.0 | | | | | 45.3 | 30.0 |

Table 8. Commitments to reduce domestic support for agriculture in selected Asian and Pacific countries (\$US million)

| | Base year | Final year | Percentage reduction |
|-------------------|-----------|------------|----------------------|
| Japan | 33 760 | 27 008 | 20.0 |
| Republic of Korea | 2 117 | 1 835 | 13.3 |
| Thailand | 859 | 738 | 14.0 |
| Australia | 424 | 339 | 20.0 |

B. PRINCIPAL PATTERNS OF SUPPLY AND DEMAND FOR COCONUT OIL¹

More than seventy different products are made from various parts of coconut palm, some of which enter the international market for agricultural products. However, the main industrial use of coconut is the production of copra, from which coconut oil is derived.

Coconut oil was the main vegetable oil in the international market until the end of 1950s, since its chemical composition allows it to have a wide range of applications. With increasing consumption in the producing countries and strong competition from other vegetable oils, the share of coconut oil in the total market for vegetable oils and fats has gradually declined.

Coconut is a smallholder crop in the producing countries. It is currently grown in nearly 90 countries spread along the tropical regions of the world. In 1993, the total area worldwide planted with coconut was estimated to be 10.9 million hectares, with about 93 per cent of production in the Asian and Pacific region. Indonesia and the Philippines have been the two biggest producers, with coconut planted on about 3.5 million hectares in Indonesia and 3.0 million hectares in the Philippines. India is the third largest in terms of area under coconut production. In the countries of the South Pacific, Papua New Guinea is the leading producer. In Africa, Tanzania was the largest producer and in Latin America, Mexico accounted for about one-third of the region's total area under coconut. The world's total production of coconuts in 1993 was about 49.2 billion nuts or 9.3 million tons of copra.

Almost two thirds of coconut production is estimated to be consumed domestically. The common feature in the domestic markets of coconut producers is rapid expansion of demand which, in turn, has rapidly reduced the surplus available for export. Thus, while India is the third largest producer of coconut, its entire production is consumed domestically. Thailand and Sri Lanka are in a similar situation of consuming most of their production domestically. Domestic consumption in Fiji, Vanuatu, Solomon Islands and Samoa is also increasing, and this will gradually reduce their surplus available for exports.

The main coconut products that currently enter the international commodity markets include copra, coconut oil, copra meal, desiccated coconut, coir products and shell products, such as shell charcoal and activated carbon. Coco-chemicals, coconut cream and milk and *nata de coco* are increasing in importance as non-traditional export products from coconut.

¹ Based on a paper presented by Mr. L. Taufikkurahman, Market Analyst, Asian and Pacific Coconut Community (APCC).

The value of coconut products exported from member countries of the Asian and Pacific Coconut Community (APCC) exceeded \$US 1 billion in 1993.²

1. Supply of coconut oil and copra

Coconut oil is derived from copra which is crushed in producing countries and importing countries. World production of copra did not change significantly in the period from 1976 to 1993. Accordingly, world coconut oil production followed the same trend. Over the period from 1976 to 1993, coconut oil production has fluctuated considerably. The quantities of coconut oil produced and exported are probably the most volatile in the vegetable oils and fats markets.

In addition, there was a shift from copra exports to coconut oil exports, although both of them are traded in international markets. Copra was the principle form of coconut exports for many years, but since the 1970s several coconut producing countries have created their own capacity to process copra and produce coconut oil in order to obtain more value added in their exports. As a result, the copra available for export has been declining gradually, while coconut oil exports have been increasing.

By 1993, copra exports had decreased significantly, to about 214,300 tons. Papua New Guinea accounted for about 51,200 tons followed by Vanuatu, Philippines, Solomon Islands and Malaysia with export volumes of less than 30,000 tons each. The volume exported has become very small when compared to previous years, such as total average annual exports of 350,000 tons during the 1980s. This decline in copra exports is likely to continue in the future.

In contrast, coconut oil exports have increased sharply since the 1970s. World trade in coconut oil during the period from 1964 to 1968 averaged only 506,000 tons a year. The average annual volume of exports in the 1970s was 888,000 tons of coconut oil. The market continued to improve, and the annual average exported in the 1980s was 1.2 million tons. By 1993, world coconut oil exports stood at 1.57 million tons of which about 64 per cent came from the Philippines and 16 per cent from Indonesia.

About 55 per cent of annual tonnage of coconut oil and copra exported worldwide from 1989 to 1993 (1.6 million tons annually on an oil basis) came from the Philippines. The Philippines is the major producer and exporter in the market for coconut, but Indonesia is emerging as a substantial exporter as well. This is due mostly to the increased availability of palm oil. Despite consuming large quantities of coconut oil and palm oil domestically, Indonesia is still in the position of shifting between coconut and palm oil in both the domestic and international markets, depending on price changes. High world prices for coconut oil can induce larger exports of coconut oil from Indonesia and domestic consumption can then shift to palm oil.

² Members of APCC are: the Federated States of Micronesia, Indonesia, Malaysia, Papua New Guinea, Philippines, Samoa, Solomon Islands, Sri Lanka, Vanuatu and Viet Nam.

2. Demand for coconut oil and copra

Coconut oil is valuable for the production of cooking oil, shortening and margarine, soap and shampoo. It is also an important raw material for the cosmetic and pharmaceutical industries. Consequently, markets for coconut oil exist in almost every country of the world.

Trade data available from the Food and Agriculture Organization of the United Nations (FAO) list 80 countries which imported coconut oil in 1993. The United States of America and countries in Western Europe accounted for about 70 per cent of total imports worldwide. The United States imported an annual average of about 440,000 tons of coconut oil during the five-year period from 1989 to 1993. Analysis covering the period from 1976 to 1993 revealed that there was no significant increase in total imports of coconut oil. It is worth noting that the United States has not imported copra since 1975.

Until the early 1970s, more than half of the coconut oil imported by the United States was used in the edible oils sector. After a campaign against coconut oil for human consumption in the United States, the bulk of coconut oil shifted to inedible uses.

Imports of copra and coconut oil to Western Europe have averaged about 635,000 tons a year from 1989 to 1993, making it the largest regional market. Between 1976 and 1993, imports of copra and coconut oil remained unchanged.

In comparison to steady levels of imports by the United States and Western Europe, imports by countries and areas in Asia and the Pacific doubled from 173,325 tons to 373,640 tons over a twenty-year period. This pattern can be seen in table 1 which shows average annual quantities of copra and coconut oil imported by three main groups of consuming countries for two different periods. The decline in copra imports for both Western Europe and the United States and the steady growth of their coconut oil imports is clear. The more noticeable trend is the strong growth in coconut oil imports by the Asian and Pacific region. Markets which have shown a steady demand for coconut oil are the Republic of Korea and Bangladesh.

During the last two decades, total world imports of copra and coconut oil did not increase significantly. Average annual imports over the four-year period from 1971 to 1974 were 1.36 million tons in the form of coconut oil. The average annual amount increased to 1.61 million tons for 1990 to 1993, which represents a compound increase of 18 per cent, or an annual average growth rate of 0.9 per cent. (See table 1.)

Table 1. Average annual imports of copra and coconut oil by main destinations, 1971-1974 and 1990-1993 (tons)

| | 1974/1975 | | | 1993/1994 | | |
|----------------------|-----------|-------------|--------------------|-----------|-------------|--------------------|
| | Copra | Coconut oil | Total ¹ | Copra | Coconut oil | Total ¹ |
| Western Europe | 606 400 | 237 700 | 619 732 | 92 284 | 597 106 | 655 245 |
| United States | 156 100 | 290 800 | 389 143 | | 450 846 | 450 846 |
| Asia and the Pacific | 107 500 | 67 800 | 173 325 | 150 548 | 277 795 | 372 640 |
| World total | 1 004 900 | 729 700 | 1 362 787 | 256 257 | 1 450 210 | 1 611 652 |

Note: ¹ On an oil basis.

3. Declining share of coconut oil in vegetable oil markets

Coconut oil competes with other fats and oils in the world market, because the different oils are interchangeable to a certain extent. Coconut oil consists of lauric oil, which had a special position in the past, because there were few sources of lauric oils in the market. Coconut oil had always been the most important source of lauric oils. Improvements in technology and the increased volume of other vegetable oils in the market reduced the advantage of lauric oils non-substitutability. Lauric oils thus entered into a much more free competition with other vegetable oils.

According to figures by the United States Department of Agriculture (USDA), world production of ten major vegetable and marine oils for 1993/1994 was 62.07 million tons. The share of coconut oil was only 4.9 per cent of this total. Table 2 gives a comparison of world production in 1974/1975 and 1993/1994 for the various vegetable and marine oils. The strongest growth appears to be in soybean oil, palm oil, rapeseed oil and palm kernel oil. It has been suggested that within twenty years, production of major vegetable and marine oils will increase by 102 per cent, while coconut oil production will increase by only 35 per cent.

One problem that coconut oil has faced are measures taken by developed countries to protect their own increased production of vegetable oils by imposing tariff and non-tariff measures against coconut oil imports. In the producer countries, coconut oil will face the greatest impact from the increased cultivation of oil palm. In the edible sector, price changes associated with higher output of palm oil has restricted use of coconut oil in margarine. In the inedible sector, coconut oil has lost its market share to palm kernel oil which normally enjoys a discount against coconut oil. This situation could intensify with increased production of other vegetable oils.

Table 2. World production of vegetable and marine oils, 1974/1975 and 1993/1994
(million of tons)

| | 1974/1975 | 1993/1994 |
|----------------|-----------|-----------|
| Soybean | 9.5 | 17.8 |
| Palm | 2.6 | 13.4 |
| Sunflower seed | 4.5 | 7.1 |
| Rapeseed | 2.5 | 9.1 |
| Cottonseed | 3.2 | 3.4 |
| Peanut | 3.1 | 3.6 |
| Coconut | 2.2 | 3.0 |
| Olive | 1.5 | 1.6 |
| Fish | 1.0 | 1.2 |
| Palm kernel | 0.5 | 1.8 |
| Total | 30.7 | 62.1 |

4. Prospects for coconut oil

It is expected that demand for coconut oil in traditional markets of Western Europe and the United States will remain stagnant, or even decline in certain markets. However, markets for coconut oil appear to have grown in the Asian and Pacific region, as a result of dynamic economic growth.

As more newly-industrialized economies emerge, there should be increased demand for coconut oil, especially for use in the form of cocochemicals. In addition, there have been experiments on using coconut oil as a direct fuel substitute. If the experiments are successful, demand should increase significantly in the non-edible sector.

In general, it is not likely that demand for coconut oil will decrease in the future, provided its price remains competitive. The problem will continue to be shortages in supplies, which suggests that increased production will be required along with the search for possibilities of reducing production costs in order to compete with other vegetable oils.

C. OVERVIEW OF THE PRINCIPAL PATTERNS OF WORLD SUPPLY AND DEMAND FOR PEPPER (*Piper nigrum*)¹

This paper reviews the main patterns of regional and international supply and demand for pepper, as well as recent developments and future trends in the world trade of this commodity.

Pepper is one of the world's most important spices and was one of the earliest articles of commerce between the Orient and Europe. In the Middle Ages, it was as valuable as gold and used as legal tender. The quest to gain a monopoly of the spice trade, among other things, led to exploration and colonization during the fifteenth to eighteenth centuries. Once organized cultivation began in South-East Asia, supplies of pepper to the West increased, it became less expensive and it was no longer a luxury item.

Pepper is still an important spice and accounts for more than one third of the global market for all spices. The commodity is categorized as black and white pepper. White pepper makes up about 20 per cent of total exports. The aggregate value of pepper exported in 1992 was \$US 154 million. In terms of total export proceeds from the pepper-producing countries, pepper is a minor foreign exchange earner. Among all pepper exporting countries, the highest share of pepper in total exports is about 0.2 per cent for Indonesia and India.

Pepper production and trade is of major importance for some regions within the producing countries and for a great number of small-scale farmers. For example, the state of Kerala accounts for 96 per cent of India's pepper production; the state of Sarawak produces more than 95 per cent of Malaysia's pepper exports; and Bangka Island and Lampung supply 82 per cent of Indonesia's output of pepper. In these states, pepper is mostly cultivated by large numbers of smallholders and forms a vital source of cash income to these subsistence farmers. Brazil is the only producer where pepper is cultivated predominantly on large specialized pepper plantations.

1. Patterns of supply and export of pepper

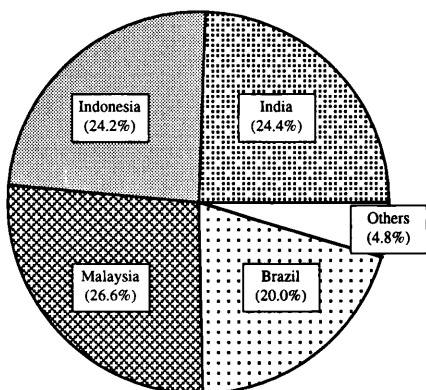
(a) Major producers and exporters of pepper

Black and white pepper are derived from the tropical vine *Piper nigrum*, which is cultivated in a number of countries located in the tropics. India, Indonesia, Brazil and Malaysia are the major producers and exporters. As shown in figure 1A, each produced more than 20 per cent of world production in the mid-1970s.

¹ Based on a paper presented by Ong Foo Yong, Economist, International Pepper Community, Jakarta, Indonesia.

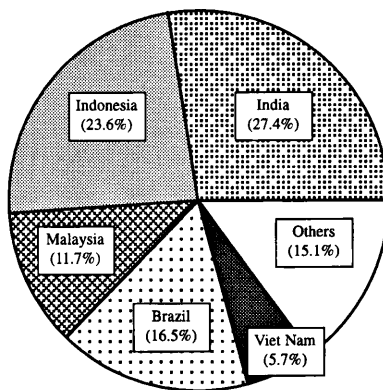
By the early 1990s, average annual production of pepper worldwide had almost doubled, from 129,627 metric tons (from 1976 to 1978) to 206,857 metric tons average (from 1991 to 1993). In recent years, Malaysia and Brazil had a reduced share of total production while India, Viet Nam and other producers increased their shares of global production. Viet Nam has emerged to become the fifth largest producer, as shown in Figure 1B. Malaysia's annual production declined by some 10,000 metric tons to put it in fourth position after India, Indonesia and Brazil. Together, these five countries produced 85 per cent of the world's supply of pepper in the period from 1991 to 1993.

PRODUCTION



1976-78 Average 129,627 metric tons

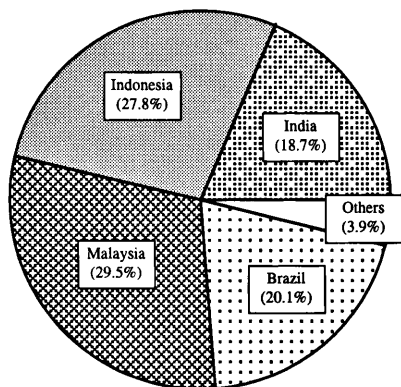
Fig. 1A



1991-93 Average 206,857 metric tons

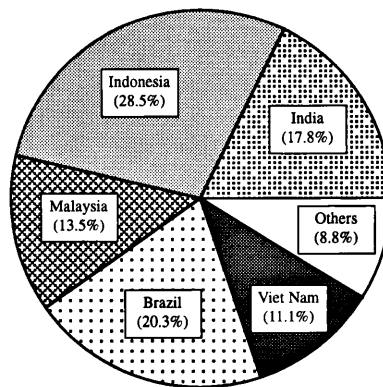
Fig. 1B

EXPORT



1976-78 Average 110,614 metric tons

Fig. 1C



1991-93 Average 160,087 metric tons

Fig. 1D

Figure 1. Main producers and exporters of pepper

Other producers of less importance include Thailand, China, Sri Lanka and Madagascar. It is interesting that other than Brazil and Madagascar, the other pepper producing countries are in the Asian and Pacific region.

Pepper grown in the major producing countries is destined mostly for export, except for India where annual domestic consumption is estimated to be between 20,000 and 30,000 metric tons. Figures 1C and 1D show the total annual average of pepper exports and the market share of the major exporters during two different periods, 1976-1978 and 1991-1993. India, Indonesia and Brazil have generally maintained their market shares, while Malaysia's share declined by more than half, from 30 per cent of world exports to 14 per cent. Viet Nam has emerged with about 11 per cent share of the world's market. Other producers still have a small share, but it has more than doubled, from an average share of about 4 per cent in the 1976 to 1978 period to almost 9 per cent in the 1991 to 1993 period.

The pepper harvesting seasons of the various producing countries occur at different times of the year, as shown in table 1. Pepper is generally interchangeable for most users and consumers, regardless of the country of origin. The exception is some spice extractors who favour Indonesia's and India's black pepper and Italian producers of salami who have a strong preference for Tellicherry black pepper from India. The result for the world market is harvesting seasons spread over every month, thus providing, more or less, a year-round supply of pepper.

Table 1. Pepper harvesting seasons of the major producers

| | Jan. | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. | Dec. |
|-----------|------|------|------|------|-----|------|------|------|------|------|------|------|
| India | | | | | | | | | | | | |
| Indonesia | | | | | | | | | | | | |
| Brazil | | | | | | | | | | | | |
| Malaysia | | | | | | | | | | | | |
| Viet Nam | | | | | | | | | | | | |

(b) Trends in production and exports

World pepper production has been following a general upward trend in terms of acreage and production output, despite setbacks in some years due to adverse weather conditions, widespread diseases or low prices.

As shown in table 2 and figure 2, the total area under pepper cultivation doubled from 186,000 hectares to 374,000 hectares from 1976 to 1991. By 1993, the area cultivated decreased to an estimated 364,000 hectares. Production also increased from 124,000 metric tons in 1976 to the largest volume during the period of 235,000 metric tons in 1991. The rate of increase had been accelerating during the second half of the 1980s, reached the peak in 1991, and then output declined sharply to 171,000 metric tons in 1993.

Table 2. World acreage and production of pepper, 1976-1993

| | Area planted (thousand hectares) | Production (thousand metric tons) |
|------|-------------------------------------|--------------------------------------|
| 1976 | 186 | 124 |
| 1977 | 195 | 124 |
| 1978 | 193 | 139 |
| 1979 | 168 | 121 |
| 1980 | 226 | 145 |
| 1981 | 236 | 150 |
| 1982 | 239 | 135 |
| 1983 | 242 | 119 |
| 1984 | 234 | 129 |
| 1985 | 229 | 158 |
| 1986 | 245 | 162 |
| 1987 | 266 | 142 |
| 1988 | 321 | 190 |
| 1989 | 338 | 183 |
| 1990 | 352 | 216 |
| 1991 | 374 | 235 |
| 1992 | 369 | 215 |
| 1993 | 364 | 171 |

Table 3 shows that the volume of pepper exported in 1976 was 103,000 metric tons, which was 83 per cent of production. The total value of exports was \$US 193 million. The volume of exports grew steadily to 134,000 metric tons with a value of \$US 169 million in 1981 and \$US 131 million in 1982. Then it declined sharply to 96,000 metric tons in 1985, although the value increased to \$US 287 million as a result of apparent shortages and strong demand. During the late 1980s, shipments from pepper producing countries tended upwards to a peak of 168,000 metric tons valued at \$US 210 million in 1991, then declined to 148,000 metric tons in 1993, with a value of \$US 202 million.

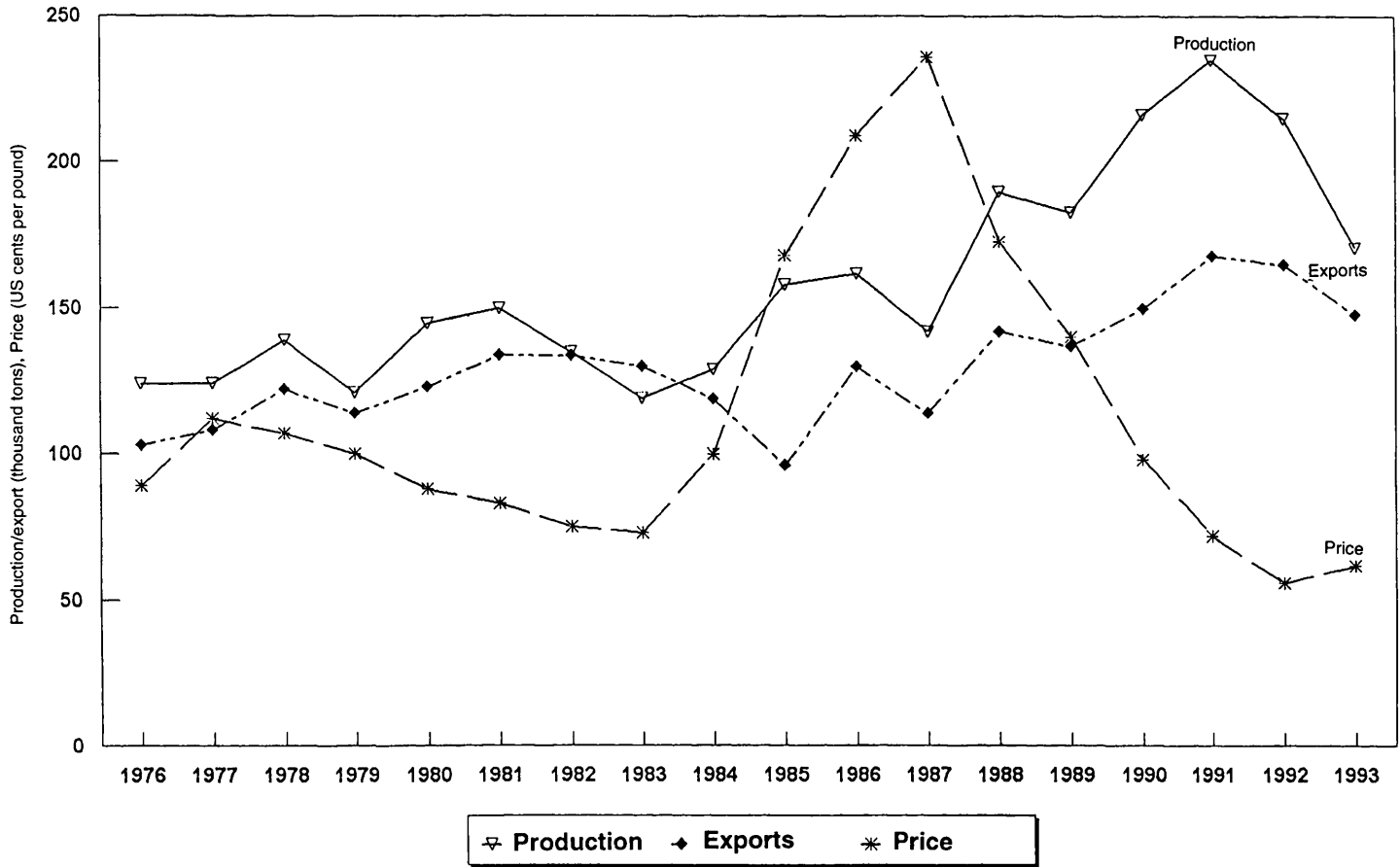


Figure 2. World's production, export and price of pepper, 1976-1993

Table 3. World pepper exports, by volume and value, 1976-1993

| | Volume (thousand metric tons) | Value (\$US million) |
|------|----------------------------------|-------------------------|
| 1976 | 103 | 193 |
| 1977 | 108 | 231 |
| 1978 | 122 | 249 |
| 1979 | 114 | 219 |
| 1980 | 123 | 218 |
| 1981 | 134 | 169 |
| 1982 | 134 | 131 |
| 1983 | 130 | 167 |
| 1984 | 119 | 237 |
| 1985 | 96 | 287 |
| 1986 | 130 | 515 |
| 1987 | 114 | 525 |
| 1988 | 142 | 463 |
| 1989 | 137 | 332 |
| 1990 | 150 | 245 |
| 1991 | 168 | 210 |
| 1992 | 165 | 154 |
| 1993 | 148 | 202 |

(c) Effects of price on pepper supplies

Since pepper is grown mainly for export, pepper prices in the world market have a direct effect on the production volumes in the producing countries. In the 1976-1993 period, pepper has gone through two price cycles with peaks in 1977-1978 and 1986-1987, with troughs in 1980-1983 and 1990-1993. The cyclical pattern can be seen in figure 2.

Prices for pepper were attractive during the years of the international oil crises in the 1970s, as shown by a price of US cents 50 a pound in 1972 compared to US cents 112 per pound in 1977. Pepper production expanded in response, to the extent that by the start of the 1980s, there was a situation of oversupply. Production was at 150,000 metric tons in 1981, with 134,000 metric tons being exported. This was a period of low prices for pepper, from US cents 100 per pound to as low as US cents 73 per pound in 1983. Production then fell back to 120,000 to 130,000 metric tons in 1983/1984 and exports were as low as 96,000 metric tons by 1985 when pepper gardens were abandoned, especially in Malaysia and Brazil. There were also adverse weather conditions during some years in Brazil, India and Indonesia.

The result was an acute shortage in supplies and depletion of carryover stocks in the mid-1980s. Prices shot up to extraordinary heights of more than US cents 200 per pound in 1986/1987 and remained attractive for a few years. Many growers returned to pepper planting. All of the major pepper producing countries recorded increased production output at an accelerated rate when compared to the 1970s and early 1980s. Viet Nam emerged as a major pepper producer and exporter during this time. A 65 per cent increase in supply (from 142,000 metric tons produced in 1987 to 235,000 metric tons in 1991) exceeded the rate of growth in demand, which was estimated at only 3.6 per cent per year. This triggered another round of over-supply, which depressed prices, led to neglect of pepper gardens and reduced output to 171,000 metric tons in 1993.

This decline is expected to halt, however, as prices for pepper have recovered again and they are now on an upward trend. The price was as high as US cents 135 per pound at the end of September 1994.

2. Patterns of imports and demand/consumption of pepper

There are about 120 countries which import pepper, but the major markets are in North America and Europe, which account for 50 to 60 per cent of total world pepper imports. The average annual imports by volume and percentage share of various regions and countries are presented in table 4 and figure 3. North America is mainly a market for black pepper, while Western European imports include a larger proportion of white pepper. The largest single market for pepper is the United States, which has accounted for 22 to 23 per cent of total world imports, with black pepper representing 90 per cent of its imports.

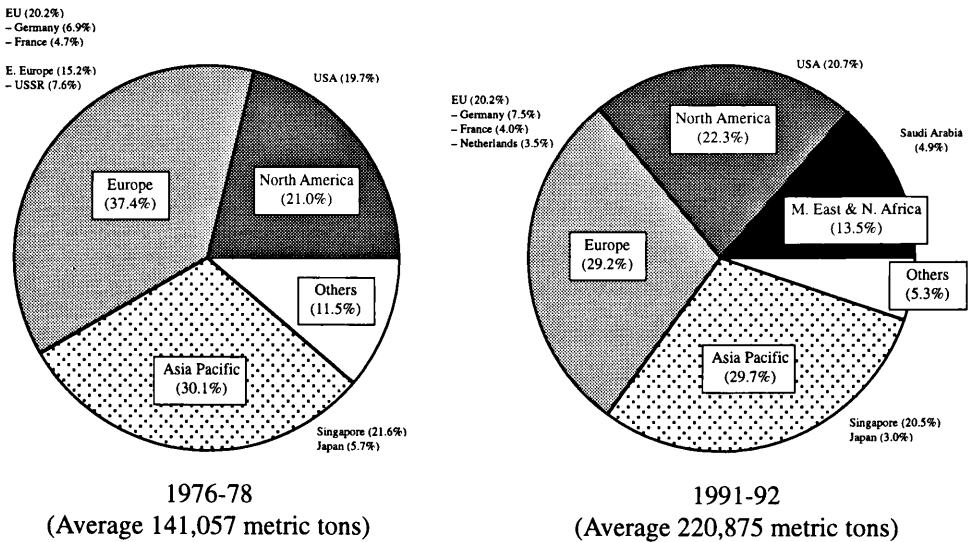


Figure 3. Major importers of pepper

Table 4. Average annual pepper imports by various regions and countries, volume in thousand metric tons and percentage share, various years

| | 1976-1980 | | 1981-1985 | | 1986-1990 | | 1991 | | 1992 | |
|-------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Volume | Per cent | Volume | Per cent | Volume | Per cent | Volume | Per cent | Volume | Per cent |
| Asia and Pacific | 41.1 | 29.4 | 32.4 | 22.0 | 43.4 | 23.8 | 60.7 | 27.6 | 70.5 | 31.7 |
| Hong Kong | 0.7 | 0.5 | 3.5 | 2.4 | 8.5 | 4.7 | 1.1 | 0.5 | 0.8 | 0.4 |
| Japan | 7.6 | 5.4 | 5.2 | 3.5 | 6.0 | 3.3 | 6.1 | 2.8 | 7.3 | 3.3 |
| Republic of Korea | 0.5 | 0.4 | 1.4 | 1.0 | 2.0 | 1.1 | 2.7 | 1.2 | 3.1 | 1.4 |
| Pakistan | .. | .. | 1.4 | 1.0 | 2.4 | 1.3 | 3.8 | 1.7 | 4.4 | 2.0 |
| Singapore | 29.9 | 21.4 | 18.1 | 12.3 | 20.8 | 11.4 | 41.1 | 18.7 | 49.6 | 22.3 |
| Central and South Africa | 0.2 | 0.1 | 1.3 | 0.9 | 1.9 | 1.0 | 3.3 | 1.5 | 3.5 | 1.6 |
| North Africa and Middle East | 12.6 | 9.0 | 15.3 | 10.4 | 18.8 | 10.3 | 29.4 | 13.4 | 30.1 | 13.6 |
| Egypt | 1.2 | 0.9 | 2.9 | 2.0 | 2.4 | 1.3 | 4.9 | 2.2 | 4.2 | 1.9 |
| Morocco | 3.3 | 2.4 | 2.7 | 1.8 | 2.2 | 1.2 | 5.2 | 2.4 | 5.4 | 2.4 |
| Saudi Arabia | 3.2 | 2.3 | 4.8 | 3.3 | 6.9 | 3.8 | 10.5 | 4.8 | 11.0 | 5.0 |
| North America | 30.7 | 22.0 | 35.7 | 24.3 | 40.7 | 22.4 | 48.1 | 21.9 | 50.6 | 22.8 |
| United States | 28.3 | 20.2 | 32.9 | 22.4 | 37.5 | 20.6 | 44.7 | 20.3 | 46.6 | 21.0 |
| Canada | 2.3 | 1.6 | 2.8 | 1.9 | 3.2 | 1.8 | 3.4 | 1.5 | 3.9 | 1.8 |
| Central and South America | 2.4 | 1.7 | 3.5 | 2.4 | 5.1 | 2.8 | 9.1 | 4.1 | 7.7 | 3.5 |
| Mexico | 0.7 | 0.5 | 0.4 | 0.3 | 1.0 | 0.5 | 3.7 | 1.7 | 2.6 | 1.2 |

Table 4. (continued)

| | 1976-1980 | | 1981-1985 | | 1986-1990 | | 1991 | | 1992 | |
|-----------------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|
| | Volume | Per cent | Volume | Per cent | Volume | Per cent | Volume | Per cent | Volume | Per cent |
| Europe | 52.8 | 37.8 | 59.0 | 40.1 | 72.2 | 39.6 | 69.1 | 31.5 | 59.7 | 26.9 |
| EU countries | 29.9 | 21.4 | 35.0 | 23.8 | 44.9 | 24.7 | 47.7 | 21.7 | 49.5 | 22.3 |
| Belgium | 1.4 | 1.0 | 2.0 | 1.4 | 2.8 | 1.5 | 3.1 | 1.4 | 2.7 | 1.2 |
| France | 6.8 | 4.9 | 7.9 | 5.4 | 10.0 | 5.5 | 8.9 | 4.1 | 8.7 | 3.9 |
| Germany | 10.3 | 7.4 | 11.7 | 7.9 | 14.2 | 7.8 | 17.3 | 7.9 | 16.0 | 7.2 |
| Italy | 3.3 | 2.4 | 3.0 | 2.0 | 3.4 | 1.9 | 3.5 | 1.6 | 3.5 | 1.6 |
| Netherlands | 1.8 | 1.3 | 2.3 | 1.6 | 5.6 | 3.1 | 6.4 | 2.9 | 9.2 | 4.1 |
| Spain | 1.4 | 1.0 | 1.6 | 1.1 | 2.1 | 1.2 | 2.0 | 0.9 | 2.0 | 0.9 |
| United Kingdom | 4.0 | 2.9 | 4.9 | 3.3 | 4.5 | 2.5 | 4.5 | 2.0 | 4.7 | 2.1 |
| Eastern Europe | 19.9 | 14.2 | 20.5 | 13.9 | 23.3 | 12.8 | 17.4 | 7.9 | 6.1 | 2.7 |
| Hungary | 2.2 | 1.6 | 1.7 | 1.2 | 2.2 | 1.2 | 1.6 | 0.7 | 1.6 | 0.7 |
| Poland | 2.2 | 1.6 | 2.2 | 1.5 | 1.6 | 0.9 | 0.2 | 0.1 | 0.2 | 0.1 |
| USSR (former) | 11.1 | 7.9 | 13.5 | 9.2 | 15.6 | 8.6 | 14.0 | 6.4 | 2.5 | 1.1 |
| Other Europe | 3.0 | 2.1 | 3.5 | 2.4 | 4.0 | 2.2 | 4.0 | 1.8 | 4.1 | 1.8 |
| Total | 139.8 | | 147.2 | | 182.1 | | 219.7 | | 222.1 | |

Source: IPC Statistical Yearbook, 1980, 1982, 1984, 1985, 1987, 1989 and 1992.

In Europe, the members of the European Union (EU) as a whole accounted for 21 to 22 per cent of world imports. Germany, France and the Netherlands are the three major importers, and they re-export substantial quantities to other states. Other significant importers in Western Europe are the United Kingdom, Italy and Belgium. The former Soviet Union had been a significant importer. Since the break-up of the Socialist bloc in 1992 and their lack of hard currency, imports have been reduced dramatically, which led to a reduction in the European market to less than 30 per cent of world totals as compared to 40 per cent in previous years.

The Asian and Pacific region imports about 30 per cent of total world imports, but Singapore is the largest importer in the region. It serves as an entrepôt and exports virtually all the pepper that it imports. However, as the volume of direct trading between producing countries and consuming countries expands, Singapore will become more of a residual market with substantial yearly fluctuations in the quantities imported estimated to be between 11 per cent and 22 per cent. Japan, the Republic of Korea and Pakistan are becoming significant pepper importers in the region. At the same time, Hong Kong, which acts as an entrepôt, has become a less important pepper importer.

Greater affluence and increased consumer purchasing power in some countries of the Middle East and North Africa have contributed to rapid increases in pepper consumption. This has been especially true in recent years when pepper prices have been low. Import volumes have more than doubled in the period from 1976 to 1992 for countries in the Middle East and North Africa. Their overall annual average imports were 12,600 metric tons during the late 1970s and grew to 30,000 metric tons by the early 1990s. Saudi Arabia, Morocco and Egypt have become significant importers.

Figure 4 gives a picture of trends in total world imports of pepper over the last twenty years. Average annual imports were about 140,000 metric tons in the second half of the 1970s, increased to an average of 150,000 metric tons per year in the mid-1980s, and then grew rapidly to exceed an annual average of more than 200,000 metric tons in the early 1990s.

Total world imports reflect the amounts of pepper traded and these appear to exceed the quantities exported from producing countries as a result of re-exports from entrepôts such as Singapore, Rotterdam and Hamburg. The net imports, after deducting re-exported quantities, represents the amount of pepper actually consumed by importing countries. The trend for net imports matches fairly well with the total exports of producing countries. Any difference between total exports and total net imports could be due to loss in transit; losses from processing at the entrepôts, where intermediaries often regrade and repack the commodity; or pepper stocks being held at transit markets to be released in subsequent years.

Consumption of pepper has been rising, except during years of short supply, such as the period from 1984 to 1989. Net imports shown in figure 4 can represent world consumption and show that annual average net imports were about 110,000 metric tons during the second half of 1970s and increased to 120,000 metric ton in the period from

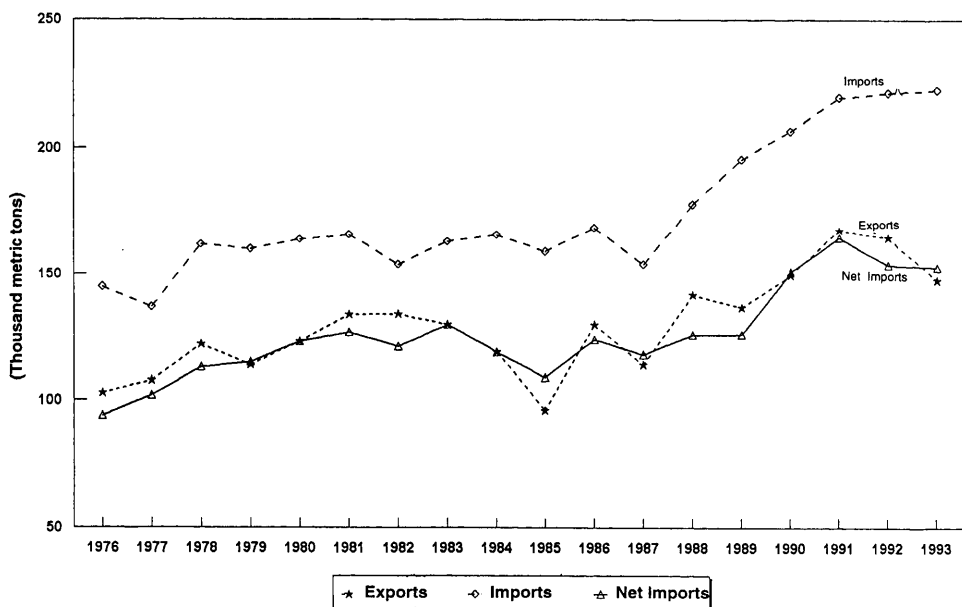


Figure 4. Total annual world exports, imports and net imports of pepper, 1976-1993

1981 to 1985 and to 130,000 metric tons on average from 1986 to 1990. A sharp increase occurred in the early 1990s when annual consumption averaged about 147,000 metric tons. The average annual growth rate in pepper consumption for the period from 1976 to 1993 was 3.6 per cent.

Demand for pepper has been found to be relatively price inelastic. That is, changes in prices of pepper have little impact on the net imports and quantities consumed, especially in developed countries as compared to developing countries. The consumer market for pepper is usually divided into three types of end-users: (1) the industrial sector, (2) the institutional/catering sector and the (3) household/retail sector. In developing countries, pepper is consumed chiefly in the household sector. In developed countries, more than 60 per cent of pepper imports are absorbed by the industrial sector, which includes spice and food processors and pepper oil and oleoresin extractors and by the institutional/catering sector.

The consumption of pepper in developing and developed countries is influenced by the population size, national and per capita incomes, the state of the economy, and culinary habits in particular.

3. Future trends and developments in the world pepper market

As the economies of developed countries in Western Europe, North America and Asia recover from recession and register positive economic growth in 1994, consumption of pepper is expected to continue to increase, possibly at rates faster than 3.6 per cent a year. However, growth in consumption will be constrained by shortages in supplies, because there have been substantial reductions in supplies over the past two years. Production declined from 235,000 metric tons in 1991 to 171,000 metric tons in 1993. Pepper prices will tend to rise as a result.

Lifestyles are expected to continue changing in developed countries and in many developing countries and areas in Asia as well. Families will have more than one income earner as both parents go out to work, and there will be more frequent dining out and entertaining. Increased consumption of prepared convenience foods and spicy/seasoned foods is expected in the future. Growth areas for consumption are more likely to be in the industrial (food processing) and catering sectors.

The international spice trade is expected to be characterized by a growing tendency towards direct trading between exporters from producing countries and spice processors (grinders and packers) in importing countries, thus reducing the importance of traders and brokers. The number of traders and brokers in the spice trade has already been decreasing. In Germany, for example, there were fifteen importers and brokers in 1970, but now there are only five.

There are also a number of big food processing corporations which are taking over the smaller spice grinders and packers. This consolidation will bring exporters in the producing countries into direct contact with the final end-users. As a result, the emphasis in spice trading will tend more towards regularity of supplies and better quality. The large corporations and conglomerates will prefer to make annual contracts at fixed prices with reliable suppliers in the exporting countries who can make regular monthly shipments. Such arrangements will reduce the speculative element of trading and offer more security to pepper growers, traders and the processing industry.

It is possible that a market for trading pepper futures will be set up in Cochin, India, as proposed by the International Pepper Community in 1994. Pepper prices have been very volatile during the past decade and may be brought within a narrower band of price fluctuations.

Another development in the pepper trade has been the growing emphasis on quality, not only by the food processing industry but by government food authorities and consumers. Excessive levels of pesticide residues, aflatoxin and microbial load in pepper are issues that have to be addressed, as well as application of general hygienic practices in preparation, packaging, storage and transportation. Some pepper-producing countries have started to address some of these issues at the export level and at the farm production

level. Spice processors are interested to have better quality pepper and are willing to pay for it, especially because treatment and recleaning in the importing countries is usually more expensive. The emerging trend is to add value to the pepper exports at the level of the producers and exporters in the producing countries.

Another trend towards adding value at the source is processing of pepper products and extracts for export in forms such as ground pepper, pepper oil, pepper oleoresin, dehydrated and freeze-dried green pepper and pepper in brine. The volume of such processed exports is still small, however. For example, in India which is one of the most advanced exporters, only 8 to 10 per cent of production is processed into value-added products for export. The comparative advantage of pepper-producing countries is the availability of the raw material and less expensive labour costs, and this should lead to a greater degree of processing at the source. Efforts are currently being made by producing countries to conduct research and development programmes that will increase value added.

Besides the wide use of pepper in food, it is known to have medicinal and preservative properties. It has also been used as an insecticide. However, research and development in these areas has been lacking. As a result, pepper will continue to be used mostly in the food industry and to some extent in the scent and perfumery industry (in extract form) for the foreseeable future.

4. Conclusion

Pepper is considered as a minor agricultural commodity, which accounted for about \$US 154 million of world trade in 1992. Most pepper is produced in the tropical areas in Asia and the Pacific, but the major consumers are in North America and Europe. During the period from 1976 to 1993, production of pepper nearly doubled up to 1991, but declined sharply in 1993 due to a prolonged period of low prices. Output was very much influenced by prices which have been extremely volatile in the last decade. Demand for pepper is rather price inelastic and growth in the period from 1976 to 1993 averaged 3.6 per cent a year. This demand growth is likely to continue, especially if developed countries recover from the current round of economic recession.

The number of traders and brokers who trade in pepper internationally has been decreasing as direct trading develops between suppliers in the producing countries and end-users in consuming countries. The emphasis in spice trading has been increasingly on regularity of supplies and better quality. As a result, there should be a shift to more value-added processing in the producing countries before the pepper is exported. The producing countries have also begun to take their own initiatives aimed at further processing in order to export processed pepper products.

D. A REVIEW OF SUPPLY AND DEMAND PATTERNS FOR NATURAL RUBBER¹

Hevea brasiliensis, a plant indigenous to the Amazon River area, was first introduced to South-East Asia in 1876. Since that time, rubber has become a major economic crop in the region, which now outproduces Brazil and other South American producing countries. In 1993, world production of natural rubber totaled 5.47 million tons. Over 22 countries produce natural rubbers, but the three major producers are Thailand, Indonesia and Malaysia. Together, these three countries accounted for 72 per cent of the world production in 1993. Thailand is now the largest producer of natural rubber. Malaysia had been the leading producer for several decades, but now is the third largest producer.

Growth of natural rubber consumption has been tapering off in developed countries, while it has been expanding in the rapidly industrializing countries and areas of East Asia. World consumption of natural rubber expanded at an average annual rate of 3.7 per cent over the last decade and the rate for countries and areas in Asia and the Pacific was 18 per cent. Tyres continue to dominate in the consumption of natural rubber, but non-tyre applications are becoming increasingly important.

The purpose of this paper is to briefly examine the patterns of production and consumption of natural rubber as well as consider development in the end use markets and factors behind these developments. Some observations are made about future trends in production, consumption and end use. Marketing and trade of natural rubber are not discussed directly.

1. Patterns of production

World production of natural rubber was 45,000 tons in 1900, reaching 1.5 million tons in 1941. During the Second World War, rubber production was interrupted, but after the war production continued to expand, subject to some fluctuations.

In 1946, Asian producers contributed 90 per cent of the world's supply of natural rubber, African producers accounted for 5 per cent and South American producers contributed the balance. By 1993, Asian producers' share of world production rose to 94 per cent, African producers remained the same at 5 per cent and South American producers' share declined to 1 per cent.

Malaysia had dominated production since the beginning of the twentieth century, except during the period from 1951 to 1957 when Indonesia became the leading

¹ Based on a paper presented by Mr. Arumugam, Senior Research Officer, and Mr. Sucharit Promdej, Secretariat, Association of Natural Rubber Producing Countries, Kuala Lumpur.

producer. Since 1991, Malaysia has been the third largest producer, with Thailand as first and Indonesia as second largest producers. Malaysia's output peaked in 1988 at 1.7 million tons; several factors, including low prices of natural rubber and shortages of labour contributed to the subsequent decline in output. Thai production reached 193 million tons in 1991. Table 1 presents production volumes by the major producers belonging to Association of Natural Rubber Producing Countries (ANRPC) for various years from 1946 to 1993.² Table 2 shows the percentage shares in world production of natural rubber for the selected Asian countries and for ANRPC as a whole.

Table 1. Production of natural rubber by selected ANRPC member countries, various years
(thousand of tons)

| | 1946 | 1956 | 1966 | 1976 | 1986 | 1990 | 1991 | 1992 | 1993 |
|---------------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Malaysia | 438 | 678 | 973 | 1 612 | 1 542 | 1 291 | 1 256 | 1 173 | 1 074 |
| Indonesia | 178 | 698 | 737 | 848 | 1 034 | 1 262 | 1 284 | 1 387 | 1 301 |
| Thailand | 25 | 136 | 208 | 412 | 782 | 1 271 | 1 341 | 1 531 | 1 570 |
| Sri Lanka | 96 | 97 | 131 | 152 | 138 | 113 | 104 | 106 | 104 |
| India | 16 | 24 | 53 | 148 | 219 | 324 | 360 | 383 | 428 |
| Total, all ANRPC members ^a | 753 | 1 633 | 2 106 | 3 176 | 3 720 | 4 263 | 4 347 | 4 583 | 4 480 |

Source: IRSG Rubber Statistical Bulletin, various issues.

Note: ^a This total also includes production by Papua New Guinea.

Other important producers in Asia are China, which produced 325,000 tons; the Philippines, which produced 172,000 tons and Viet Nam, which produced 111,000 tons in 1993.

According to a paper on the outlook for the rubber market, Asian producers will continue to dominate world production of natural rubber. In the year 2020, it was forecast that Indonesia would produce 1.9 million tons, Thailand 1.6 million tons, Malaysia and India just over 1 million tons each, China 636,000 tons, Viet Nam 454,000 tons and the Philippines 300,000 tons. Other major world producers would be Nigeria, Liberia and Côte d'Ivoire.³

² India, Indonesia, Malaysia, Papua New Guinea, Singapore, Sri Lanka and Thailand are members of ANRPC.

³ Smit and Burger, "The Rubber Market – Analysis and Outlook", paper presented at the 35th Assembly of the IRSG, Colombo, Sri Lanka, 23-28 May 1994.

Table 2. Shares in world production of natural rubber by selected ANRPC member countries, various years (percentage)

| | 1946 | 1956 | 1966 | 1976 | 1986 | 1990 | 1991 | 1992 | 1993 |
|---------------------------------------|------|------|------|------|------|------|------|------|------|
| Malaysia | 50 | 35 | 41 | 45 | 35 | 25 | 23 | 21 | 20 |
| Indonesia | 21 | 36 | 31 | 24 | 23 | 24 | 24 | 25 | 24 |
| Thailand | 3 | 7 | 9 | 11 | 18 | 24 | 25 | 27 | 29 |
| Sri Lanka | 11 | 5 | 5 | 4 | 3 | 2 | 2 | 2 | 2 |
| India | 2 | 1 | 2 | 4 | 5 | 6 | 7 | 7 | 8 |
| Total, all ANRPC members ^a | 87 | 85 | 88 | 89 | 84 | 81 | 81 | 82 | 82 |

Source: IRSG Rubber Statistical Bulletin, various issues.

Note: ^a This total also includes production by Papua New Guinea.

2. Structure of production

Cultivation of natural rubber in almost all producing countries is dominated by smallholders, although Malaysian production was originally dominated by estate or plantation-type cultivation. By 1993, about 72 per cent of Malaysian natural rubber production came from smallholdings. The pattern is similar in other producing countries in Asia. In Thailand, smallholders already account for 95 per cent of the area under rubber. Moreover, the smallholder sector has been expanding and it accounted for about 78 per cent of world production of natural rubber in 1993.

Natural rubber had been identified as a crop most suitable for smallholder farming, and most rubber-producing countries have programmes designed to develop rubber smallholdings. Malaysia has three different schemes; Indonesia has the Nucleus Estate Schemes; India and Sri Lanka have cooperative schemes and Thailand has group processing and marketing schemes.

Natural rubber latex is processed into several forms: sheet, latex concentrate, technically specified rubber (TSR) and crepe. In the past, various types and grades were produced for export, but in 1965, the Standard Malaysian Rubber (SMR) was introduced as high-grade, technically specified block rubber designed to meet stringent consumer demand. This brought about a major transformation of the processing industry, so that now the world output of natural rubber is mostly TSR.

3. Trends in consumption of natural rubber

In 1993, the United States was the largest consumer of natural rubber, accounting for 967,000 tons, nearly 18 per cent of world consumption. Figures 1 and 2 show trends in natural rubber consumption from 1946 to 1993 for seven major importing

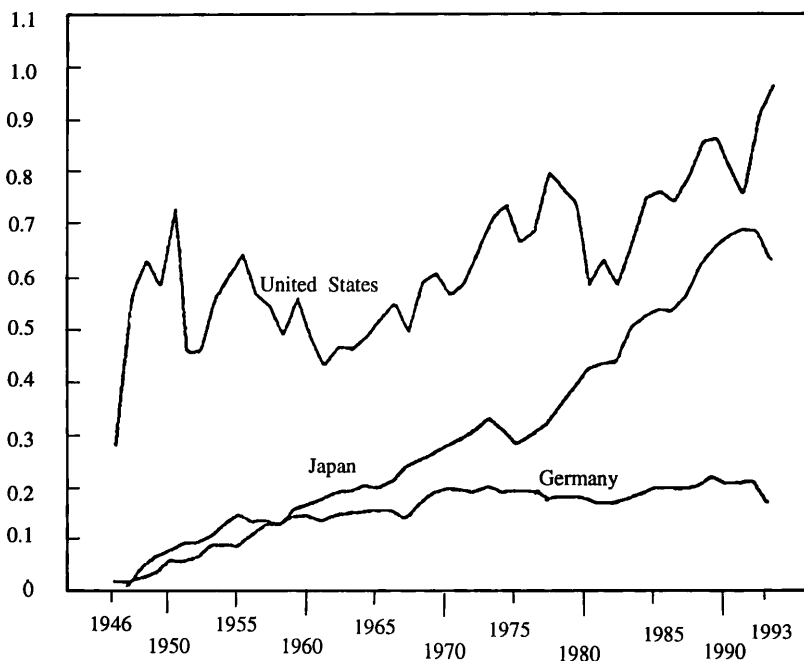


Figure 1. Consumption of natural rubber in the United States, Japan and Germany, 1946-1993 (million tons)

countries. The top three countries are the United States, Japan and Germany. Other important consumers are the United Kingdom, France, the Republic of Korea and Taiwan Province of China.

The United Kingdom, France, Italy and Germany might be considered as mature rubber-consuming markets, since their consumption peaked in earlier years and has since gone down. However, Japan, the Republic of Korea and Taiwan Province of China are considered to be expanding markets.

Figures 3 and 4 show the changing patterns of consumption within the major natural rubber-producing countries. Their consumption has generally been rising and the countries have been steadily expanding their downstream activities involving natural rubber.

Table 3 shows the historical trend in the percentage share of world natural rubber consumption for selected countries. The countries have been divided into two groups: (1) the major consuming countries and (2) selected producing countries. The collective share of China, India, Malaysia, Brazil, Indonesia, Thailand and Sri Lanka was 6.5 per cent of world consumption in 1946 and rose to 31.6 per cent in 1993. In comparison, the major consuming countries, the United States, Japan, the Republic of Korea, Germany, France, the United Kingdom, Italy and Taiwan Province of China declined from 77.4 per cent of world consumption in 1946 to 46.7 per cent in 1993.

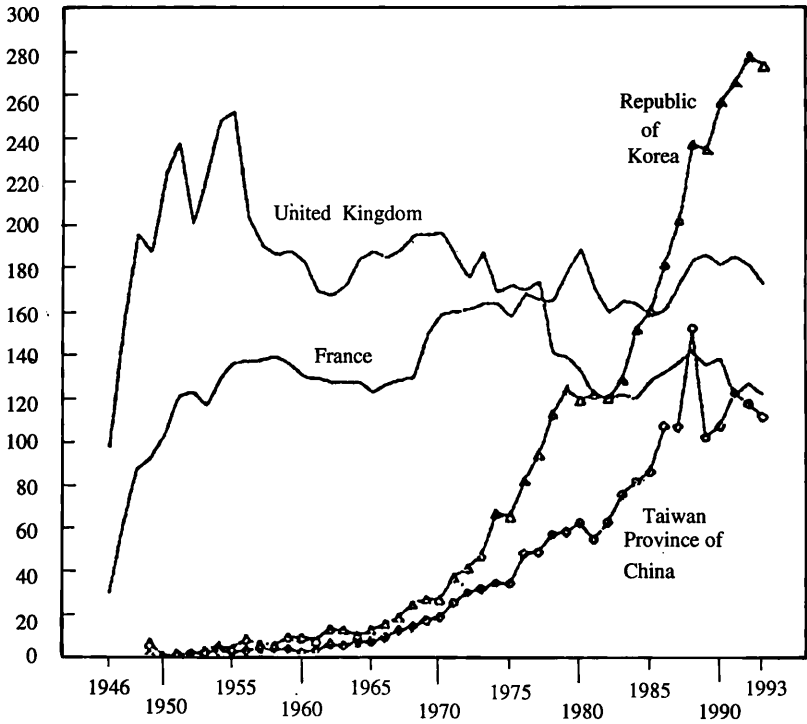


Figure 2. Consumption of natural rubber in France, the United Kingdom, Taiwan Province of China and the Republic of Korea, 1946-1993 (thousand tons)

4. Trends in end uses for natural rubber

There are literally ten thousand products which contain natural rubber. These products can be grouped according to several criteria: (1) the raw materials, such as dry rubber and latex used in their manufacture; (2) the manufacturing process used, such as moulding or dipping; and (3) the end use, such as tyres, industrial rubber goods, etc.

Detailed classification of such rubber products is often not available in country statistics or on a global basis. However, it is estimated that the automotive sector accounts for about 70 per cent of world consumption of natural rubber and latex goods account for 10 per cent. New uses are also being researched and developed, such as for bridge bearings and other engineering products.

There may not be any significant long-term changes in the patterns of end use for natural rubber. The automotive industry is thus expected to continue its dominance as an end user. Environmental issues could encourage greater consumption of natural rubber as it is more environmentally friendly compared to synthetic rubber. However, it is not

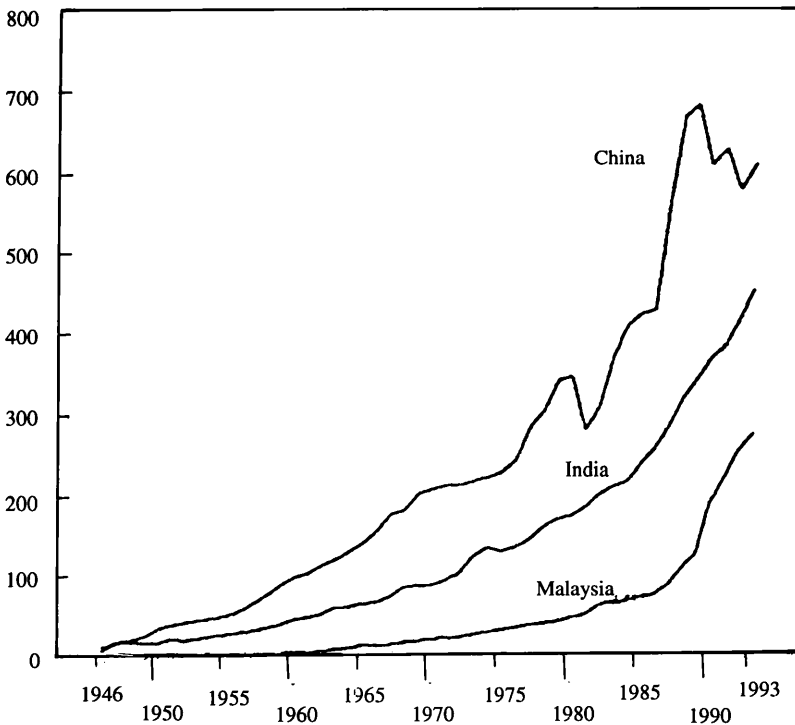


Figure 3. Consumption of natural rubber in China, India and Malaysia, 1946-1993 (thousand tons)

easy to forecast the impact of environmental considerations since product performance and price are the main determinants of what kind of rubber is used as an input.

5. Conclusion

Trends in consumption indicate that the major producing countries are expected to consume greater amounts of natural rubber. The economic outlook for the major natural rubber producing countries is, therefore, optimistic in the near term. Location of new downstream activities in rubber and the relocation of existing rubber product manufacturing from the consuming countries to the producing countries can be expected to continue. If there are declines in production of natural rubber in some of the producing countries, then exports could also decline as the producers keep the natural rubber for domestic uses in downstream manufacturing.

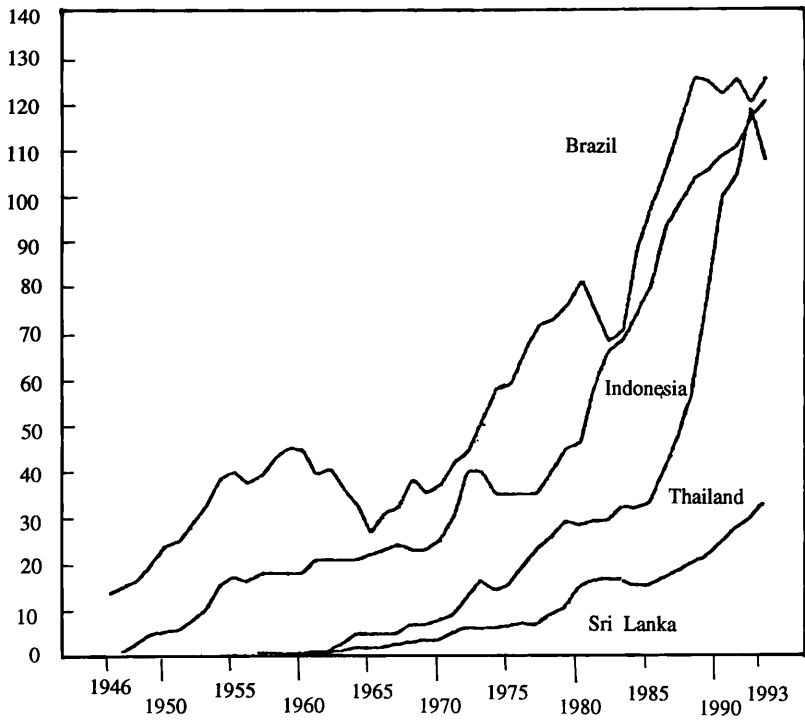


Figure 4. Consumption of natural rubber in Indonesia, Thailand, Sri Lanka and Brazil, 1946-1993 (thousand tons)

Table 3. Share of natural rubber consumption by selected countries, various years
(percentage share)

| | 1946 | 1956 | 1966 | 1976 | 1986 | 1993 |
|--|------|------|------|------|------|------|
| A. Major consuming countries | | | | | | |
| United States | 47.8 | 30.7 | 21.7 | 19.6 | 16.9 | 17.7 |
| Japan | 3.4 | 6.0 | 8.5 | 8.6 | 12.2 | 11.6 |
| Republic of Korea | -- | 0.5 | 0.6 | 2.3 | 4.1 | 5.0 |
| Germany | 0.3 | 7.3 | 6.2 | 5.6 | 4.5 | 3.1 |
| France | 5.1 | 7.4 | 4.9 | 4.8 | 3.6 | 3.1 |
| United Kingdom | 16.6 | 10.9 | 7.2 | 4.8 | 3.0 | 2.2 |
| Italy | 4.2 | 3.0 | 3.6 | 3.9 | 3.0 | 2.0 |
| Taiwan Province of China | -- | 0.2 | 0.4 | 1.3 | 2.4 | 2.0 |
| Subtotal ^a | 77.4 | 66.0 | 53.1 | 50.9 | 49.7 | 46.7 |
| B. Selected producing countries | | | | | | |
| China | 1.7 | 3.0 | 6.1 | 6.8 | 9.5 | 11.0 |
| India | 2.4 | 1.6 | 2.6 | 3.8 | 5.7 | 8.1 |
| Malaysia | -- | 0.2 | 0.6 | 1.0 | 1.6 | 4.9 |
| Brazil | 2.3 | 2.0 | 1.2 | 1.9 | 2.4 | 2.3 |
| Indonesia | -- | 0.9 | 0.9 | 1.0 | 2.1 | 2.2 |
| Thailand | 0.1 | -- | 0.2 | 0.6 | 0.9 | 2.5 |
| Sri Lanka | -- | -- | 0.1 | 0.2 | 0.4 | 0.6 |
| Subtotal ^a | 6.5 | 7.7 | 11.7 | 15.3 | 22.6 | 31.6 |
| Total ^a | 83.9 | 73.7 | 64.8 | 66.2 | 72.3 | 78.3 |

Source: Computed from *IRSG Rubber Statistical Bulletin*, various issues.

Note: -- indicates not available.

^a An underestimate as figures for some countries are not available.

E. ACCELERATING CHINA'S AGRICULTURAL GROWTH THROUGH TRADE¹

During the 1950s, China earned almost 60 per cent of foreign exchange from agricultural exports. As shown in table 1, by the 1980s the role of agricultural products in total exports had declined to about 24 per cent of total exports. Statistics presented in table 2 show the main agricultural products exported and imported in 1992. These categories of agricultural products accounted for 17.6 per cent of total exports in 1992, while imports in the same categories accounted for 10.5 per cent of total imports.

Table 1. Value of China's exports and imports of agricultural products, various years \$US million and (percentage share of total)

| | Exports | Imports | Total |
|-----------|---------------|---------------|---------------|
| 1950-1959 | 7 862 (59.6) | 474 (3.3) | 8 336 (30.3) |
| 1960-1969 | 8 287 (42.6) | 4 967 (28.5) | 13 254 (35.9) |
| 1970-1979 | 25 951 (39.2) | 12 347 (18.2) | 38 298 (28.5) |
| 1980-1988 | 57 610 (24.4) | 35 857 (14.9) | 93 467 (19.6) |

Source: China Today: Foreign Trade, (Dangdai Zhongguo Duiwai Maoyi) Book 2, Beijing, Dandai Zhongguo, p. 31.

There are a number of favourable conditions and constraints to China's agricultural development that must be analyzed in the context of increased cooperation on agricultural trade in the Asian and Pacific region. Favourable conditions for agricultural development in China include: (1) strong national economic growth, (2) progress with agrarian reforms with close attention by top policy-makers, (3) a relatively comprehensive research and extension network, (4) abundant, inexpensive farm labour and (5) a wealth of diverse genetic resources for agriculture.

China also faces a number of constraints to its agricultural development. One constraint is declining land-to-labour ratios. China's population is almost 1.2 billion, with an annual increase of about 15 million people. China's arable land is estimated to be about 96 million hectares. By the year 2000, arable land per capita is expected to decline to only .1 hectare. Some areas of the country have intensified land use to a degree beyond economic and ecological rationality.

¹ Based on a paper presented by Mr Li Weimin, Senior Research Fellow, Institute of Agricultural Economics, Chinese Academy of Agricultural Sciences, Beijing.

Table 2. Composition of Chinese agricultural exports and imports, 1992
\$US million and (percentage distribution)

| | Exports | Imports |
|-----------------------|------------|------------|
| Crops | 4 324 (29) | 1 987 (23) |
| Grain | 1 517 | 1 677 |
| Vegetables, roots | 1 053 | 38 |
| Livestock, meat etc. | 2 790 (19) | 510 (6) |
| Aquatic products | 1 366 | 323 |
| Processed food etc. | 3 296 (22) | 1 093 (13) |
| Refined oils and fats | 140 (1) | 540 (6) |
| Natural fibres | 4 223 (28) | 3 193 (38) |
| Cotton | 2 566 | 1 719 |
| Wool products | 713 | 1 290 |
| Silk | 944 | 174 |
| Raw skins and leather | 156 (1) | 1 188 (14) |
| Total | 14 929 | 8 511 |

Source: Yearbook of China's Coastal Region, (Zhongguo Huangjin Hai'an Nianjian), Zhongguo Luyou Chubanshe, 1993.

A second constraint is the shortage of water and energy. Agriculture makes great demand on water supplies, accounting for over 80 per cent of total water use. The demand for irrigation will increase when China aims to increase output of grains and other crops. At the same time, demand for water has grown rapidly in urban and rural non-farm sectors. China is rich in coal as an energy source and now is the largest producer in the world. However, demand for coal has increased rapidly and it is forecast that China may become a net importer of petroleum in the next century. Energy shortages can be expected to hurt agriculture and rural industries as well as have negative environmental consequences.

A third constraint is the farmers' desire for quick profits. Most farmers' incomes are still low due to long-standing price distortions, and this creates a tendency for farmers to seek maximum profits when they no longer come under a planned economy. In line with efforts to increase total output from agricultural production aimed at developing export-oriented industries, farmers may have tended to neglect less profitable crops such as grains.

1. Recent changes in agricultural trade patterns

Three major changes have occurred in the patterns of China's agricultural trade. The first major change is increased imports of grain, sugar, oils and some livestock

products. Since 1977, China has been a net importer of grains, with average annual volumes of over 10 million tons. The two main reasons for increased grain imports are increased population and increased demand for animal feed. At the same time, exports in these categories of farm products rose from about \$US 5 billion in 1980 to \$US 2 billion in 1992, while the value of imports increased from \$US 1.5 billion to \$US 3 billion. This general trend for exports and imports is likely to continue.

The second major change is the increased export of high-value produce (aquatic products, vegetables, fruit, tea, oilseeds, etc.). Imports of this group of products have been quite low. The value of exports for this group of products was \$US 1.5 billion in 1980 and \$US 3.9 billion in 1989. Generally, Chinese agriculture appears to have developed a comparative advantage in exports for this set of agricultural products.

The third major change has been the considerable growth of textile and garment exports, including cotton goods and silk. The value of exports in this category exceeded \$US 10 billion in 1992. At the same time, raw cotton exports have declined as a result of the rapid expansion in the textile and garment industries.

Major destinations for China's agricultural exports have remained the same, namely, neighbouring countries and areas. The largest export markets have been Hong Kong and Japan, followed by the former Soviet Union, the developed countries of North America and Europe.

The main sources of China's agricultural imports are the United States, Canada, France and Australia. Sugar is imported from Cuba and rubber from Malaysia. The most important import related to agriculture in terms of value has been chemical fertilizers, with a value of \$US 3.3 billion in 1991 and \$US 2.9 in 1992. In addition, China has become one of the largest grain importers in the world, with imports of 14 million tons in 1991 and 12 million tons in 1992. Tables 3 and 4 show the volume and value for major agricultural and agriculturally-related products which were traded in 1992. The statistics indicate the importance of garment exports and imports of fertilizer and grain.

2. Trade flows with the former Union of Soviet Socialist Republic (USSR)

The 1950s was a time when agricultural trade between China and the USSR was strong, accounting for about 50 per cent of China's total trade. By the 1960s and 1970s, the agricultural trade had dropped to very low levels. When economic relations were restored in the 1980s, trade volume increased dramatically from a value of Swiss francs 400 million in 1981 to Swiss francs 4.6 billion in 1985. From 1986 to 1988, the main agricultural exports were meat and meat products, maize and soybeans. Border trade also grew steadily during the 1980s.

Table 3. Ten major exports related to Chinese agriculture, 1992
(volume and value in \$US million)

| | Volume | Value |
|---|--------|-------|
| Garments | .. | 7 742 |
| Cotton cloth ^a | 3 134 | 2 003 |
| Aquatic products (thousand metric tons) | 486 | 1 481 |
| Cotton knitwear | .. | 1 460 |
| Maize (thousand metric tons) | 10 435 | 1 217 |
| Drawnwork | .. | 1 098 |
| Cotton fabrics | .. | 886 |
| Downwork | .. | 822 |
| Woollen knitwear | .. | 796 |
| Canned food (thousand metric tons) | 580 | 667 |

Source: Yearbook of Foreign Economic Relations and Trade of China, (Zhongguo Duiwai Maoyi Tongji Nianjian), Beijing, Zhongguo Shehui Chubanshe, 1993.

Note: ^a measured in million metres.

Two dots (..) indicate that data are not available.

Table 4. Ten major imports related to Chinese agriculture, 1992
(volume and value in \$US million)

| | Volume | Value |
|---|--------|-------|
| Fertilizers (thousand metric tons) | 17 531 | 2 868 |
| Grain | 11 569 | 1 442 |
| Timber ^a | 3 920 | 456 |
| Wool (thousand metric tons) | 166 | 542 |
| Cotton (thousand metric tons) | 296 | 464 |
| Oils and fats (thousand metric tons) | 875 | 405 |
| Aquatic products (thousand metric tons) | .. | 371 |
| Pesticides | .. | 334 |
| Leather skin | .. | 332 |
| Sugar (thousand metric tons) | 1 211 | 285 |

Source: Same as table 3.

Note: ^a measured in thousand cubic metres.

Two dots (..) indicate that data are not available.

Table 5 gives some data on Chinese agricultural commodities exported to the USSR in 1991 and 1992, at the time of its transition to the Russian Federation and a number of republics. The most important export commodities to the Russian Federation in terms of value were processed food, including frozen meat and canned food, and garments. In the first half of 1993, China's main exports to the Russian Federation were garments valued at \$US 158 million, sugar and candy valued at \$US 95 million, shoes valued at \$US 37 million and grain valued at \$US 15 million.

Table 5. Agricultural commodity exports to the Russian Federation, 1991-1992
(volume in thousand metric tons and value in \$US million)

| | 1991 | | 1992 | |
|--------------|--------|-------|--------|-------|
| | Volume | Value | Volume | Value |
| Maize | 925 | 102.4 | 773 | 104.6 |
| Rice | 4 | 1.6 | 50 | 11.7 |
| Peanuts | 38 | 60.2 | 23 | 35.8 |
| Canned food | 120 | 244.0 | 54 | 109.4 |
| Frozen meat | 153 | 274.2 | 23 | 45.2 |
| Cotton goods | .. | 62.4 | .. | 58.6 |
| Garments | .. | 107.9 | .. | 266.9 |

Source: Same as table 2.

Note: Two dots (..) indicate that data are not available.

The products imported from the Russian Federation during the first half of 1993 consisted mainly of raw materials and semi-processed goods, such as metal and metalwares valued at \$US 372 million, means of transportation valued at \$US 207 million, automobiles valued at \$US 149 million and mineral fertilizers valued at \$US 100 million.

China and the Russian Federation generally complement each other in terms of natural resource endowments and economic structures. China exports agricultural products in the form of food and consumer goods, while the Russian Federation exports raw materials and semi-processed goods. The Russian Federation has experienced shortages of food and consumer goods as well as high rates of inflation, and thus sees China as an important supplier since many of these goods can be traded by barter. At the same time, Russian technology is suitable to a certain extent for China and various Chinese industries.

Trade between the two countries has taken various forms. One form is trade based on government-to-government agreements. This form has been important since the 1950s and has accounted for most exports and imports up to the 1980s. Two trade agreements were signed in 1992 and included the requirement that both trade partners settle their accounts in freely convertible currencies.

A second form is barter trade outside the government agreements. This form is intended to supplement the annual government-to-government agreements. There are also no limits on the types or amounts of commodities for barter trade.

A third form is border trade which is done on the basis of barter between bordering regions. It was reported that two thirds of the trade volume in bordering regions of the two countries was carried out by barter in 1992.

Expansion of trade between China and the Russian Federation can give benefits to both countries, but there are several difficulties and obstacles to trade expansion. There are limits to barter trade, since it is usually confined to specific categories, such as Russian fertilizers, cars and steel products, and Chinese garments, fruits and meat. On the side of the Russian Federation, there have been claims of losses as large as \$US 8 billion in 1992, leading to a substantial increase in tariffs for imported goods and the renewal of some export quotas to China. The result was a decline in regional barter trade during 1993.

Barter trade is also affected by the financial situation in the Russian Federation. The sharp decline in industrial production coincided with the devaluation of the ruble plus high inflation. Authorities have limited the entry of Chinese entrepreneurs and unskilled labour.

The inadequate transportation infrastructure at the border passes presents obstacles to barter trade. Facilities cannot handle the increased trade volume, especially on the Chinese side. Neither the railway systems nor the ports are able to handle the volume of products being traded.

Trade legislation and implementation in both countries have presented problems for border trade. Most Chinese laws and regulations were re-examined to meet international standards when China resumed its membership in GATT in 1986. The Government of the Russian Federation frequently alters laws and regulations. In addition, local authorities tend to ignore the laws made by the federal government.

Prospects for future trade between China and the Russian Federation have to be considered cautiously. Agricultural trade volumes are likely to increase moderately. Lack of arable land will not allow China to become a major world exporter of agricultural products. At the same time, the Russian Federation's agricultural sector might not be able to recover in the near future, especially its livestock production which suffers a shortage of animal feed. Growth of consumer income and demand for food is expected to be slow or even negative in the Russian Federation.

Trade flows in the future are expected to shift to the far eastern region of the Russian Federation, an area rich in various natural resources, but with a shortage of food. According to Russian data, local authorities are able to provide only 50 per cent of milk, 45 per cent of meat and 40 per cent of the grain required in the far eastern region. Almost all fruits are imported. The adjacent northeastern region of China could alleviate the

shortages in the far eastern region of the Russian Federation, if terms of trade were reasonable and trade regulations were clear.

There is also some uncertainty about future trade opportunities since international economic relations with the Russian Federation are strongly dependent on the results of reforms. Russian-Chinese trade relations involving agricultural products will be determined more by the degree of economic recovery as well as the ability of the trade partner to pay and to offer products of acceptable quality at competitive prices.

3. Trade potential with Asian and Pacific countries and areas

(a) General considerations

China's dynamic economic growth in recent years has had an impact on the rest of the world, especially on the Asian and Pacific region. There are two elements of impact to consider: (1) complementarity between China and other Asian and Pacific countries and areas and (2) competitiveness.

Complementarity derives from the fact that the economic structures of Japan and the newly-industrialized economies (NIEs) are different from China. Labour costs also vary greatly. Resource endowments between China and this group of Asian and Pacific countries are also complementary.

Complementarity can also be found between China and the ASEAN-member countries. The ASEAN-member countries have a comparative advantage in the production of tropical products. China's rapid economic development should provide a large market for products from neighbouring countries and areas.

Competitiveness in exports involving China and other Asian-Pacific countries and areas should not be seen as a threat but as a challenge for all to make progress. China can be expected to expand its overall share of exports in the world market, but it is unlikely to increase exports of major agricultural commodities such as grain, cotton, wool or meat. Given the scarcity of water and land, China is more likely to have a larger share in the world market for exports of textiles, garments, shoes and other manufactured goods.

Competitiveness in imports is linked to a more open domestic market which should create more opportunities for overseas business people. Careful study is needed about opportunities in the area of imported agricultural products. If China would increase its agricultural imports, prices of those commodities may rise in the world market, which will benefit exporters at the expense of importers. Countries that export grain can expect to benefit, but China's import requirements must be compared to those of other grain-importing countries such as the former USSR. If China raises its ratios of self-sufficiency in grain, then major grain-exporting countries would have to control their production. However, the self-sufficiency scenario is not likely, unless exporters would impose a

grain embargo on China for political purposes. More importantly, the growth of China's capacity to import agricultural products is closely linked to the expansion of China's manufactured exports.

(b) Patterns of trade with Asian and Pacific countries and areas

As shown in tables 6 and 7, major buyers of Chinese agricultural products (excluding cotton goods and garments) in the region have been Hong Kong, Japan and the Republic of Korea. In terms of value, maize was China's most important agricultural export with Hong Kong, Japan and the Republic of Korea buying the largest share by volume and value. On the import side, China purchased 92 per cent of its rice from Thailand and through Hong Kong. About 88 per cent of wheat imports came from Canada and the United States and 79 per cent of oilseed and fat imports came from Hong Kong, Singapore and Malaysia in 1992. It is evident that China has been very dependent on Asian and Pacific trade partners for its agricultural trade.

The structure of China's agricultural imports show that food and primary goods (excluding fuels) have had a minor share over the past three decades due to lack of foreign exchange.

Table 8 presents the percentage shares of food and other primary products in the total exports of selected Asian-Pacific countries and areas for the years 1965 and 1991. The share of primary products can be compared with the share of textiles and garments in the total exports of each country and area in the same years. China's exports of primary products (excluding fuels) declined somewhat from 1965 to 1991, and this can be compared with more dramatic declines for other Asian and Pacific countries and areas, especially in South-East Asia, Australia and New Zealand. At the same time, China had a very marginal decline in textile and garment exports between 1965 and 1991.

4. Conclusions

As a result of economic growth expected to average over 7 per cent a year over the next decade, China and the rest of the Asian and Pacific region should experience a considerable increase in trade volume. Imports by China are expected to have a total value of \$US 800 to 1,000 billion during the period from 1994 to 2000. When the market-oriented transformation is completed, China should attract more foreign capital and demand more foreign products. China is expected to continue its national policy of open international economic relations with all countries.

While the average annual growth rate for agricultural imports was 3.5 per cent in the 1980s, the rate should be over 4 per cent during the 1990s. In view of its population size and the potential for increased per capita income, China should have a significant role in the global agricultural market.

Table 6. Volume and value of selected agricultural exports of China to Asian and Pacific countries and areas, 1992^a

| | Volume (thousand metric tons) | Value (\$US thousand) |
|---------------------------------------|----------------------------------|--------------------------|
| Rice | 1 206 | 266 721 |
| Hong Kong | 122 | 31 116 |
| Indonesia | 63 | 13 216 |
| Maize | 10 435 | 1 217 164 |
| Republic of Korea | 3 047 | 349 568 |
| Hong Kong | 2 609 | 294 371 |
| Japan | 2 189 | 244 119 |
| Malaysia | 548 | 62 166 |
| People's Democratic Republic of Korea | 516 | 64 566 |
| Singapore | 298 | 34 387 |
| Thailand | 224 | 25 971 |
| Soybeans | 845 | 205 173 |
| Japan | 261 | 65 156 |
| Indonesia | 155 | 36 570 |
| Malaysia | 139 | 32 508 |
| Canned food | 580 | 666 979 |
| Hong Kong | 110 | 109 983 |
| Japan | 62 | 74 328 |
| Singapore | 27 | 37 555 |
| Silk | 8 729 ^b | 314 336 |
| Hong Kong | 2 097 | 70 257 |
| Japan | 1 887 | 81 568 |
| India | 1 268 | 39 877 |

Source: Same as table 3.

Note: ^a Excludes cotton goods and garments.

^b Volume in tons.

Table 7. Volume and value of selected agricultural imports by China from Asian and Pacific countries and areas, 1992

| | Volume (thousand metric tons) | Value (\$US thousand) |
|--------------------------|----------------------------------|--------------------------|
| Wheat | 10 340 | 1 233 274 |
| Canada | 5 812 | 749 800 |
| United States | 3 310 | 357 407 |
| Rice | 72 | 30 911 |
| Thailand | 46 | 17 279 |
| Hong Kong | 20 | 12 268 |
| Oilseeds and fats | 875 | 404 517 |
| Hong Kong | 410 | 204 927 |
| Singapore | 177 | 79 563 |
| Malaysia | 107 | 45 554 |
| Sugar | 1 211 | 285 326 |
| Australia | 330 | 74 410 |
| Wool | 166 | 542 308 |
| Australia | 55 | 250 692 |
| Japan | 37 | 13 352 |
| Hong Kong | 21 | 108 381 |
| Macau | 9 | 17 774 |

Source: Same as table 3.

Note: ^a Excludes cotton goods and garments.

Table 8. Food and other primary products (excluding fuels) compared with textiles and garments as share of exports from selected Asian and Pacific countries and areas, 1965 and 1991 (percentage share)

| | Food and primary products | | Textiles and garments | |
|--------------------------|---------------------------|------|-----------------------|------|
| | 1965 | 1991 | 1965 | 1991 |
| China | 20 | 15 | 29 | 28 |
| Taiwan Province of China | 57 | 6 | 25 | 16 |
| Hong Kong | 5 | 3 | 52 | 40 |
| Indonesia | 53 | 16 | | 14 |
| Japan | 7 | 1 | 17 | 2 |
| Republic of Korea | 25 | 4 | 27 | 21 |
| Malaysia | 60 | 22 | | 6 |
| Philippines | 84 | 20 | 1 | 9 |
| Singapore | 44 | 8 | 6 | 4 |
| Thailand | 86 | 32 | | 17 |
| Australia | 73 | 28 | 1 | 1 |
| New Zealand | 94 | 65 | | 2 |
| Canada | 35 | 17 | 1 | 1 |
| United States | 27 | 14 | 3 | 2 |

Source: World Bank, *World Development Report 1992*, Washington, D.C., IBRD, 1992.

A number of developments should be considered for the future. Diversification might be the general tendency for China's agricultural trade in order to avert various risks such as natural disasters or trade embargoes. More efforts will be made to develop South-South trade cooperation, especially among Asian and Pacific developing countries such as the ASEAN-member countries. Grain imports will be controlled and policy-makers will try to maintain a very high level of self-sufficiency for food grains. Rural incomes will rise significantly in China as reforms and production restructuring proceed. There should be a large additional demand from almost 900 million rural residents for livestock products, leading to an increase in imports of animal feed over the next ten years.

One possibility for the future is to consider long-term agreements on agricultural cooperation among countries and areas of Asia and the Pacific. This can strengthen the confidence of the people in the region about reaching a higher level of food security. Issues of food self-sufficiency and grain reserves might be settled effectively at the regional level. Such agreements can cover various problems of common concern, such as exchange of agricultural information, stabilization of food supplies and sustainable growth of agricultural products. These long-term cooperation agreements should be of mutual benefit to all partners and be open to all, without excluding countries of other regions.

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F. CHINA'S TRADE IN AGRICULTURAL PRODUCTS AND PROSPECTS FOR COOPERATION WITH OTHER ASIAN AND PACIFIC COUNTRIES¹

China is a developing country with a vast territory and a population of 1.1 billion. Agriculture has an especially important role in China's national economy. Therefore, agricultural production has a direct bearing not only on the life of the people, but also on the development of the national economy and social stability. One of the most significant development achievements, and challenges as well, is that China has provided enough food for almost one quarter of the earth's population with only 7 per cent of its total arable land.

China's most important agricultural products in terms of quantity are grains. In 1993, China's total grain output reached 456.6 million tons, more than triple the 1949 production of 119.1 million tons. Cotton production was 3.76 million tons in 1993, about eight times the amount produced in 1949. Products for vegetable oil were 17.6 million tons in 1993, nearly six times the production in 1949.

The increases in production were especially noteworthy in the years since reform began in 1978. By 1993, China's total grain and vegetable oil output was the largest in the world, while its cotton production was third. Per capita domestic consumption of major agricultural products such as grains, cotton, vegetable oil, vegetables, fruit, table sugar, meat, dairy products and fishery products also indicate how the Chinese quality of life and nutrition have improved. At the same time, however, clothing and feeding the people of China has presented difficult challenges to domestic agriculture as a result of economic growth, population increases and greater improvements in living standards.

Therefore, the Chinese Government must formulate a correct agricultural development strategy based on active policies for the import and export of agricultural products and expanded trade of goods that fulfil demand of all trading partners and take advantage of the resources in all markets to create conditions for common development.

China's agricultural trade has undergone significant changes in recent years. Grain exports have shown a momentum towards decline while grain imports have been increasing. The greatest change has been the sharp reduction of rice exports and a strong increase in corn exports. On balance, China's grain imports are still dominated by wheat, followed by vegetable oil, rubber and cotton. China's major markets for agricultural trade are in the Asian and Pacific region. Experience has proved that there is a bright prospect for China to develop agriculture trade with Asia-Pacific region, particularly neighbouring countries.

¹ Based on a paper presented by Mr. Cheng Zhongwen, Vice President, China International Trade Research and Training Centre for Asia and the Pacific Region (RTC).

The purpose of this paper is to consider China's foreign trade in agricultural products and prospects for cooperation within the Asian and Pacific region. The paper begins with a brief summary of China's patterns of imports and exports of agricultural products and is followed by a discussion of China's agricultural development strategy and potential for cooperation with Asian and Pacific countries. The paper concludes with observations on China's agricultural products development policies, measures and some suggestions.

1. Patterns of China's agricultural products trade

(a) Exports

Before the 1950s, almost 50 per cent of China's major export items were agricultural products and their by-products. Since the 1960s, finished products have accounted for a large share of exports as the commodity composition of exports changed in line with industrial development. At the same time, increased population and improvements in the quality of life had strained the domestic food supply, resulting in annual declines for exports of traditional agricultural products such as rice, soybeans and vegetable oil. According to statistics of the United Nations Food Programme, China exported \$US 13.1 billion worth of agricultural products in 1992, which accounted for 20 per cent of total exports. This was an increase of only 13.4 per cent over 1987, much less than the overall growth rate of China's foreign trade. But China imported \$US 10.4 billion worth of agricultural products in 1992, resulting in total net exports of \$US 2.7 billion. This indicates that China still has the potential to increase its agricultural exports. The trade in agricultural products still has a relatively important role in China's export trade.

In recent years, China's exports of staple foods has been unstable, while the export of non-staple foods has increased and the export of agricultural raw materials has declined. Staple foods are mainly grains, vegetable oil and table sugar. The supply of this group of products is affect by annual harvests, such that the export volume has fluctuated from year to year.

As shown in annex table 1, China's exports of staple foods in 1987 totalled \$US 908 million, accounting for 7.9 per cent of total agricultural exports. In 1992, staple food exports increased to about \$US 2.7 billion, an increase of 193 per cent from 1987. The increase resulted from more exports of specific products, such as corn and table sugar. Although the history of China's agricultural exports has been dominated by rice, after the 1980s rice has been decreasing in importance, accounting for only 1 per cent of total grain exports by 1993 (compared to 72 per cent in 1980). At the same time, exports of corn went from a negligible level in 1983 to 11.1 million tons, 84 per cent of total grain exports in 1993. China became the second largest corn exporting country in the world, after the United States of America.

The export of non-staple foods, particularly those of high value has been growing steadily from 1987 to 1992, as shown in annex table 1. Non-staple foods refers

mainly to meat products and aquatic products. Statistics show that China's export of non-staple food products increased in value from about \$US 8 billion in 1987 to \$US 10 billion in 1992. The share for this set of products among total agricultural exports also increased from about 69 per cent in 1987 to about 77 per cent in 1992. At the same time, imports of non-staple products has been much less than exports.

In recent years there have been more advantages for exports of high value food products, including live animals, meat and meat products, vegetables, fruits and aquatic products. Their total export value was about \$US 6 billion in 1992 which was about 61 per cent of food product exports and about 47 per cent of agricultural product exports. China's imports of this type of products has been very low.

Exports of agricultural raw materials have decreased sharply while imports increased. Agricultural raw materials refers to oil seeds, rubber, cotton, leather and hides. In 1992, export of agricultural raw materials had decreased by about 35 per cent from 1987 levels; from \$US 3.27 billion in 1987 to \$US 2.14 billion in 1992. The decline in cotton exports has been the most acute, falling from a level of \$US 746 million in 1988 (an historical high) to \$US 190 million in 1992. China has had to import cotton in large quantities to meet the demands of the textile industry.

In 1992, imports of agricultural raw materials totalled \$US 3.29 billion, which was \$US 1.14 billion more than the export value. It is expected that the domestic supply of agricultural raw materials will continue to be insufficient for China's demand. Increased imports and decreased exports will be the most likely trend in the future.

The markets for China's exports of agricultural products are concentrated in the Asian and Pacific region. China's major markets are those neighbouring countries and areas with relatively limited supplies of agricultural resources and products, such as Hong Kong, Japan, the Republic of Korea and Singapore. According to the *1993 China Foreign Trade Almanac*, the three major markets of China's agricultural exports were Hong Kong, Japan and the Republic of Korea, which accounted for 40 per cent of the value of agricultural exports. In terms of bulk export products, Asia and the Pacific are where the priority markets are located. Statistics for 1992 show that about 85 per cent of corn exports, 8.9 million of 10.4 million tons went to Asian and Pacific countries and areas, including 4.14 million tons (41 per cent) to the Republic of Korea and 2.15 million tons (21 per cent) to Japan. About 70 per cent of total soybean exports were destined for the Asian and Pacific region, as well as 46 per cent of peanut exports, 62 per cent of frozen pork exports, 56 per cent of frozen prawn exports, 71 per cent of cotton exports and 65 per cent of silk exports.

(b) Imports

China's major agricultural import items are grains, edible vegetable oil, table sugar, wool and rubber. Statistics on China's agricultural imports from 1987 to 1992 are presented in annex table 2. The discussion in this section will focus on five major import products: (i) grains, (ii) table sugar, (iii) edible vegetable oil, (iv) wool and (v) rubber.

(i) The volume of China's imports and exports of grain have fluctuated since the 1950s. In the 1950s, China was a net exporter of grain and only a small volume was imported, resulting in an average annual surplus of 2.2 million tons. From the 1960s to the late 1970s, China imported more grain than it exported. During the period from 1977 to 1983, China imported grain in large volumes and total imports for the seven-year period reached about 87 million tons, which was an annual average of about 12 million tons imported. The export volume was at a very low level during this same period. During the period from 1984 to 1993, China's grain imports were reduced to some extent and exports increased. China became a net grain exporter in some years. During this period, about 118 million tons of grain were imported. Exports totalled about 84 million tons from 1984 to 1993, with net annual imports averaging 3.4 million tons. After 1990, annual grain imports began decreasing and there was a surge in exports. China became a net grain exporter in 1992 and 1993.

(ii) Table sugar has been an import product since the 1950s, but the volumes have increased sharply in recent years. According to statistics from 1984 to 1992, China's net sugar imports totalled about 14 million tons with average annual import of about 1.4 million tons.

(iii) Imports of edible vegetable oil have increased dramatically in recent years. Before 1985, China had been a net vegetable oil exporter, but since 1986 it became a net importer. In 1989, the total volume of China's vegetable oil imports amounted to 1.76 million tons which was valued at \$US 800 million.

(iv) Since the 1980s, the import of wool has been increasing annually. In 1980, the volume of wool imports was only 37,400 tons, valued at \$US 96 million. By 1992, the volume increased to 207,600 tons valued at \$US 670 million. This increase suggests a strong demand for wool as the living standards of Chinese people improve.

(v) There was no substantial increase in rubber imports during the 1980s, as volumes remained fairly steady at an annual volume of 200,000 to 350,000 tons. In 1985, the value of China's rubber imports was \$US 481 million, an increase of about 35 per cent over the 1980 value of \$US 357 million. Rubber is still one of the important bulk agricultural imports for China.

The United States, Canada and France have been the major suppliers of China's imports of grain, table sugar and cotton. However, countries and areas in Asia and the Pacific have been major suppliers of other agricultural products such as rubber, wool and vegetable oil. For example, in 1992, 84 per cent of oil seeds were imported from Malaysia and Hong Kong; 80 per cent of rubber was imported from Thailand, Malaysia, Singapore, Indonesia and Hong Kong; and 45 per cent of China's wool imports came from Australia and New Zealand. Australia is also an important supplier of wheat and table sugar.

2. China's strategy for agricultural development and potential for trade in the Asian and Pacific region

Formulating a suitable development strategy for China's agricultural sector should be designed to guarantee sustainable growth of agricultural production and provide a material basis for international trade in agricultural products. The Chinese Government has always considered agricultural production to be very important and has adopted many policies and measures. A number of measures can be considered for the near future.

One measure is the establishment of a commercial grain production base. There have been 479 state-level commercial grain production bases founded throughout the country, covering about 40 per cent of total arable land, producing about 45 per cent of total grain output and 61 per cent of the total commercial grain. The commercial grain production bases which have been operating for ten years are now entering their prime production period.

In order to support efficient grain and cotton producing counties, the central Government has set aside a special loan valued at \$US 764 million for five consecutive years from 1994 in order to support 500 counties that grow commercial grain and 150 counties that grow cotton. The aim is to promote their economic development and help them become the country's commercial grain and cotton production counties as soon as possible. These 650 counties were selected from among 2000 counties throughout the country by their ranking in terms of production volumes for commercial grain and cotton.

A second measure is to increase capital inputs for agricultural infrastructure, because this is a basic condition for sustainable growth in agricultural production. The central Government planned to appropriate a budget valued at about \$US 1.49 billion in 1994 for developing agricultural infrastructure. This is about 46 per cent more than in 1993. The investment will be mainly spent to improve water supplies for irrigation in order to improve the larger commercial grain and cotton production bases. This would also include construction of inter-province agricultural infrastructure. Local governments would also give priority to agricultural infrastructure construction when allocating their financial resources.

A third measure would strengthen basic agricultural scientific research and train agricultural technicians. Since 1984, fifteen key state agricultural laboratories have been established, accounting for almost 10 per cent of total key state laboratories. Ten other key state laboratories are closely related to agriculture. The priority given to agricultural development during the Ninth Five-year Plan Period will be to rejuvenate agriculture by science and technology.

The goal of regional cooperation in agricultural trade is to find ways to fully benefit from China's advantages in resources and to strengthen cooperation with other countries and areas in Asia and the Pacific. At the present time, China's agricultural resources are not very abundant. China's arable land per capita is less than other large

countries with small populations and is smaller than India's. China supports 22 per cent of the world's population with only 7 per cent of the world's arable land. In addition, wasteland that could be developed in China is rather limited. Uncultivated land that could be developed is found only in the north-east and north-west, but substantial investment is required.

The fact that China does not have much arable land indicates that the long-term trend is for a shortage in the domestic supply of major agricultural products. Although China has limited agricultural resources, it does have abundant plant resources with about 30 thousand species of plants, including vegetables, herbal medicines, flowers and ornamental plants, tropical crops, forest by-products, dried fruits and wild plants. China can be considered the largest center for plant variation and the origin of cultivated plants. With these advantages, China is well-positioned to have a bright future in developing production of native agricultural produce and by-products.

China has an abundant supply of inexpensive labour located in rural areas and available for processing agricultural raw materials. China could take full advantage of these resources and overcome any disadvantages by having economic and trade relations with other countries, particularly those countries and areas in Asia and the Pacific.

The overall foreign trade strategy for agricultural products during the 1990s should be based on mutual exchange of needed resources. Exchange of mutually-needed resources means to mobilize both foreign and domestic resources based on comparative advantage. The international market can enable China to overcome any disadvantages related to limited arable land and insufficient supplies of grain by taking advantage of abundant plant and labour resources.

3. Strategies for imports of agricultural products

The average annual growth rate for imports of agricultural products during the 1980s was 3.5 per cent, which was 7.5 per cent less than the growth rate for exports. Some experts have estimated that the appropriate average annual growth rate for imports should be maintained at 4 per cent to the year 2000, considering the shortage in domestic supplies of some major agricultural products and China's payment capabilities. By 2000, the total value of China's agricultural imports are expected to exceed \$US 12.5 billion.

In view of such estimates, several strategies need to be considered. The grain supply should be guaranteed by an awareness that solving the grain problem will require reliance on China's own efforts. During the 1990s, the situation of growing demand and a shortfall in domestic supplies of grain is expected to continue. China will probably have to import a certain amount of grain to fill the supply gap. It is estimated that by the end of this century, China's annual imports of grain will be no less than 10 million tons.

Wheat will be the main type of grain to be imported, in order to meet the demand of people in urban areas in the coastal provinces. Imports from Australia will

increase. In addition, a small amount of high quality rice should be imported to meet the demand of certain consumers for high quality food products.

Raw sugar is one of China's bulk agricultural imports. Domestic production of sugar has been growing slowly, while increases in demand has been sharp. The problem becomes more acute as a result of rapid development in the food industry. The relatively low levels of sugar consumption in China are expected to grow. Average annual imports of sugar are estimated to be 1.2 million tons. When the price ratio between raw sugar and refined white sugar is good, the import of raw sugar to produce refined sugar for export can be possible in order to make use of domestic sugar refineries and earn foreign exchange. China could import more raw sugar from Australia and Thailand to save transportation costs and lower import prices.

Production of natural rubber in China is limited by geography and climate. In the 1990s, China can expect to import 500,000 tons of rubber annually. The imported natural rubber products will come mainly from ASEAN-member countries.

4. Strategies for exports of agricultural products

Agricultural products are of vital importance to China's national economic development, since 80 per cent of China's population lives in rural areas. The priority for exports of agricultural products is to optimize the composition of commodity exports by: (1) shifting from providing raw materials to processing of agricultural products and improving the level of processing in order to increase value added; (2) developing products with high economic value such as cashmere, silk, aquatic products, high quality meat, vegetables, fruits, dried fruit and so forth; (3) developing exports of China's unique, name brand, high quality products as well as unique native products; and (4) developing more varieties of products to meet international market demand.

One key to expanding exports of agricultural products is to guarantee and continuously improve product quality. This includes solving problems of harmful agricultural residues and product degradation, so that products meet the plant and animal inspection standards of importing countries.

Agricultural export strategies must be based on developing an outward-looking agricultural industry that earns foreign exchange and increasing the supply of products for export. The establishment of agricultural export bases can help improve the quality and standards for products so that China can provide products that meet international market demand and consumption habits.

Scientific and technological research needs to be strengthened in the areas of cultivation and processing of agricultural product varieties. This can be done by increasing capital inputs into research and development, with particular attention to developing new, high-technology products that are pollution-free, healthy and welcomed by consumers.

In the 1990s, China could use a multi-level and multi-directional approach to develop exports of its agricultural products. Neighboring countries and areas such as Japan, Hong Kong and the Republic of Korea should be given priority as export destinations. At the same time, other Asian and Pacific markets could also be opened. According to FAO statistics, the import value of agricultural products in the Asian and Pacific region (excluding China) in 1992 was \$US 83.3 billion. In contrast, China's exports of agricultural products to the region were less than \$US 6 billion, accounting for only 7 per cent of total imports. Therefore, there is great potential for China to export within the Asian and Pacific region. China could expand its exports of high value products, such as meat products, aquatic products, fruits and vegetables and processed products such as down products, fur products and canned food.

For many years, prices for China's agricultural products have been very low, making the export business relatively profitable. However, since the 1980s prices for most agricultural products have increased, leading to a sharp rise in export costs. This situation must be changed in order to expand exports in a stable and sustainable manner.

5. Suggestions for new patterns of trade in agricultural products and strengthening research on Asian and Pacific markets

New trade patterns need to be established, and this can be done by relying on specialization in agriculture, integrating agriculture with trade and industry and creating a new avenue for foreign exchange earnings. China's present agricultural production and foreign trade system may require reform. The key to a solution is to integrate trade with industry and agriculture and establish an operational system combining production with supply and marketing.

In recent years, the major coastal provinces such as Guangdong, Shandong and Liaoning have moved away from small-scale production and begun specialized, large-scale production. Two approaches have been used. One approach is to develop cross-sector and cross-department economic links using name-brand products with backbone enterprises serving as bases for encouraging enterprise groups with foreign trade as their main line of business. Usually this approach is based on developing and using local resources. Some localities take advantage of local agricultural resources and traditions of exporting agricultural products. They give special attention to developing projects that will produce products with an international reputation. These projects are used as a driving force to develop the production of other foreign exchange earning products. For instance, Zhejiang Province and Jiangsu Province are famous for silk and tea; Shandong Province, for peanuts, vegetables and aquatic products; Guangdong Province for live and fresh products destined for the Hong Kong market; Liaoning Province for prawns and apples; Hebei Province for chestnuts and red beans; Fujian Province for oolong tea; Heilongjiang Province for soybeans and Jilin Province for corn.

A second approach is to establish production systems with product development, processing and exports in a single effort with a foreign trade company as

the leader. For example, in the production of chicken at Zhucheng City in Shandong Province, a foreign trade company is responsible for establishing the fine breed propagation station, feed processing factory and freezing plant. Farmers are provided with the fine breed chickens, feed and technology, and the company also purchases the chicken and exports the finished products.

Both approaches fully utilize technological advantages and benefit from low production costs as well as flexible means of operation for the farmers. As a result, there are advantages for all concerned sectors by contributing to lowering costs, improving output and quality and enhancing the products' competitiveness in the international market. China should encourage specialization in order to increase foreign exchange-earnings from agriculture.

Research on agricultural product markets of the Asia-Pacific region can be strengthened. Products of a highly complementary nature such as rubber, wool, animals and plant oils could be subject to long-term trade agreements between China and major importing countries and areas of the region. This would guarantee stable supplies and good economic results that would benefit China and its Asian and Pacific trading partners. The Asian and Pacific countries and areas that receive the biggest share of China's agricultural products are developed economically, with high living standards. Therefore, agricultural products exported to these destinations should be of high quality and price. Special attention should be given to developing exports of products produced in environmentally friendly ways as well as processed products with high value added. This is a possible direction in the strategy for China's agricultural products exported to other destinations in Asia and the Pacific.

ANNEX

**Table 1. Value of various categories of exported agricultural products, 1987-1992
(\$US 100,000)**

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|--|----------------|----------------|----------------|----------------|----------------|----------------|
| Live animals | 3 496 | 3 873 | 3 961 | 4 306 | 4 372 | 4 667 |
| Meat and meat products | 12 012 | 12 238 | 11 972 | 14 824 | 19 380 | 16 392 |
| Dairy products and eggs | 737 | 733 | 640 | 581 | 606 | 647 |
| Grain and grain products | 6 455 | 7 415 | 7 701 | 6 574 | 12 390 | 17 074 |
| Vegetables and fruits | 18 736 | 22 205 | 22 603 | 22 951 | 24 961 | 25 840 |
| Sugar, sugar products and honey | 1 770 | 1 364 | 2 738 | 3 536 | 2 448 | 7 945 |
| Coffee, tea, cocoa, seasoning and their products | 5 286 | 5 583 | 5 939 | 5 552 | 5 141 | 5 296 |
| Feedstuff | 5 765 | 9 545 | 8 471 | 7 090 | 7 709 | 5 909 |
| Miscellaneous | 1 174 | 1 353 | 1 644 | 1 697 | 2 035 | 1 519 |
| Subtotal | 55 431 | 64 309 | 65 669 | 67 111 | 79 042 | 85 289 |
| Beverages | 1 239 | 1 572 | 1 880 | 1 882 | 2 461 | 3 191 |
| Tobacco | 626 | 1 114 | 1 523 | 1 773 | 3 268 | 4 487 |
| Subtotal | 1 865 | 2 686 | 3 403 | 3 655 | 5 729 | 7 678 |
| Hides and skins | 1 386 | 1 785 | 1 393 | 1 746 | 1 034 | 939 |
| Oil seeds | 6 738 | 6 837 | 6 460 | 6 192 | 7 414 | 4 655 |
| Natural rubber | | 15 | 5 | 1 | 17 | |
| Textile fabrics | 15 953 | 17 281 | 16 034 | 11 333 | 11 755 | 9 933 |
| Other products | 8 596 | 9 586 | 10 910 | 10 261 | 9 634 | 5 826 |
| Subtotal | 32 673 | 35 504 | 34 802 | 29 533 | 29 854 | 21 353 |
| Animal fat | 12 | 10 | 13 | 24 | 39 | 23 |
| Non-volatile vegetable oils | 818 | 782 | 887 | 1 658 | 1 499 | 1 391 |
| Refined oils | 21 | 27 | 41 | 97 | 108 | 137 |
| Subtotal | 851 | 819 | 941 | 1 779 | 1 646 | 1 551 |
| Fish and aquatic products | 24 632 | 27 206 | 26 312 | 28 190 | 27 092 | 15 038 |
| Grand total | 115 452 | 130 524 | 131 127 | 130 268 | 143 363 | 130 909 |

Source: Statistics of the Customs Department of China and FAO, 1992 Trade Yearbook, Rome, FAO, 1992.

ANNEX

**Table 2. Value of various categories of imported agricultural products, 1987-1992
(\$US 100,000)**

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|--|---------------|----------------|----------------|----------------|----------------|----------------|
| Live animals | 264 | 277 | 149 | 204 | 265 | 303 |
| Meat and meat products | 247 | 1 795 | 2 268 | 2 193 | 2 573 | 2 606 |
| Dairy products and eggs | 2 194 | 2 831 | 3 047 | 3 051 | 3 320 | 3 454 |
| Grain and grain products | 22 858 | 26 504 | 39 579 | 33 977 | 27 149 | 28 089 |
| Vegetables and fruits | 2 041 | 3 135 | 3 654 | 3 968 | 3 752 | 5 041 |
| Sugar, sugar products and honey | 3 461 | 9 151 | 4 956 | 4 648 | 3 676 | 3 621 |
| Coffee, tea, cocoa, seasoning and their products | 1 092 | 1 587 | 1 339 | 1 016 | 1 361 | 1 535 |
| Feedstuff | 1 087 | 1 587 | 1 779 | 1 777 | 2 177 | 2 908 |
| Miscellaneous | 942 | 1 319 | 1 235 | 1 570 | 1 852 | 1 956 |
| Subtotal | 34 186 | 48 186 | 58 006 | 52 404 | 46 125 | 49 513 |
| Beverages | 1 017 | 1 065 | 1 146 | 1 329 | 1 810 | 2 233 |
| Tobacco | 4 038 | 5 066 | 4 342 | 3 214 | 3 633 | 4 864 |
| Subtotal | 5 055 | 6 131 | 5 488 | 4 543 | 5 443 | 7 097 |
| Hides and skins | 4 298 | 4 331 | 3 333 | 3 269 | 3 184 | 2 190 |
| Oil seeds | 5 143 | 6 127 | 5 981 | 5 921 | 5 726 | 6 079 |
| Natural rubber | 4 394 | 7 651 | 5 145 | 3 750 | 3 675 | 3 287 |
| Textile fabrics | 13 203 | 16 528 | 19 504 | 14 342 | 18 055 | 16 441 |
| Other products | 4 330 | 4 380 | 3 796 | 2 978 | 3 828 | 4 065 |
| Subtotal | 31 368 | 39 017 | 37 759 | 30 260 | 34 468 | 32 062 |
| Animal fat | 563 | 661 | 599 | 589 | 515 | 540 |
| Non-volatile vegetable oils | 3 311 | 3 484 | 8 667 | 9 897 | 7 473 | 5 468 |
| Refined oils | 126 | 148 | 155 | 260 | 283 | 397 |
| Subtotal | 4 000 | 4 293 | 9 421 | 10 746 | 8 271 | 6 405 |
| Fish and aquatic products | 4 525 | 7 365 | 8 115 | 6 328 | 8 977 | 8 182 |
| Grand total | 79 134 | 104 992 | 118 789 | 104 281 | 103 284 | 103 259 |

Source: Statistics of the Customs Department of China and FAO, 1992 Trade Yearbook, Rome, FAO, 1992.

G. INDIA'S AGRICULTURAL TRADE WITH THE ASIAN AND PACIFIC REGION¹

The purpose of this paper is to provide (1) an overview of the patterns of India's agricultural trade, with special emphasis on the Asian and Pacific region and (2) an assessment of the future potential for India's agricultural trade, with a focus on implications for expanding agricultural trade within the Asian and Pacific region.

The framework for this discussion is the economic policy changes which are being made to the Indian economy, particularly in the agricultural and trade sectors. In addition, special efforts are being made to develop Indian agriculture in a context based on regional specialization in an agro-climatic mode. Assessment of the future considers the impact of the Uruguay Round agreements on trade flows and Indian agricultural growth. There is also an assessment of potential trade flows based on alternative policy and planning environments.

The main argument is that reform of India's agricultural policy will need to be strengthened to further remove restrictions on commodity flows, relax remaining controls on prices and distribution of inputs, reduce prices of inputs through further tariff reform and develop agro-processing and marketing infrastructure. India's Eighth Five-year Plan for agriculture will need to be implemented more vigorously in terms of development strategies for land and water use that are specific to regions and feasible for specialized cropping sequences.

Economic reform and greater coordination of government policies will be required. The main focus of Indian agricultural growth will continue to be domestic demand. However, policy changes will enhance trade, provide substantial increases in income, generate employment and have a technological impact in selected regions.

1. Patterns of India's agricultural trade

The Indian economy has been relatively insulated, with international trade as a small percentage of economic activity, and this is also true of the agricultural sector. Agricultural exports have been less than 2 per cent of gross agricultural output, while imports have been as much as 3.1 per cent of gross agricultural output (in the period 1979/1981). Growth in agricultural trade has been slower than growth of agricultural output.

Table 1 shows the general patterns of India's agricultural trade for several time periods from 1961 to 1990 by main categories of commodities. Over the period of almost thirty years, non-food agricultural products have been the most important export category

¹ Based on a paper presented by Professor Yoginder K. Alagh, Vice Chancellor, Jawaharlal Nehru University, New Delhi.

by value. At the same time, cereals were the most important imports in the early period, while the value of other food products became the most significant agricultural imports by 1988-1990 in terms of value. The compound growth rates over the period show the fastest growth of cereal and livestock exports. Imports of three categories showed negative growth, with only other food products growing at a compound rate of 13.4 per cent.

Table 1. Value and compound growth rate of agricultural trade, various time periods (value in \$US million^a)

| | 1961/1963 | | 1979/1981 | | 1988/1990 | | Compound growth rate 1961-1990 (percentage) | |
|--|-----------|---------|-----------|---------|-----------|---------|---|---------|
| | Exports | Imports | Exports | Imports | Exports | Imports | Exports | Imports |
| Cereals | 0.4 | 763.8 | 222.3 | 72.9 | 153.2 | 263.4 | 27.5 | -9.8 |
| Other foods | 242.9 | 138.7 | 256.4 | 1 871.8 | 263.7 | 1 293.1 | 1.8 | 13.4 |
| Non-food products | 456.1 | 242.6 | 613.8 | 19.7 | 623.7 | 55.8 | 1.6 | -8.4 |
| Livestock | 1.8 | 123.8 | 103.2 | 90.6 | 143.3 | 61.1 | 28.1 | -2.3 |
| Total | 701.2 | 1 268.9 | 1 195.7 | 2 055.0 | 1 184.0 | 1 673.4 | 3.0 | 1.9 |
| Total as percentage of gross output in agriculture | 1.6 | 2.9 | 1.8 | 3.1 | 1.3 | 1.8 | | |

Note: ^a Measured at 1979/1981 prices.

During each of the selected two-year periods from 1961 to 1990, India exported about three-fourths of a million tons of rice and about 2 million tons of tea. The quantities of vegetables and fruits exported have grown somewhat from 1961 to 1990.

The Government has a budget for imports of about 2 to 4 million tons of grain in the event of bad harvests. However, over the past decade such government action has not been necessary. At the same time, India has been importing on average about 1 million tons of vegetable oil and 50,000 tons of rubber.

Table 2 gives statistics for the volume and value of India's main agricultural exports in 1993/1994. The total value was estimated to be \$US 3,878 million, but this estimate is probably low since it does not include first-stage processed agricultural products such as fruit juices, cotton yarn, leather goods and jute manufactures.

Preliminary estimates comparing 1992/1993 to 1993/1994 indicate a real growth rate in exports of almost 19 per cent. Items showing high growth were rice, fruits and vegetables, meat and marine products.

Table 2. Volume and value of agricultural product exports, 1993/1994
(value in \$US million)

| | Volume (thousand tons) | Value |
|---------------------------------------|------------------------|----------------|
| Wheat | .6 | .1 |
| Rice (Basmati) | 536.5 | 373.0 |
| Rice (other types) | 268.9 | 80.0 |
| Pulses | 42.9 | 24.0 |
| Other cereals and cereal preparations | 194.1 | 15.0 |
| Oilseeds | 126.1 | 51.0 |
| Tea | 142.0 | 315.0 |
| Coffee | 120.6 | 179.0 |
| Tobacco | 105.0 | 138.0 |
| Sugar | 213.8 | 57.0 |
| Vegetable oil and oil meal | 4 834.4 | 834.0 |
| Spices | 185.1 | 181.0 |
| Cashews | 69.0 | 347.0 |
| Fruits and vegetables | 53.2 | 135.0 |
| Flowers and seeds | -- | 6.0 |
| Meat | 20.0 | 112.0 |
| Fish and marine products | 251.3 | 818.0 |
| Rubber | | |
| Cotton | 221.7 | 313.0 |
| Silk and wool | | |
| Hides and skins | | |
| Total | | 3 878.0 |

Source: Government of India, *Monthly Statistics of the Imports/Exports of India*, DGCIS, 1994.

Note: An em dash (--) : indicates that the amount is negligible.

Countries and areas in the Asian and Pacific region led in purchases of Indian agricultural exports during the early 1990s. Rice exports to West Asia; meat exports to East and West Asia; fish and marine product exports to Japan; and fruit, vegetable and spice exports to West Asia grew the fastest. Table 3 presents a list of regions and countries and their share of Indian exports in various years. The most notable change was in the share of South and East Asia which appeared to grow from 1980/1981 to 1992/1993.

Table 3. Share of agricultural exports to Asian and Pacific subregions and selected countries, various years (percentage)

| | 1980/1981 | 1990/1991 | 1991/1992 | 1992/1993 |
|----------------------------|-------------|-------------|-------------|-------------|
| West Asia | 11.1 | 5.6 | 8.7 | 9.6 |
| Saudi Arabia | 2.5 | 1.3 | 2.0 | 2.2 |
| Islamic Republic of Iran | 1.8 | 0.4 | 0.7 | 0.6 |
| Kuwait | 1.4 | 0.2 | 0.3 | 0.6 |
| South and East Asia | 13.4 | 14.3 | 14.8 | 16.9 |
| Japan | 8.9 | 9.3 | 9.2 | 7.7 |
| Australia | 1.4 | 1.0 | 1.1 | 1.3 |
| Total | 33.8 | 30.2 | 33.8 | 35.5 |

From 1990/1991 when the reform process began in India, the share of Indian exports to the Asian and Pacific region had risen to 35.5 per cent by 1992/1993. Complete figures for 1993/1994 were not available, but from April to October 1994, the share of exports to the region had risen to 39 per cent.

2. Policy framework for Indian agricultural exports

Before the policy reforms of the mid-1980s and the set of reforms of 1991, India's agro-processing industry and agro-exports operated in a restrictive environment.² Investment was subject to licensing restrictions at the level of the individual firm, a situation which applied to all Indian industries. But there were two additional restrictions on the agro-processing sector. First, in order to protect employment, capacity in the modern agro-processing sector was restricted to allow the cottage and small-scale sector to meet demand. This restriction was applied strictly for textiles, sugar, beverages, cereal processing, fishing and food industries. Foreign technology was generally discouraged and brand names were not allowed. The second restriction applied to the dairy industry, sugar production, yarn manufacture and food processing, where there was strong encouragement of cooperative production. Investment by the private sector was allowed only after investors explored the feasibility of investing in cooperative production. In addition, sugar and milk were under price control regulations.

Agricultural inputs such as fertilizers, seeds and pesticides were under investment licensing. At the level of bulk packaging, formulation of products, pricing, distribution and transportation controls were applied to individual producers. Production of machinery was licensed. Imports were generally not allowed. When imports were permitted, they were subject to tariff rates of 200 per cent or more. In the case of

² For details of the relevant legislation and operating systems, refer to Yoginder K. Alagh, *Prospects for Agro-based Industrialization in India*, New Delhi, PH Chamber of Commerce, 1993 and Yoginder K. Alagh, "Macroeconomic Policies" in FAO, *Economic Reform in Indian Agriculture*, New Delhi, FAO/ISID, 1993.

fertilizers and pesticides, the limited amounts that could be imported were under state control. Only essential agricultural goods were allowed for import and this was under state control.

In the area of agricultural policy, a number of Indian states allowed land to be diverted from crop to non-crop use, such as fishing or forestry only after "permission" was obtained. There were restrictions on the movement of cereals, sugar, alcohol and oil and oilseeds. The state enforced a policy of price supports for major crops through the operation of parastatal organizations. There was also a substantial public distribution system selling at lower than market prices. For most crops, regional price differences were adjusted in order to balance. There were restrictions on exports of cereals, raw cotton and sugar. A system of minimum export prices was imposed and enforced.

Despite these restrictions, India's agro-based industries grew with the rest of the industrial economy. In the early 1970s when the industrial economy was growing slowly (4.6 per cent a year), so did agro-industry. When industrial growth accelerated in the mid-1970s, industrial growth was over 7.6 per cent, and agro-industry grew faster as well.

In 1985, regulations were relaxed and liberalized substantially for industrial licensing and imports. Free import of specialized seeds for agriculture was introduced in 1986 and export incentives were introduced along with tax exemptions on profits. In 1991, industrial licensing was abolished, except for 18 industries, which included sugar, leather, fertilizers and pesticides. Foreign equity investment to a share of 51 per cent was allowed in a number of industries. Import regulations and procedures were liberalized for almost all sectors, except for the consumer goods sector and tariff rates were reduced.

The foreign exchange policy was further adjusted. The rupee had been aligned with a basket of currencies since the mid-1970s, but now it was allowed to be partially determined by market forces. Subsequently, all current account transactions were allowed in the free market.

The impact of these policies on agricultural production, processing and exports has been significant. For example, eighteen major pesticides could now be freely imported. Rural credit reform is underway. More reforms are needed, however. Prices of fertilizers and cold storage are still controlled. Many states continue to have restrictions on land use and agricultural commodity movements. Sugar is still a controlled industry. Export of cereals and raw cotton is still controlled and subject to minimum export price restrictions.

The price policies of the Government need to be made with greater awareness of regional and quality considerations in order to achieve greater dynamism in agricultural markets. Tariff rates on packaging materials, machinery for agricultural processing and other agricultural inputs are still high. Foreign investment in brand name beverage and food industries remains under some control.

The central issue for making the agricultural export sector a more dynamic part of the Indian economy is related to the development policies which encourage more widespread and diversified growth, with policies encouraging marketing, processing and commercial infrastructure. It can be argued that a more diversified, market-oriented agriculture sector can be the basis for meeting the needs of an expanding domestic market as well as export markets.

Regional inequalities in Indian agriculture have been found to be less than in other large countries.³ Regional diversification of agriculture is seen as a primary source of growth in the medium term and as a way to reduce some inequalities.

The agro-climatic mode was applied to Indian agricultural planning in 1989. The country was divided into fifteen agro-climatic regions and 144 sub-regions in 1989. Planning Teams of specialists, representatives from farming organizations, bankers and development administrators were established. A high level expert group backed up by a specialist computer and consultancy unit was set up to direct the whole effort.⁴

It is interesting to note that some agricultural exports with strong potential are emerging from areas which have been experimenting with these development strategies. For example, non-basmati rice is coming from areas where new high-yield superfine varieties like PR 106 have been introduced with improved irrigation and drainage. A high-level research effort into hybrid paddy has now led to varietal availability. Durham wheats have been introduced, partly to fight pesticide vulnerability of earlier strains. A part of the additional quantities of vegetables, fruits and flowers for export come from watershed management areas and commercial tree crops and dryland horticulture in Western and South Central India.

Agro-climatic planning has focused on two points: (1) more appropriate land and water development strategies suited to the soil and water availability and (2) subsequent climate-cropping strategies. India's Eighth Plan targets tank and pond irrigation, watershed treatment of dryland and rainfed areas, delivery of water from existing government canals and saving water and related water-use strategies. After the available water resources are harnessed and land development strategies outlined, the focus and emphasis switches to cropping pattern and changes in land use. A typical pattern is to switch from low yielding mono-crop cereals to fast growing, high-yield cereals, followed by non-cereal foods or non-food crops, such as fodder or tree crops.

There are four operational elements that are emphasized to achieve diversification:

³ Refer to Yoginder K. Alagh, "Agro-industrial Linkages" in UNDP/ILO, *Structural Reform in India and Brazil*, Sao Paulo, Brazil, 1993. See also, World Bank, *Economic Development in China*, Washington, DC, IBRD, 1982 and Lutfi Nasution, *Sources of Growth in Indonesian Agriculture*, Bogor, Institute Pertanian Bogor, 1991.

⁴ See Yoginder K. Alagh et al, *Agro-climatic Planning: 1989 Overview*, New Delhi, Planning Commission, 1989. A review has been made by V.N. Dandekar and F. K. Wadia, "Agro-climatic Planning", *Journal of Political Economy* (July, 1991).

- a. Regional, state and subregional agro-climatic strategies that have been put into operation at the district level. The rate of plan implementation, particularly as regards the involvement of the banking sector, private investment and community-level organizations is important.
- b. Projects already developed have shown high rates of return (18 per cent a year or more), but need private investment in agro-processing and land development, rural credit mechanisms in the banking and cooperative sectors.⁵ Some programmes are not viable financially because of initial high resource costs for sustainable agriculture or market failures. Examples of these are high quality seed, irrigation or soil improvement inputs required before land productivity improves; or high input costs or low output prices due to market or infrastructure failure. Targeted and limited subsidies are required. One writer has characterized such needs as "public funding for up-front costs".⁶
- c. A new Small Farmer Agri-Business Project is underway that links agro-climatic planning projects with commercial and foreign investment needs for much faster implementation.
- d. The agro-climatic plan should be integrated with the new third tier local government structure as introduced by recent amendments to the Indian Constitution.

Infrastructure and agro-processing programmes and policies for exports of agricultural products are proceeding slowly. A World Bank-sponsored study has identified policy and programme needs related to infrastructure for a number of export-oriented agricultural products. These needs include policies for agro-processing, cooling and storage arrangements, upgrading selected markets by grading product quality, setting up information networks, policies and projects for packaging, selected communication and transportation projects and special financing, banking and insurance mechanisms. More effective phytosanitary measures that are more visible and accepted internationally are required, because this is particularly important after some countries imposed controls and restrictions on Indian agro-exports after the recent "plague" scare.

3. Potential and future directions of agricultural trade flows

The high annual growth rates of about 20 per cent for agricultural exports since 1992 seems to suggest the beginning of a high growth phase. Some projections for growth in trade and exports forecast 10 per cent as a possible compound annual growth rate which could be sustained to 2000. The Working Group on Horticulture Exports (for the Eighth Plan) projected a 12 per cent annual growth rate as possible. Other forecasts suggest 10 to 12 per cent as the annual growth rate for agricultural exports, provided

⁵ Yoginder K. Alagh, "Indian Development Planning and Policy", *WIDER Studies in Development Economics*, New Delhi, Vikas, 1991.

⁶ Ignacy Sachs, "Overview", in J. Pronk and Mahabub ul Haq, *Report of the Hague Symposium: Sustainable Development-From Concept to Action*, Hague, UNDP and UNCED, 1991.

certain policy measures are implemented. However, if policy changes are not implemented, the country's annual growth rate may drop back to about 7 per cent. Table 4 shows average annual growth rates that have been projected for various commodities. From 1993 to 2000, the trend projection for all agricultural exports is 7 per cent, while the normative projection (assuming positive policy changes) is 10 per cent.

Table 4. Projected average annual growth rates for selected agricultural exports, 1993-2000
(percentage)

| | Actual growth rate, 1985-1990 | Trend projection | Normative projection |
|------------------------|----------------------------------|------------------|-------------------------|
| Cereals | 3.9 | 4.0 | 5.0 |
| Rice | 12.1 | | |
| Vegetables | -- | 7.0 | 10.0 |
| Potatoes | 12.7 | | |
| Fruit | 2.0 | 7.0 | 10.0 |
| Vegetable oil and meal | 14.0 | 5.0 | 7.0 |
| Tea | -- | -- | 2.0 |
| Tobacco | -- | -- | -- |
| Raw cotton | 9.3 | 7.0 | 10.0 |
| Meat | 7.7 | 7.0 | 10.0 |
| Fish | 7.3 | 7.0 | 10.0 |
| Spices | 8.7 | 9.0 | 12.0 |
| Total | 6.7 | 7.0 | 10.0 |

Note: An em dash (--) indicates that the amount is negligible.

India's export of cereals has fluctuated between 0.6 to 0.8 million tons per year, although it has gone down to 0.4 million tons in some years. Apart from basmati rice, there are now exports of non-basmati super fine rice from high-yield substitutes for basmati. In addition, India has recently exported durham wheats and pulses. There are no supply constraints for Durham wheats or super fine rice, and costs of production in India are very competitive, which makes increased exports more feasible. From a low level of about 0.9 to million tons for cereal exports, it should be possible to achieve exports of 1.2 million tons. The additional exports would be non-basmati rice and Durham wheats.

Exports of vegetables, fruit and horticultural products from India have been expanding since 1992. Demand for vegetables and fruit in India has expanded very rapidly in the 1980s by about 6 per cent annually. Collaboration with businesses from the United States, Europe and Israel has helped in the expansion of production of grapes, flowers, etc. Water saving technologies, biotechnology, fruit processing and wine

manufacture have been developed and improved. In 1992 and 1993, there was overall foreign investment of about \$US 1.5 billion, especially in export-oriented joint ventures.

Among developing Asian countries, India is a major exporter of meat and meat products, and this sector is expected to expand further. India has a poultry industry with current output in the corporate sector of about \$US .5 billion. Egg and poultry consumption has grown at about 7 per cent annually, from 1980 to 1992. India's technologies for poultry are considered to be globally competitive. India can also export sex selector services and fully sterilized eggs. The poultry industry is ready for rapid expansion which should result from market deregulation and fewer subsidies by competitors as part of the post-GATT international trade structure.

The large fast food transnational corporations have made major investments in India, and they will create linkages with processed meat and poultry production activities. Such prospects have made the poultry companies attractive equity investments in the Indian stock markets.

India's per capita annual consumption of food grains increased from 158.5 kilograms in 1975/76 to 180.6 kilograms in 1990/91. In recent years, India's public food grain stocks have been much higher than the required level of 22 million tons. As the constraint on food grain demand eases, agricultural price policy in India will move in a direction that raises the relative profitability of oilseed and cotton crops. Food security will remain a central objective of Indian agricultural policies, but the economic environment for non-grain, non-food and non-crop agriculture can be expected to improve. The aggregate subsidy through market price support programmes has been negative and within GATT limits. Indian agricultural price policies focus on a crop, in a season or in a region; and this can affect farmers' decisions significantly.

The direction of trade for the future is forecast to change so that countries in Asia and the Pacific are expected to be major sources of agricultural demand in the next twenty years. FAO projections of annual average GDP growth rates for various regions up to 2010 show aggregate GDP to be growing at 7 per cent for East Asia, 5.1 per cent for South Asia and 4.4 per cent for the Near East and North Africa. Per capita GDP growth rates are projected to be 5.7 per cent for East Asia, 3 per cent for South Asia and 1.9 per cent for the Near East and North Africa. The compound annual growth rates in demand for coarse cereals are expected to be 4.1 per cent for East Asia, 2.9 per cent for South Asia and 3.5 per cent for the Near East and North Africa. The compound annual growth rates in demand for oilseed are forecast to be 4.2 per cent for East Asia, 3.8 per cent for South Asia and 4.1 per cent for the Near East and North Africa.

Growth rates of imports for the period from 1980 to 1990 were computed from FAO data for countries in the Asian and Pacific region and then categorized as potential markets for exports of principal agricultural commodities of interest to India.

The countries and areas which had high levels of agricultural imports in the early 1990s, with high volumes and high import shares, were Japan, Hong Kong, the Republic of Korea, Saudi Arabia, Singapore, Malaysia, Indonesia, the Islamic Republic of Iran, Thailand, Kuwait and Oman. Except for the Islamic Republic of Iran and Kuwait, all the others had average annual growth rates of 4 to 8 per cent in their agricultural imports during the 1980s.

The countries with strong potential for cereal imports are expected to be Japan and Malaysia, plus Saudi Arabia, Oman and Kuwait for superfine rice. Australia, Japan, the Republic of Korea and countries in West Asia are expected to have increased demand for oilseeds. Each of the countries just listed is a potential market for Indian meat and dairy products. Singapore and West Asian countries are likely markets for fruits and vegetables. Japan and the Republic of Korea are possible target countries for fish products as are the countries of West Asia.

The impact of fast expansion of agricultural exports will not be very great for the Indian agricultural economy, but there may be significant implications for some agro-climatic regions in which land and water development policies are planned as the basis for diversified agricultural development, employment, income generation and technological change.

However, in a country of India's size, the major impact on agricultural demand comes from the domestic market and expansion of domestic income. When the Indian economy grew at a slow rate during the period from 1955 to 1975, neither the structure nor per capita agricultural demand changed much. When the economy was growing at a compound annual rate of 5 per cent from 1975 to 1991 and at a rate of 5.6 per cent in the 1980s, average annual growth in per capita GDP was 2.6 per cent (from 1975 to 1991) and 3.4 per cent in the 1980s. This caused a substantial increase in per capita consumption of food grains, as well as increased demand for vegetable oil, sugar, textiles, tea and coffee and faster growth for vegetables, fruits, eggs and milk consumption.

It is clear that the domestic market can be expected to provide the major focus for most of the growth in agricultural production. However, in many of the agro-climatic regions classified as difficult, investments might be made and sustained by tree crops, quality cereals, horticulture or dairy farming. In these cases, export demand for agricultural products will help to sustain profitability at the margin and consolidate the diffusion of new technologies.

An economy like India's requires a policy environment which is supportive of diversified agricultural growth and uses the power of decentralized markets for this purpose and gives support by expanding infrastructure and intervening selectively when necessary. When domestic agriculture is growing and diversifying, this can contribute to India's integration into the regional and global economy.

4. Suggestions for regional cooperation

From the Indian viewpoint, analysis of trade flows suggests some possible areas for regional cooperation, as described here.

- a. Exchange of experience and training among countries through an interactive computerized information system with a focus on principal traded commodities to be integrated with wholesale agricultural markets. Such systems would collect price data from the farmer and convey relevant information back to him with modern communication facilities. A pilot project has begun in Gujarat, India.
- b. Exchange of information on successes and failures in strategies of agricultural diversification in different agro-climatic regions in Asia and the Pacific, particularly those which are integrated to international trade.
- c. Undertake case studies of economic, financial and organizational strategies which have been successful for diversification programmes. Examples include the impact of the Grameen Bank in Bangladesh, self-managed irrigation delivery systems in the Philippines, small agro-business projects in Indonesia or the Indian poultry sector or cooperative dairies in India.
- d. Exchange of experiences in banking, marketing and financial reform. The Special Annual Report of the National Bank for Agriculture and Rural Development in India has an emphasis on agro-climatic strategies, with an emphasis on innovative lending techniques that account for watershed or commodity price cycles and the use of refinancing with community collateral for starting infrastructure schemes.
- e. Exchange of national policy and planning experiences for more open and diversified agricultural systems, with an emphasis on identifying complementarities and possible areas of competition.

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H. RECENT DEVELOPMENTS IN THE AGRICULTURAL COMMODITY TRADE FLOWS OF MALAYSIA¹

Malaysia is a typical example of a moderately-sized, natural-resource rich country in which the development of agriculture preceded development in other sectors of the economy. Essentially, the agricultural sector is divided into two distinct sub-sectors: (1) a primary commodity-producing subsector with a strong export orientation and (2) a smallholdings subsector which produces rice and other food crops for domestic consumption as well as products such as rubber, palm oil, coconuts, pineapple and pepper for export.

The role of the agricultural sector in Malaysia's economic has changed significantly as the economy's structure has undergone rapid transformation, as shown in table 1. Agriculture's contribution to gross domestic product (GDP) has declined from making the largest contribution, at 32.3 per cent, in 1960 to an estimated 14.8 per cent in 1994. Its contribution is estimated to be 13.9 per cent in 1995. While the agricultural sector has continued to grow, its rate of growth has consistently lagged behind the GDP growth rate.

The relative decline in agriculture's contribution to GDP has been accompanied by a similar trend in its relative share of total employment, as shown in table 2. In 1960, about 60 per cent of employment was in the agricultural sector and by 1990 the share was 30 per cent. There has been some growth in total employment in the sector, but its growth rate has been declining. This decline is expected to accelerate, though it seems to have been delayed temporarily by an influx of foreign labour, with much of the influx being illegal.

1. Recent policy developments

The National Agricultural Policy (NAP) 1992-2010 has identified the major supply side constraints on the national economy as (1) labour shortages, (2) wage increases for major farm operations in the plantation sector, (3) increasing costs of new land development and (4) limited technological options. These constraints have reduced the competitiveness for some traditional agricultural exports, such as rubber, causing Malaysia's world market share to decrease. There is also growing concern about environmental issues, which has constrained new land development for crop production.

¹ Based on a paper presented by Professor Mokhtar Tamin, Faculty of Economics and Administration, University of Malaya, Kuala Lumpur.

Table 1. Sectoral contribution to GDP, various years, value in million of Malaysian Ringgit at 1978 prices and (percentage share)

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1994* | 1995* |
|--------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| Agriculture ^b | 4 285 (33.3) | 4 226 (26.9) | 6 387 (28.5) | 7 453 (27.6) | 10 189 (23.4) | 11 914 (21.0) | 14 827 (18.7) | 16 155 (14.8) | 16 527 (13.9) |
| Mining and quarrying | 1 919 (14.9) | 2 928 (18.7) | 3 026 (13.5) | 2 992 (10.4) | 4 487 (10.3) | 5 985 (10.6) | 7 757 (9.8) | 8 175 (7.5) | 8 338 (7.0) |
| Manufacturing | 1 610 (12.5) | 2 052 (13.1) | 3 144 (14.0) | 5 318 (18.4) | 8 932 (20.5) | 11 263 (19.9) | 21 340 (26.9) | 34 458 (31.5) | 38 761 (32.7) |
| Others | 5 047 (39.2) | 6 495 (41.4) | 9 864 (44.0) | 12 592 (43.6) | 19 902 (45.7) | 27 577 (48.6) | 35 539 (44.7) | 50 580 (46.2) | 55 086 (46.4) |
| Total | 12 861 (100.0) | 15 701 (100.0) | 22 421 (100.0) | 28 855 (100.0) | 43 510 (100.0) | 56 739 (100.0) | 79 463 (100.0) | 109 368 (100.0) | 118 712 (100.0) |

Source: Ministry of Finance, *Economic Report*, various issues.

Notes: ^a Estimated values

^b Agriculture also includes livestock, fishery and forestry.

Table 2. Sectoral employment, various years, thousands of persons and (percentage share)

| | 1960 | 1970 | 1980 | 1990 |
|--|--------------------|--------------------|--------------------|--------------------|
| Agriculture, livestock, forestry and fishing | 1 488.3 (67.5) | 1 736.0 (55.7) | 1 910.0 (39.7) | 1 969.8 (30.2) |
| Manufacturing | 82.0 (3.7) | 301.0 (9.6) | 755.1 (15.7) | 1 157.1 (17.8) |
| Others | 631.4 (28.7) | 755.1 (15.7) | 2 150.9 (44.6) | 3 282.8 (52.0) |
| Total | 2 201.7 (100.0) | 3 118.3 (100.0) | 4 816.0 (100.0) | 6 509.7 (100.0) |

Source: Ministry of Finance, *Malaysia*, various issues.

The NAP foresees the creation of a dynamic agricultural sector propelled by intensified research and development in order to provide the sector with more innovations and product lines. The main objectives of the NAP have two characteristics. First, the policy aims at maximizing returns through optimal utilization of resources, particularly land and labour. Second, it is designed to promote backward and forward linkages between the agricultural and manufacturing sectors, thus increasing value added through agro-based manufacturing and production of modern agricultural inputs.

The policy aims at achieving 3 per cent growth annually in value added up to the year 2010. Since employment in the agricultural sector is expected to decline by 2 per

cent a year, the sector is expected to absorb only 11 per cent of total employment until 2010. Therefore, the policy aims at increasing labour productivity by about 5 per cent a year.

2. Policies related to specific commodities

Policies aimed at self-sufficiency in rice production during the 1960s and 1970s have changed. The goal from the 1980s to 2010 is to attain 64 per cent self-sufficiency by 2010. This will make Malaysia a significant importer of rice.

There are also special policies intended for specific industrial crops. Increases in oil palm production will be promoted through large-scale conversion of large plantations from rubber to oil palm. Idle agricultural lands in peninsular Malaysia will be re-developed and there will be new plantings in Sabah and Sarawak.

Production and export levels for rubber will be sustained through yield improvement with high-yielding clones and improved production and management systems. This will be done through the establishment of mini-estates in the large smallholdings sub-sector.

Growth in output of cocoa will emphasize yield, varietal improvements and improvements in farm management practices. Pineapple production will be promoted by making pineapples an integrated crop on estates. The emphasis is on upgrading product quality and varietal improvements. For pepper, the emphasis will be on improved farm management practices and quality improvement, particularly in Sarawak. To increase the local content of tobacco products, much effort will be directed to improving productivity.

Development of forestry resources will emphasize sustainable resource management, including maintenance of environmental stability and ecological balance. The establishment of forest plantations with indigenous and exotic species will be actively promoted.

3. Recent supply-side developments from 1980 to 1993

The supply situation for major agricultural commodities in Malaysia is summarized in table 3. One significant development in the structure of production has been the recent rapid decline in the output of rubber, an average annual decline of about 3 per cent. This trend is expected to continue due partly to unfavourable prices for rubber and due to its labour intensive production as compared to oil palm.

It is expected that the larger plantation companies will eventually retain only about 10 per cent of their land under rubber. This poses serious problems, because much of future output would then come from the less efficient more numerous smallholdings subsector. Rapidly decreasing investments by privately organized plantations in the rubber subsector will no doubt have important long-term implications because of the

**Table 3. Production of agricultural commodities, various years
(thousand tons)**

| | 1980 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|----------------------------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|
| Rubber | 1 530.0 | 1 469.5 | 1 538.6 | 1 578.7 | 1 661.6 | 1 422.4 | 1 291.0 | 1 255.7 | 1 173.2 | 1 074.3 |
| Palm oil (crude) | 2 575.9 | 4 133.4 | 4 543.8 | 4 533.1 | 5 030.2 | 6 055.2 | 6 094.6 | 6 141.4 | 6 373.5 | 7 403.5 |
| Palm kernel | 557.1 | 1 213.0 | 1 337.0 | 1 314.4 | 1 464.6 | 1 794.4 | 1 844.7 | 1 785.2 | 1 874.4 | 2 266.1 |
| Cocoa | 19.5 | 103.0 | 131.0 | 194.0 | 230.0 | 243.0 | 247.0 | 230.0 | 220.0 | 200.0 |
| Copra | 117.1 | 75.4 | 56.6 | 49.0 | 44.9 | 67.6 | 64.0 | 46.7 | 40.1 | 34.9 |
| Coconut oil | .. | 47.6 | 38.1 | 33.1 | 37.7 | 38.5 | 39.6 | 29.6 | 37.2 | 38.7 |
| Copra cake | .. | 35.0 | 29.0 | 22.4 | 21.9 | 23.1 | 22.3 | 12.5 | 12.4 | 10.6 |
| Rice | 1 242.4 | 1 189.8 | 1 123.4 | 1 092.1 | 1 082.8 | 1 186.3 | 1 268.3 | 1 353.6 | 1 270.0 | 1 298.3 |
| Tea | .. | 16.4 | 17.2 | 19.2 | 21.1 | 22.2 | 21.9 | 22.9 | 23.7 | 24.6 |
| Pineapple | .. | 152.5 | 144.4 | 150.2 | 165.1 | 179.6 | 168.3 | 189.7 | 189.2 | 160.1 |
| Tobacco | .. | 9.3 | 13.6 | 10.7 | 7.5 | 13.4 | 10.1 | 9.2 | 11.3 | 9.7 |
| Pepper | .. | 19.1 | 15.4 | 14.2 | 20.0 | 27.6 | 31.0 | 29.0 | 24.0 | 23.0 |
| Sawn logs (thousand) | | | | 36 148.0 | 36 467.0 | 40 812.0 | 40 102.0 | 39 860.0 | 43 511.0 | 36 942.0 |
| Sawn timber (cubic metres) | | | | 5 890.0 | 6 619.0 | 8 484.0 | 8 827.0 | 8 893.0 | 9 484.0 | 9 174.0 |

Sources: Department of Statistics, *Yearbook of Statistics*, various issues. Department of Statistics Malaysia, *Monthly Statistical Bulletin*, 1990.

Note: Two dots (..) indicate that data are not available.

large gap in average yields between the two types of producers. The average yield for the small-holders is only 60 per cent of the yield for plantations.

Although the plantation subsector accounted for 20 to 22 per cent of total land under rubber from 1985 to 1988, its share of total rubber output was 34 per cent. The private plantation investors have had less commitment to rubber and this has been accompanied by the rapid decline of Malaysia's rubber production (-1.4 per cent from 1980 to 1990).

The rapid expansion of palm oil production has been another important development in Malaysian agriculture. Output of crude palm oil was 7.4 million tons in 1993, compared to only 2.6 million tons in 1980. This 187 per cent increase is likely to continue as both plantation companies and smallholders increase investment in palm oil production.

Cocoa was a minor crop in 1980 when output was only 19,500 tons. Since then, production has peaked at 247,000 tons in 1990. Although output has declined to 200,000 tons in 1993, it is expected to reach somewhat higher levels in the future.

The ongoing rationalization of rice production has been another important feature of Malaysia's agricultural development. Total hectares under rice production is expected to remain the same as in 1993. Therefore, any increase in output would have to be from improvements in yield through research aimed at developing higher yielding varieties.

4. Trade flows

Malaysia has a long tradition of openness to international trade, which has meant that imports and exports account for a large share of gross national product (GNP), as shown in table 4.

**Table 4. Flows of trade and relation to GNP
(millions of \$M)**

| | 1980 | 1985 | 1991 | 1990 | 1992 |
|------------------------------|--------|--------|---------|--------|---------|
| Imports | 23 451 | 30 438 | 100 831 | 79 119 | 101 440 |
| Exports | 28 172 | 38 017 | 94 494 | 79 646 | 103 657 |
| Balance of trade | 4 721 | 7 579 | -6 334 | 527 | 2 217 |
| Imports as percentage of GNP | 47.5 | 42.4 | 81.6 | 71.6 | 72.3 |
| Exports as percentage of GNP | 57.0 | 52.9 | 76.5 | 72.1 | 73.9 |

Source: Department of Statistics, *Yearbook of Statistics*, various issues.

The structure and pattern of Malaysia's international trade has changed considerably in terms of composition from 1980 to 1992. Manufactured exports have been expanding rapidly. While total exports increased from Malaysian ringgit (\$M) 28.2 billion in 1980 to \$M 121 billion in 1993, the share of agricultural commodities in the total declined from 40 per cent to 12.7 per cent, while the share of manufactures increased from 28 per cent to 74 per cent.

Imports increased from \$M 23.4 billion in 1980 to \$M 117.4 billion in 1993. The share of agricultural commodity imports decreased from 11.5 per cent to 5.2 per cent, while the share of manufactured imports increased from 68 per cent to 76 per cent.

Data on the direction of trade shows the growing importance of other ASEAN-member countries as trade partners, as well as other Asian countries and areas. Table 5 gives information on destinations for Malaysia's exports in various years. From 50 to 60 per cent of exports were to the Asian region, of which ASEAN's share was about half. The share of exports going to Western Europe has declined gradually, but exports to North America have increased somewhat from 1980 to 1992.

Table 5. Percentage share of exports by destination

| | 1980 | 1985 | 1990 | 1992 |
|-----------------------------|----------|--------|--------|---------|
| Western Europe | 18.38 | 15.19 | 15.90 | 15.87 |
| West Asia | 2.02 | 1.90 | 2.51 | 2.08 |
| ASEAN | 22.36 | 25.79 | 28.94 | 29.45 |
| Rest of Asia | 33.96 | 39.11 | 31.04 | 28.47 |
| Total Asia | 56.32 | 64.90 | 62.49 | 50.00 |
| North America | 16.84 | 13.55 | 17.71 | 19.46 |
| Oceania | 1.86 | 1.91 | 1.93 | 2.30 |
| Rest of world | 6.60 | 4.45 | 1.97 | 2.37 |
| Total exports (\$M million) | 28 172.0 | 38 017 | 79 646 | 103 656 |

Source: Department of Statistics, *Yearbook of Statistics*, 1987 and 1992.

Malaysia's imports, presented in table 6, show a pattern somewhat similar to exports. That is, about 60 per cent of imports have been from Asian countries and areas in various years from 1980 to 1992. The share of imports from Western Europe had been fairly steady at about 17 per cent, but declined to about 15 per cent in 1992. North America has been the source for about 17 per cent of Malaysia's imports. Imports from other ASEAN-member countries has fluctuated slightly, with a share of about 20 per cent in 1992.

Table 6. Percentage share of imports by region

| | 1980 | 1985 | 1990 | 1992 |
|-----------------------------|--------|--------|--------|---------|
| Western Europe | 17.70 | 17.30 | 17.27 | 15.20 |
| West Asia | 8.54 | 3.97 | 1.20 | 0.85 |
| ASEAN | 16.44 | 22.42 | 18.92 | 20.43 |
| Rest of Asia | 32.35 | 33.13 | 37.15 | 41.12 |
| Total Asia | 57.33 | 59.51 | 57.27 | 62.40 |
| North America | 16.13 | 16.35 | 17.69 | 16.52 |
| Oceania | 6.70 | 4.95 | 4.51 | 3.41 |
| Rest of world | 2.12 | 1.89 | 3.26 | 2.47 |
| Total imports (\$M million) | 23 451 | 30 438 | 79 119 | 101 440 |

Source: Department of Statistics, *Yearbook of Statistics*, various issues.

5. Direction of trade for major agricultural commodity exports

Malaysia has a variety of agricultural exports, but this section will focus on the major export commodities: rubber, palm oil, sawn logs and sawn timber. Together, these commodities accounted for 98 per cent of Malaysia's total primary commodity agricultural exports. Table 7 gives data from 1988 to 1993 on the volume and value of rubber exports by major destinations. The volume of rubber exports has been declining steadily as a result of on-going decreases in production and increased use of rubber for domestic production. This decline is expected to continue.

As shown in table 8, exports of palm oil (crude and processed) have been increasing significantly in terms of volume and value. Although there was a decline in exports to the United States, other new markets have been found, particularly new markets in the Central Asian republics which were formerly part of the Union of Soviet Socialist Republics. Malaysia and Pakistan have promoted joint venture companies to process and export palm oil. The export drive has received strong support through the palm oil export credit provided by Malaysia to some importing countries on a government-to-government basis. To date, this export credit has been given to Pakistan, the Islamic Republic of Iran, Myanmar and Algeria, while deals with China and the Central Asian republics are in the final stages of negotiation.

The information presented in table 9 shows that the volume and value of sawn timber exports have been increasing. There has been a shift in export destinations, with the emergence of Thailand as the largest importer of sawn timber by volume. By 1994, Thailand accounted for about 29 per cent of Malaysia total exports of sawn timber.

The volume and value of sawn log exports has declined in recent years due to the government policy of forest conservation and promotion of downstream processing

Table 7. Volume and value of rubber exports by major destinations, 1988-1993
(volume in thousand tons, value in Malaysian Ringgit)

| | 1988 | | 1989 | | 1990 | | 1991 | | 1992 | | 1993 | |
|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|--------------|
| | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value |
| Singapore | 205 | 614 | 171 | 400 | 123 | 256 | 81 | 171 | 72 | 149 | 54 | 109 |
| United States | 135 | 462 | 129 | 399 | 120 | 293 | 126 | 330 | 128 | 311 | 124 | 304 |
| Republic of Korea | 168 | 527 | 167 | 408 | 165 | 370 | 159 | 363 | 134 | 297 | 135 | 292 |
| Japan | 96 | 331 | 95 | 248 | 102 | 237 | 104 | 249 | 73 | 176 | 60 | 151 |
| China | 113 | .. | 101 | .. | 87 | .. | 44 | .. | 26 | | 19 | |
| All other destinations | 894 | | 824 | | 725 | | 618 | | 602 | | 545 | |
| Total | 1 611 | 5 256 | 1 487 | 3 949 | 1 322 | 3 027 | 1 132 | 2 690 | 1 035 | 2 357 | 937 | 2 132 |

Source: Department of Statistics, *Yearbook of Statistics*, various issues.

Note: Two dots (..) indicate that data are not available.

Table 8. Volume and value of palm oil exports by major destinations, 1988-1993
(volume in thousand tons, value in Malaysian Ringgit)

| | 1988 | | 1989 | | 1990 | | 1991 | | 1992 | | 1993 | |
|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value |
| Pakistan | 512 | 556 | 585 | 508 | 635 | 470 | 936 | 835 | 845 | 824 | 971 | 95 |
| Singapore | 575 | 623 | 788 | 732 | 743 | 579 | 749 | 692 | 766 | 755 | 531 | 557 |
| China | 210 | 230 | 486 | 492 | 843 | 734 | 731 | 716 | 571 | 549 | 778 | 782 |
| Egypt | 107 | 118 | 214 | 207 | 344 | 250 | 293 | 239 | 324 | 209 | 407 | 378 |
| Japan | 227 | 252 | 259 | 251 | 269 | 208 | 316 | 287 | 309 | 306 | 338 | 338 |
| All other destinations | 2 520 | 2 749 | 2 617 | 2 501 | 2 821 | 2 098 | 2 484 | 2 243 | 2 597 | 2 893 | 2 813 | 3 622 |
| Total | 4 151 | 4 528 | 4 949 | 4 691 | 5 655 | 4 339 | 5 509 | 5 012 | 5 412 | 5 536 | 5 838 | 5 772 |

Source: Department of Statistics, *Yearbook of Statistics*, various issues.

Table 9. Volume and value of sawn timber exports by major destinations, 1988-1993
(volume in cubic meters, value in Malaysian Ringgit)

| | 1988 | | 1989 | | 1990 | | 1991 | | 1992 | | 1993 | |
|--------------------------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|
| | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value |
| Singapore | 956 | 246 | 967 | 255 | 941 | 273 | 772 | 244 | 673 | 244 | 581 | 256 |
| Japan | 330 | 197 | 516 | 375 | 518 | 412 | 514 | 407 | 555 | 504 | 547 | 707 |
| Taiwan Province of China | 254 | 104 | 255 | 113 | 159 | 76 | 170 | 87 | 359 | 195 | 601 | 444 |
| Thailand | 60 | 153 | 926 | 358 | 1 207 | 494 | 993 | 417 | 1 196 | 580 | 1 058 | 575 |
| All other destinations | 2 399 | 1 144 | 2 398 | 1 806 | 2 398 | 1 810 | 2 572 | 1 853 | 2 609 | 1 964 | 2 690 | 2 563 |
| Total | 3 999 | 1 844 | 5 062 | 2 907 | 5 223 | 3 065 | 5 021 | 3 008 | 5 392 | 3 487 | 5 477 | 4 545 |

Source: Department of Statistics, *Yearbook of Statistics*, various issues.

Table 10. Volume and value of sawn log exports by major destinations, 1988-1993
(volume in cubic meters, value in Malaysian Ringgit)

| | 1988 | | 1989 | | 1990 | | 1991 | | 1992 | | 1993 | |
|--------------------------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|
| | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value |
| Japan | 11 214 | 2 476 | 11 717 | 2 738 | 10 439 | 2 315 | 9 272 | 2 222 | 8 693 | 2 129 | 5 343 | 1 913 |
| Republic of Korea | 3 183 | 585 | 3 189 | 630 | 3 118 | 606 | 3 214 | 654 | 2 019 | 399 | 951 | 279 |
| Taiwan Province of China | 3 588 | 525 | 3 383 | 500 | 3 137 | 466 | 3 469 | 574 | 3 228 | 566 | 7 254 | 312 |
| All other destinations | 2 562 | 421 | 2 812 | 488 | 3 660 | 654 | 3 363 | 649 | 3 974 | 757 | ??? | 410 |
| Total | 20 547 | 4 007 | 21 101 | 4 356 | 20 354 | 4 041 | 19 318 | 4 099 | 17 914 | 3 851 | 9 288 | 2 914 |

Source: Department of Statistics, *Yearbook of Statistics*, various issues.

and manufacturing. As presented in table 10, the volume of sawn log exports in 1993 was only 45 per cent of the volume exported in 1988. As a result of the Malaysian Government's commitment to conservation, logging companies have established operations in Papua New Guinea and Vanuatu. Japan, the Republic of Korea and Taiwan Province of China are expected to continue to be the major importers.

6. Direction of trade for major agricultural commodity imports

Almost all agricultural commodities imported by Malaysia are in the category of food items, with Australia, New Zealand, Thailand and China as the principal sources. Overall, the value of total imports has increased by 52 per cent from 1988 to 1993; but changes in food item imports from individual countries do not show any significant trends. Table 11 gives an overview of Malaysia imports from the four major source countries, within the general category of food (SITC category 0).

Table 11. Value of imports of primary food commodities by source, 1988-1993.
(value in Malaysian Ringgit)^a

| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|---------------|--------------|---------------|---------------|---------------|--------------|---------------|
| Australia | 840 (22) | 865 (19) | 1 022 (22) | 1 019 (20) | 967 (18) | 1 213 (21) |
| Thailand | 713 (19) | 1 202 (26) | 1 010 (22) | 1 102 (21) | 852 (16) | 833 (14) |
| China | 366 (10) | 474 (10) | 395 (9) | 532 (10) | 746 (14) | 877 (15) |
| New Zealand | 311 (8) | 346 (7) | 387 (8) | 395 (8) | 473 (9) | 432 (7) |
| Other sources | 1 596 | 1 727 | 1 769 | 2 091 | 2 432 | 2 461 |
| Total | 3 826 | 4 614 | 4 583 | 5 139 | 5 470 | 5 816 |

Source: Department of Statistics, *Yearbook of Statistics*, various issues.

Note: Figures in parentheses indicate percentage share.

Table 12 presents statistics on Malaysia's rice imports from 1988 to 1993. For almost every year, Thailand has been the major supplier. In the early 1990s, however, Viet Nam became a significant regional source of rice imports, and in 1992 it supplied almost half of Malaysia's imported rice. With two major import sources, Thailand's share declined from as much as 99 per cent in 1989 to about 55 per cent in 1993. As previously noted, the Malaysian policy in future years will be to rely on imports to fulfil about 65 per cent of total rice requirements.

Australia is the principal supplier of wheat imports to Malaysia, over 60 per cent in most years. Saudi Arabia has emerged as a significant wheat supplier, from a share of

about 9 per cent in 1988 to about 18 per cent in 1993. As shown in table 13, both the volume and value of wheat imports have increased from 1988 to 1993, reflecting an increase in per capita income. The volume has increased by 44 per cent and the value by 48 per cent during the period.

Table 14 presents statistics from 1988 to 1993 for sugar imports in the form of beet and cane sugar by volume and value. Australia remains the main supplier to Malaysia, but Thailand has emerged as a significant supplier. Fiji has also been a supplier, but the share has remained fairly steady at about 12 per cent during the period. Total volume has increased by 24 per cent and total value by 28 per cent from 1988 to 1993.

As shown in table 15, Australia, Denmark and New Zealand have been the principal suppliers of dairy products, showing only small year-to-year variations in the value of their exports to Malaysia. Overall, dairy product imports have increased 57 per cent from 1988 to 1993, and they are expected to continue increasing in relation to growth of per capita GNP.

Table 12. Volume and value of rice imports by source, 1988-1993.
(volume in thousand tons and value in Malaysian Ringgit)^a

| | 1988 | | 1989 | | 1990 | | 1991 | | 1992 | | 1993 | |
|---------------|------------|-------------|------------|--------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
| | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value |
| Thailand | 272 | 203 (96) | 366 | 3409 (99) | 318 | 260 (96) | 331 | 292 (83) | 173 | 145 (42) | 208 | 155 (55) |
| Viet Nam | | | | | | | 64 | 51 (15) | 229 | 165 (48) | 153 | 106 (38) |
| Other sources | 12 | 9 | 2 | 3 | 12 | 10 | 5 | 7 | 42 | 36 | 28 | 22 |
| Total | 284 | 212 | 368 | 343 | 330 | 270 | 400 | 350 | 444 | 346 | 389 | 283 |

Source: Department of Statistics, *Yearbook of Statistics*, various issues.

Note: Figures in parentheses indicate percentage share.

Table 13. Volume and value of wheat imports by source, 1988-1993.
(volume in thousand tons and value in Malaysian Ringgit)^a

| | 1988 | | 1989 | | 1990 | | 1991 | | 1992 | | 1993 | |
|---------------|------------|-------------|------------|-------------|------------|-------------|--------------|-------------|------------|-------------|--------------|-------------|
| | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value |
| Australia | 272 | 204 (64) | 476 | 260 (73) | 575 | 269 (69) | 531 | 217 (43) | 409 | 199 (48) | 659 | 289 (61) |
| United States | 51 | 22 (7) | 30 | 17 (5) | 72 | 38 (10) | 79 | 37 (7) | 63 | 32 (8) | 64 | 34 (7) |
| Saudi Arabia | 76 | 29 (9) | 11 | 6 (2) | 42 | 13 (3) | 356 | 117 (23) | 189 | 70 (17) | 214 | 86 (18) |
| Other sources | 150 | 65 | 134 | 74 | 151 | 70 | 346 | 130 | 267 | 112 | 157 | 66 |
| Total | 758 | 320 | 651 | 357 | 840 | 390 | 1 312 | 501 | 928 | 413 | 1 094 | 475 |

Source: Department of Statistics, *Yearbook of Statistics*, various issues.

Note: Figures in parentheses indicate percentage share.

Table 14. Volume and value of beet and cane sugar imports by source, 1988-1993.
(volume in thousand tons and value in Malaysian Ringgit)^a

| | 1988 | | 1989 | | 1990 | | 1991 | | 1992 | | 1993 | |
|---------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
| | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value | Volume | Value |
| Australia | 506 | 309 (72) | 369 | 258 (49) | 551 | 390 (65) | 503 | 364 (59) | 450 | 280 (51) | 562 | 353 (64) |
| Thailand | 37 | 21 (5) | 214 | 147 (28) | 148 | 133 (22) | 227 | 156 (25) | 349 | 213 (37) | 206 | 128 (23) |
| Fiji | 67 | 44 (10) | 94 | 65 (12) | 110 | 76 (13) | 103 | 72 (12) | 103 | 66 (12) | 95 | 63 (11) |
| Other sources | 98 | 58 | 95 | 61 | 6 | 3 | 41 | 26 | | | 15 | 10 |
| Total | 708 | 432 | 772 | 531 | 815 | 602 | 874 | 618 | 902 | 549 | 878 | 554 |

Source: Department of Statistics, *Yearbook of Statistics*, various issues.

Note: Figures in parentheses indicate percentage share.

Table 15. Value of dairy product imports by source, 1988-1993.
(value in Malaysian Ringgit)^a

| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Australia | 102 (23) | 113 (20) | 110 (21) | 158 (28) | 187 (29) | 232 (33) |
| Denmark | 34 (8) | 38 (7) | 43 (8) | 28 (5) | 15 (2) | 13 (2) |
| New Zealand | 230 (51) | 251 (45) | 293 (55) | 275 (48) | 336 (52) | 303 (43) |
| Other sources | 86 | 156 | 87 | 113 | 113 | 161 |
| Total | 452 | 558 | 533 | 574 | 651 | 709 |

Source: Department of Statistics, *Yearbook of Statistics*, various issues.

Note: Figures in parentheses indicate percentage share.

I. ASSESSING THE POTENTIAL AND DIRECTION OF INTRAREGIONAL TRADE FLOWS IN AGRICULTURAL COMMODITIES: CASE STUDY OF PAKISTAN¹

The economy of Pakistan is based primarily on agriculture, but the share of agricultural commodities in total trade is quite low. An important reason is that production specialization does not conform with trade specialization, which is due to the lack of information on prospective trading partners in the world market or in the Asian and Pacific region. Information is also lacking about the potential agricultural commodities that could be traded.

The purpose of this paper is to study the prospects for expanding trade in agricultural commodities in the Asian and Pacific region by analysing shifting patterns of production and specialization, and then considering the compatibility of trade with production specialization. This includes consideration of emerging trends in interregional and intraregional trade in selected agricultural commodities.

1. Trends in the Pakistan economy

The growth rate of Pakistan's gross national product (GNP) was on average 5.6 per cent a year in the 1980s. Despite high growth rates, however, per capita GNP has been quite low at \$US 420 in 1992. One reason is because Pakistan has a large population, estimated at about 119 million in 1992, with an annual population growth rate of 2.9 per cent.

Pakistan's economic structure has responded to the effects of income growth and changes in productivity. Agriculture's share of GDP has declined, as shown in table 1. In the period from 1975-1976 to 1991-1992, the share of employment in agriculture went from 53 per cent to 51 per cent. The share of the manufacturing sector rose from 16 per cent in 1975-1976 to 17.8 per cent in 1991-1992. The service sector share in GDP rose from 43 per cent in 1975-1976 to 48 per cent in 1991-1992.

Pakistan's agriculture sector grew at a rate of 2.6 per cent a year during the 1970s, with the crop sector growing at an annual rate of 3.2 per cent. During the 1980s, it grew at an average annual rate of 4 per cent, with the crop sector growing at an annual rate of 3.3 per cent.

¹ Based on a paper presented by Professor Zafar Mahmood, Senior Research Economist, Pakistan Institute of Development Economics, Qaid-i-Azam University Campus, Islamabad.

**Table 1. Sectoral shares in gross domestic product, various years
(percentage share)**

| | 1975-1976 | 1979-1980 | 1984-1985 | 1989-1990 | 1991-1992 |
|---------------|-----------|-----------|-----------|-----------|-----------|
| Agriculture | 33.1 | 30.6 | 27.4 | 25.8 | 26.1 |
| Manufacturing | 16.0 | 17.0 | 16.5 | 17.6 | 17.8 |
| Services | 43.0 | 43.8 | 49.2 | 48.6 | 48.0 |
| Other sectors | 7.9 | 8.6 | 6.9 | 8.0 | 8.1 |

Source: Government of Pakistan, *Economic Survey*, 1993-1994.

Growth in exports was relatively high during the 1970s and 1980s, averaging about 7 per cent. This was achieved by introducing liberal trade policies over the past two decades. Pakistan's degree of openness has increased from 26 per cent in 1975-1976 to 31 per cent in 1987-1988, but is quite low compared with the performance of ASEAN-member countries and the newly industrialized economies (NIEs). Nevertheless, policy makers have come to appreciate the benefits from openness to trade.

2. Direction of trade

Tables 2 and 3 report the destinations of Pakistan's exports and the sources of imports by regional groupings for various years. It can be noted that more than half of Pakistan's trade is with OECD-member countries. The share of Pakistan's imports from OECD-member countries has been about the same, but the OECD share of Pakistan's exports has grown steadily. Another important trading group for Pakistan's trade is the Organization of Islamic Conference (OIC), but it has been losing its importance. Similarly, the proportion of Pakistan's trade with other member countries of the South Asian Association for Regional Cooperation (SAARC) has gone down since 1975-1976. Both exports and imports to the ASEAN-member countries and other Asian countries have been increasing continuously. This information suggests greater integration of Pakistan's trade with the Asian and Pacific region, although not within the SAARC grouping.

3. Trade by general commodity categories

Pakistan's exports have been characterized by a faster growth rate than that of the economy as a whole and by a shift from primary commodities to manufactured exports, as shown in table 4. The share of primary commodities in total exports decreased from 44 per cent in 1975-1976 to 19 per cent in 1991-1992, while the share of manufactured exports increased from 38 per cent to 60 per cent of total exports.

**Table 2. Major groupings of destinations for exports, various years
(percentage share)**

| | 1975-1976 | 1979-1980 | 1984-1985 | 1989-1990 | 1991-1992 |
|--|-----------|-----------|-----------|-----------|-----------|
| Organization of Islamic Conference (OIC) | 23.2 | 17.9 | 16.8 | 7.6 | 11.2 |
| Economic Cooperation Organization (ECO) | 2.3 | 5.0 | 3.3 | 2.7 | 2.6 |
| South Asian Association for Regional Cooperation (SAARC) | 6.5 | 6.2 | 4.2 | 3.9 | 4.7 |
| Association of South East Asian Nations (ASEAN) | 2.9 | 2.4 | 2.3 | 4.6 | 5.6 |
| Other Asian countries and areas | 13.6 | 14.6 | 9.0 | 11.4 | 14.4 |
| Organization for Economic Cooperation and Development (OECD) | 40.2 | 39.2 | 52.0 | 61.7 | 54.9 |
| Council for Mutual Economic Assistance (CMEA) (former) | 4.4 | 3.9 | 5.5 | 3.5 | 1.4 |
| Other African countries | 3.0 | 2.6 | 4.2 | 3.4 | 3.4 |

Source: Government of Pakistan, *Economic Survey*, 1993-1994.

**Table 3. Major groupings of sources of imports, various years
(percentage share)**

| | 1975-1976 | 1979-1980 | 1984-1985 | 1989-1990 | 1991-1992 |
|--|-----------|-----------|-----------|-----------|-----------|
| Organization of Islamic Conference (OIC) | 18.0 | 25.2 | 24.5 | 20.6 | 16.5 |
| Economic Cooperation Organization (ECO) | 0.4 | 0.3 | 1.6 | 2.3 | 2.4 |
| South Asian Association for Regional Cooperation (SAARC) | 3.0 | 2.4 | 1.9 | 1.7 | 1.5 |
| Association of South East Asian Nations (ASEAN) | 5.0 | 6.2 | 8.1 | 7.6 | 7.3 |
| Other Asian countries and areas | 4.5 | 5.7 | 5.5 | 8.7 | 9.5 |
| Organization for Economic Cooperation and Development (OECD) | 59.9 | 53.4 | 52.2 | 55.3 | 58.7 |
| Council for Mutual Economic Assistance (CMEA) (former) | 4.5 | 2.9 | 1.6 | 2.2 | 3.0 |
| Other African countries | 2.4 | 0.8 | 2.2 | 2.0 | 1.6 |

Source: Government of Pakistan, *Economic Survey*, 1993-1994.

**Table 4. Major categories of exports, various years
(percentage share)**

| | 1975-1976 | 1979-1980 | 1984-1985 | 1989-1990 | 1991-1992 |
|-------------------------|-----------|-----------|-----------|-----------|-----------|
| Primary commodities | 44 | 42 | 29 | 20 | 19 |
| Semi-manufactured goods | 18 | 15 | 17 | 24 | 21 |
| Manufactured goods | 38 | 43 | 54 | 56 | 60 |

Source: Government of Pakistan, *Economic Survey*, 1993-1994.

During the 1970s and 1980s the annual growth rate of imports in Pakistan was 4.2 per cent, slower than the GNP growth rate over the same period. The composition of Pakistan's imports has changed considerably over the period, reflecting effects of import substitution policies. According to table 5, in 1975-1976, 21 per cent of Pakistan's imports were finished consumer goods, 35 per cent were capital goods and 34 per cent were intermediate goods. By 1991-1992, the share of consumer goods had fallen to 13 per cent of imports, with the share of capital and intermediate goods rising to 42 per cent and 45 per cent, respectively.

**Table 5. Major categories of imports, various years
(percentage share)**

| | 1975-1976 | 1979-1980 | 1984-1985 | 1989-1990 | 1991-1992 |
|--------------------|-----------|-----------|-----------|-----------|-----------|
| Capital goods | 35 | 36 | 32 | 33 | 42 |
| Intermediate goods | 34 | 48 | 52 | 48 | 45 |
| Consumer goods | 21 | 16 | 16 | 19 | 13 |

Source: Government of Pakistan, *Economic Survey*, 1993-1994.

The principal changes for specific commodity exports have been (1) a relative decline in rice exports from 22 per cent of total exports in 1975-1976 to 6 per cent in 1991-1992; (2) a slight decline for raw cotton whose share declined from 8.7 per cent in 1975-1976 to 7.5 per cent in 1991-1992; and (3) an increase for various manufactured goods. Table 6 shows the percentage share of specific export commodities in total exports from Pakistan.

The principal changes in Pakistan's import structure, as shown in table 7, were for chemicals and non-electrical goods. Their shares in total imports have nearly doubled since 1975-1976. Changes in the shares of edible oils, tea and grains and pulses have been erratic, due mostly to weather conditions and trade in these commodities through illegal channels.

**Table 6. Share of major export commodities in total exports, various years
(percentage share)**

| | 1975-1976 | 1979-1980 | 1984-1985 | 1989-1990 | 1991-1992 |
|-------------------------|-----------|-----------|-----------|-----------|-----------|
| Textiles and clothing | 34.7 | 32.2 | 33.6 | 51.1 | 54.2 |
| Raw cotton | 8.7 | 14.2 | 22.5 | 9.0 | 7.5 |
| Rice | 22.0 | 17.9 | 8.8 | 4.8 | 6.0 |
| Leather | 5.6 | 5.4 | 6.1 | 5.6 | 3.5 |
| Sports goods | 1.7 | 1.0 | 1.6 | 2.2 | 2.0 |
| Fish products | 2.5 | 2.3 | 3.2 | 1.9 | 1.6 |
| Surgical instruments | 1.2 | 1.0 | 1.8 | 1.4 | 1.3 |
| Petroleum products | 1.7 | 7.5 | 1.2 | 0.2 | 1.2 |
| Footwear | 0.6 | 0.6 | 0.6 | 0.5 | 0.6 |
| Guar (gum) and products | 1.8 | 1.4 | 0.1 | 0.8 | 0.4 |
| Raw wool | 0.6 | 0.4 | 0.7 | 0.3 | 0.1 |

Source: Government of Pakistan, *Economic Survey*, 1993-1994.

**Table 7. Share of major imported products in total imports, various years
(percentage share)**

| | 1975-1976 | 1979-1980 | 1984-1985 | 1989-1990 | 1991-1992 |
|--------------------------|-----------|-----------|-----------|-----------|-----------|
| Non-electric machinery | 13.7 | 11.9 | 15.0 | 17.1 | 23.7 |
| Petroleum and products | 18.3 | 22.8 | 24.2 | 16.8 | 15.0 |
| Chemicals | 2.4 | 1.9 | 6.2 | 10.3 | 9.6 |
| Transport equipment | 6.6 | 10.4 | 8.7 | 6.8 | 9.0 |
| Edible oils | 5.1 | 4.9 | 7.7 | 5.6 | 4.4 |
| Iron, steel and products | 8.3 | 6.4 | 4.4 | 4.7 | 4.5 |
| Grains and pulses | 8.8 | 2.2 | 3.2 | 6.2 | 4.3 |
| Electrical goods | 5.8 | 4.1 | 2.8 | 2.9 | 3.2 |
| Drugs and medicines | 1.3 | 1.6 | 2.2 | 2.5 | 2.3 |
| Tea | 3.0 | 2.0 | 3.9 | 2.6 | 1.9 |

Source: Government of Pakistan, *Economic Survey*, 1993-1994.

4. Production and trade of agricultural commodities

For the study of the future potential in agricultural commodity trade between Pakistan and other Asian and Pacific countries and areas, ten agricultural commodities will be discussed, including: (1) wheat, (2) rice, (3) wheat products, (4) coffee, (5) cocoa, (6) tea, (7) spices, (8) oil seeds, (9) natural rubber and (10) vegetable oil.

(a) Production patterns

Among the ten selected agricultural commodities, Pakistan produces only wheat, rice, wheat products, oil seeds, vegetable oils and spices.² Table 8 shows the share of agricultural value added for the five commodities produced in Pakistan. The leading agricultural commodity produced in Pakistan is wheat followed by rice. Both commodities have lost their share in total agricultural value added since 1975-1976, mainly because of the increase in the share of raw cotton. Other agricultural commodities considered in the study have minor shares in total value added.

Table 8. Share of selected commodities in agricultural value added, various years (percentage share)

| | 1975-1976 | 1979-1980 | 1984-1985 | 1989-1990 | 1991-1992 |
|----------------|-----------|------------------|-----------|-----------|-----------|
| Wheat | 40.7 | 41.9 | 29.2 | 30.0 | 27.1 |
| Rice | 16.2 | 16.6 | 15.6 | 13.5 | 11.7 |
| Wheat products | 1.3 | 0.9 ^a | 0.5 | .. | .. |
| Oil seeds | 1.9 | 1.5 | 1.4 | 1.1 | 0.9 |
| Vegetable oil | 0.3 | 0.9 ^a | 0.7 | .. | .. |

Source: Government of Pakistan, *Economic Survey*, 1993-1994. Census of Manufacturing Industries (for wheat products and vegetable oil prior to 1980-1981).

Note: ^a Figures are for the year 1980-1981.
Two dots (..) indicate that data are not available.

(b) General trade patterns for selected commodities

Overall shares of both imports and exports of the selected commodities have gone down considerably over the period. In the case of imports, their share in total imports fell from 12.3 per cent in 1975-1976 to 5.9 per cent in 1991-1992. In the case of exports, their share in total exports fell from 23.4 per cent in 1975-1976 to 6.6 per cent in 1991-1992.

Table 9 shows trends in imports of the ten selected agricultural commodities from all the sources to Pakistan. It may be noted that Pakistan has not imported rice, wheat products or vegetable oil, except in 1984-1985. Imports of coffee and cocoa in total imports are negligible. On the other hand, the proportion of imports that are comprised of wheat, tea, spices, oil seeds and natural rubber has gone down over the period. In the case of wheat, the decline in imports has been achieved due to increased domestic production of wheat. The decline in imports of tea and spices can be attributed to the illegal inflow of these commodities.

² Production data on spices are not available.

**Table 9. Share of selected commodities in total imports, various years
(percentage share)**

| | 1975-1976 | 1979-1980 | 1984-1985 | 1989-1990 | 1991-1992 |
|----------------|-----------|-----------|-----------|-----------|-----------|
| Wheat | 8.72 | 2.22 | 3.06 | 5.77 | 3.69 |
| Rice | | | | | |
| Wheat products | | | | | -- |
| Coffee | 0.02 | -- | -- | -- | -- |
| Cocoa | | 0.01 | -- | -- | -- |
| Tea | 3.01 | 2.03 | 3.91 | 2.60 | 1.87 |
| Spices | 0.32 | 0.24 | 0.19 | 0.22 | 0.05 |
| Oil seeds | 0.24 | 0.18 | 0.31 | 0.17 | 0.15 |
| Natural rubber | | | 0.21 | 0.18 | 0.16 |
| Vegetable oil | | | 2.80 | | |

Source: Foreign Trade Statistics of Pakistan, various issues.

Note: An em dash (--) indicates that the amount is negligible.

Table 10 shows trends in exports of selected agricultural commodities from Pakistan to all destinations. It may be noted that Pakistan had consistently exported rice, spices and oil seeds, while it exported wheat products only in 1975-1976 and 1979-1980. Coffee, cocoa, tea and natural rubber are not produced in Pakistan. Vegetable oil is produced in Pakistan, but no exportable surplus is available.

**Table 10. Share of selected commodities in total exports, various years
(percentage share)**

| | 1975-1976 | 1979-1980 | 1984-1985 | 1989-1990 | 1991-1992 |
|----------------|-----------|-----------|-----------|-----------|-----------|
| Wheat | | | | | |
| Rice | 22.03 | 17.85 | 8.79 | 4.83 | 6.02 |
| Wheat products | 0.01 | 0.01 | | | |
| Spices | 0.90 | 0.49 | 0.48 | 0.27 | 0.36 |
| Oil seeds | 0.49 | 0.24 | 0.27 | 0.40 | 0.21 |

Source: Foreign Trade Statistics of Pakistan, various issues.

(c) Pakistan's intraregional trade in selected commodities

The analysis by Asian and Pacific subregions and countries includes member countries of SAARC and ASEAN, as well as Australia, China, Japan, New Zealand, the Republic of Korea, the other countries of the region and the region as a whole. The annex presents two tables showing Pakistan's intraregional imports and exports of the selected agricultural commodities in 1975-1976 (annex tables 1 and 2) and 1991-1992 (annex

tables 3 and 4). It can be noted that the only regional source of Pakistan's wheat imports has been Australia. While Australia's share increased over the period, most of Pakistan's wheat imports are from other regions.³ Recently, Pakistan started importing wheat products. In 1991-1992, 13.6 per cent of imported wheat products originated from Australia and the Republic of Korea.

Pakistan formerly imported more than half of its coffee from Sri Lanka (55 per cent in 1975-1976) and a small share from Singapore (1.2 per cent in 1975-1976). By 1991-1992, Pakistan's imports of coffee from Asian and Pacific countries have gone down to about 20 per cent as the origins of coffee imports has been diversified. Cocoa accounts for a negligible proportion in total imports of Pakistan; in 1975-1976, Pakistan imported 2.4 per cent of its cocoa from Asian and Pacific countries. By 1991-1992, almost half of cocoa imports were from other Asian countries.

Tea is a major import item for Pakistan, but imports from Asian and Pacific countries has gone down significantly; from 80.3 per cent in 1975-1976 to 32.9 per cent in 1991-1992. More than three fourths of Pakistan's spice imports are from Asian and Pacific countries. About 92 per cent of Pakistan's oil seed imports are from the Asian region, particularly from other SAARC-member countries. Asian countries' share of Pakistan's oil seed imports has more than doubled from 1975-1976 to 1991-1992.

Pakistan started importing natural rubber in 1984-1985 when 98.4 per cent of the commodity was from Asian and Pacific countries, particularly from member countries of SAARC and ASEAN. By 1991-1992, these countries share in rubber imports was down to 43.4 per cent, coming mostly from Japan, Malaysia, the Republic of Korea and China. Pakistan also started importing vegetable oils in 1984-1985 when Malaysia supplied 11.24 per cent of total imports. However, by 1991-1992, no vegetable oils were imported from Asian countries.

Annex tables 2 and 4 report on Pakistan's exports of selected agricultural commodities to other Asian and Pacific countries and regional groups. Pakistan exports only rice, spices and oil seeds in significant value. Exports of rice from Pakistan to Asian and Pacific countries increased from 16.1 per cent in 1975-1976 to 30 per cent of total rice exports in 1991-1992. At first, most of the rice exports were going to other SAARC-member countries and ASEAN-member countries. More recently, most rice exports have been going to the Islamic Republic of Iran.

Pakistan's share of spice exports to Asian and Pacific countries has gone down significantly from 62 per cent in 1975-1976 to 5.3 per cent in 1989-1990. However, in 1991-1992 the share increased to 25.7 per cent. Major export markets for Pakistani spices are members of SAARC and ASEAN. Markets in other Asian and Pacific countries accounted for about 41 per cent of Pakistan's oil seed exports in 1991-1992, with Japan and ASEAN-member countries as important markets.

³ It was only in 1979-1980 and 1984-1985 that Pakistan imported nearly half of its wheat from Australia.

5. Production specialization or trade specialization

Discussion in this section is intended to investigate the proposition that Pakistan's trade in selected agricultural commodities conforms with its production specialization.

Two indices are used in order to study the pattern of trade.⁴ One is the trade specialization (TS) index, also referred to as revealed comparative advantage (RCA):

$$RCA = (X_{ip} - M_{ip}) / (X_{ip} + M_{ip})$$

where X_{ip} = Export of the i^{th} commodity from Pakistan,

M_{ip} = Import of the i^{th} commodity from Pakistan,

The second is the index of comparative advantage, used to measure production specialization (PS):

$$PS = (X_{ip}/X_p) / (X_{iw}/X_w)$$

where X_p = Total exports of Pakistan,

X_{iw} = Export of the i^{th} commodity in the world market, and

X_w = Total exports to the world.

Table 11 presents the results for the production specialization index for the selected commodities at different time periods from 1975-1976 to 1991-1992. Table 12 presents the trade specialization index (RCA) for the selected agricultural commodities during the same time period. Pakistan has no comparative advantage in the production of wheat, which explains why it is a net importer of wheat. In the case of rice, Pakistan exports according to its comparative advantage in production. For wheat products, Pakistan gained a competitive edge in the international markets during the 1970s, but could not retain it since then. However, the index shows that Pakistan never had comparative advantage in production of wheat products.

The trade specialization index reveals that Pakistan gained a competitive edge in spices which is consistent with the index of comparative advantage in production. The trade specialization index shows that Pakistan does not have a competitive edge in oil seeds, yet Pakistan gained a comparative advantage in its production. To summarize, Pakistan has a comparative advantage for rice and spices, but not for exports of wheat products or oil seeds.

⁴ Refer to ESCAP Steering Group of the Committee for Regional Economic Cooperation, "Review and Analysis of Intraregional Trade Flows in Asia and the Pacific", fifth meeting, 29 August -1 September 1994, Kunming, China.

Table 11. Index of production specialization for selected commodities, various years

| | 1975-1976 | 1979-1980 | 1984-1985 | 1989-1990 | 1991-1992 |
|----------------|-----------|-----------|-----------|-----------|-----------|
| Wheat | | | | | |
| Rice | 104.6 | 85.6 | 52.4 | 36.0 | 105.2 |
| Wheat products | 0.1 | – | | | |
| Coffee | | | | | |
| Cocoa | | | | | |
| Tea | | | | | |
| Spices | 15.3 | 9.7 | 7.8 | 5.7 | 19.0 |
| Oil seeds | 0.9 | 0.5 | 0.6 | 1.2 | 1.5 |
| Natural rubber | | | | | |
| Vegetable oil | | | | | |

Note: An em dash (–) indicates that the amount is negligible.

Table 12. Index of trade specialization (RCA) for selected commodities, various years

| | 1975-1976 | 1979-1980 | 1984-1985 | 1989-1990 | 1991-1992 |
|----------------|-----------|-----------|-----------|-----------|-----------|
| Wheat | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 |
| Rice | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Wheat products | 0.9 | 1.0 | | | -1.0 |
| Coffee | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 |
| Cocoa | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 |
| Tea | -1.0 | -1.0 | -1.0 | -1.0 | -1.0 |
| Spices | 0.2 | – | – | -0.1 | 0.7 |
| Oil seeds | 0.1 | -0.2 | -0.5 | 0.3 | – |
| Natural rubber | | | -1.0 | -1.0 | -1.0 |
| Vegetable oil | | | -1.0 | | |

Note: An em dash (–) indicates that the amount is negligible.

6. Commodities and markets with trade potential

It can be suggested that Pakistan should be able to export rice, spices and oil seeds. These findings can be complemented with the estimates of domestic resource cost (DRC), which show the potential comparative advantage of commodities. Those commodities which have a DRC of less than one are commodities with export potential, if exportable surpluses are available. Table 13 presents the domestic resource cost of selected agricultural commodities for three different time periods.

Table 13. Domestic resource cost of selected commodities, various years

| | 1987 | 1989-1990 | 1991-1992 |
|----------------|------|-----------|-----------|
| Wheat | | 0.5 | |
| Rice | | 0.8 | |
| Cotton seed | 0.5 | | |
| Soybeans | 0.5 | | |
| Rapeseed | 0.5 | | |
| Sunflower | 0.6 | | |
| Edible oils | | | 0.8 |
| Wheat products | | | 0.5 |

Source: For columns 1 and 2, M. G. Chaudhry and S.A. Sahibzada, "Comparative Advantage in Pakistan's Agriculture: The Concepts and the Policies" *Pakistan Development Review* (forthcoming). The last column is from A. R. Kemal, Z. Mahmood and A.M. Ahmed, "Structure of Protection, Efficiency and Profitability", *Pakistan Institute of Development Economics*, 1994.

It can be noted that for the reported agricultural commodities, all have DRCs less than one. With exportable surpluses available, Pakistan can venture into foreign markets.

The future direction of trade can be determined on the basis of the growth potential of foreign markets. Most of Pakistan's rice is exported to markets outside the Asian region, but with the conclusion of the Agreements from the Uruguay Round of GATT negotiations, it is expected that rice exports will increase to Asian and Pacific countries, particularly to Japan and the Republic of Korea, as these markets are opened.

Most of Pakistan's exports of spices and oil seed will be absorbed by Asian and Pacific countries. Wheat could be a potential export commodity from Pakistan, if this potential is exploited by generating exportable surpluses. Likely markets include the Islamic Republic of Iran and Afghanistan.

7. Summary and some recommendations

A number of main points can be summarized based on information presented in this study. The role of the agricultural sector in GDP has been declining continuously since 1975-1976. In value-added terms, Pakistan's major agricultural commodities are cotton, wheat, rice and oil seeds.

More than half of Pakistan's overall trade takes place with the member countries of OECD, and Pakistan's trade with Asian countries is relatively small. However, trade with Asian countries has been growing continuously. The share of primary commodities, which include agricultural commodities, in total exports has decreased from 44 per cent in 1975-1976 to 19 per cent in 1991-1992. This decline is due mainly to reduced exports of rice and raw cotton.

Imports of coffee, wheat products and cocoa to Pakistan are negligible. Although Pakistan imports substantial amounts of wheat, tea, spices and oil seed; their imports have gone down over the period.

Pakistan's major agricultural exports are rice, spices and oil seeds, and exports of these commodities have gone down over the period from 1975 to 1992. Most rice exports go to the Islamic Republic of Iran, spices are exported to member countries of SAARC and ASEAN and oil seeds are mainly exported to Japan. Pakistan trades in rice and spices according to its comparative advantage, while this is not the case for exports of wheat products and oil seeds. In addition to rice, spices and oil seeds, Pakistan has the potential to export wheat if there is an exportable surplus.

Pakistan imports wheat and wheat products from Australia and the Republic of Korea, coffee and tea from a number of Asian and Pacific countries and oil seeds, spices and natural rubber mainly from member countries of SAARC or ASEAN.

The following recommendations are made in order to promote intraregional trade in agricultural commodities.

1. Appropriate diversification, instead of complete specialization, should be emphasized as an option for promoting agricultural production and trade. This would contribute to macroeconomic stability and reduce some of the inherent risks of agricultural production. This could be achieved by promoting exchange of know-how and technology at the regional level, as well as by changing the structure of incentives domestically.
2. Where countries have a comparative advantage in production, but are unable to export due to tariffs and non-tariff barriers in importing countries, steps may be needed to have preferential treatment for countries in the region, with developed countries helping the developing countries through greater market access.
3. The countries of the region may negotiate levels and composition of imports from and exports to all other countries in the region. It would be more difficult to ensure balanced trade in a multilateral framework than in bilateral trade. At the same time, this approach would promote trade without necessarily going through tariff negotiations.
4. Export credit facilities are generally available for manufactured commodities, but lacking for agricultural commodities. Credit facilities for agricultural commodities through commercial banks at national and regional levels, or through a multilateral clearing union such as the Asian Clearing Union, can help expand intraregional trade in agricultural commodities.

ANNEX

**Annex table 1. Intraregional share of Pakistan's imports of selected commodities,
1975-1976
(percentage share of total imports)**

| | Wheat | Coffee | Cocoa | Tea | Spices | Oil seeds |
|---------------------------------|------------|-------------|------------|-------------|-------------|-------------|
| SAARC | | 55.0 | | 66.3 | 16.1 | 16.3 |
| Bangladesh | | | | 1.5 | | |
| Bhutan | | | | | | |
| India | | | | | | |
| Maldives | | | | | 0.1 | 0.4 |
| Nepal | | | | 10.8 | | |
| Sri Lanka | | 55.0 | | 64.9 | 5.2 | 15.9 |
| ASEAN | | 1.2 | | 11.3 | 41.6 | 29.4 |
| Indonesia | | | | 11.0 | 6.3 | 11.0 |
| Malaysia | | | | | 0.6 | 4.0 |
| Philippines | | | | | 0.2 | |
| Singapore | | 1.2 | | 0.3 | 29.9 | 14.4 |
| Thailand | | | | | 4.6 | |
| Australia | 0.8 | | | | | 0.2 |
| China | | | 2.4 | 2.0 | 2.2 | 0.1 |
| Japan | | | | 0.6 | | |
| New Zealand | | | | | | |
| Republic of Korea | | | | - | | |
| Other ESCAP-member countries | | | | - | | |
| Total ESCAP | 0.8 | 56.3 | 2.4 | 80.3 | 73.9 | 48.8 |

Note: An em dash (-) indicates that the amount is negligible.

No imports of rice, wheat products, natural rubber or vegetable oil.

**Annex table 2. Intraregional share of Pakistan's exports of selected commodities,
1975-1976
(percentage share of total exports)**

| | Rice | Spices | Oil seeds |
|---------------------------------|-------------|-------------|-------------|
| SAARC | 11.3 | 17.6 | |
| Bangladesh | 2.5 | 0.4 | |
| Bhutan | | | |
| India | | | |
| Maldives | 0.2 | — | |
| Nepal | | | |
| Sri Lanka | 8.7 | 17.2 | |
| ASEAN | 4.7 | 32.4 | 1.3 |
| Indonesia | 4.0 | | |
| Malaysia | | 4.8 | 0.6 |
| Philippines | 0.5 | | |
| Singapore | 0.2 | 26.5 | 0.7 |
| Thailand | | 1.1 | |
| Australia | 0.1 | 0.1 | |
| China | | | 1.8 |
| Japan | | 11.8 | 43.6 |
| New Zealand | | | |
| Republic of Korea | | | |
| Other ESCAP-member countries | | | |
| Total ESCAP | 16.1 | 62.0 | 48.0 |

Note: An em dash (—) indicates that the amount is negligible.

No exports of wheat, wheat products, coffee, cocoa, natural rubber or vegetable oil.

Annex table 3. Intraregional share of Pakistan's imports of selected commodities, 1991-1992
(percentage share of total imports)

| | Wheat | Wheat products | Coffee | Cocoa | Tea | Spices | Oil seeds | Natural rubber |
|------------------------------|-------------|----------------|-------------|-------------|-------------|-------------|-------------|----------------|
| SAARC | | | | 1.0 | 11.2 | 15.1 | 70.3 | 1.2 |
| Bangladesh | | | | | 3.9 | | | |
| Bhutan | | | | 1.0 | 0.6 | 12.4 | 38.9 | 0.2 |
| India | | | | | 6.7 | 1.4 | 31.2 | 0.9 |
| Maldives | | | | | | 0.1 | 0.1 | 0.1 |
| Nepal | | | | | | | | |
| Sri Lanka | | | | | | 1.1 | 0.1 | |
| ASEAN | | | 19.8 | 45.7 | 20.1 | 36.9 | 19.9 | 1.6 |
| Indonesia | | | | 0.7 | 20.0 | 5.0 | 0.8 | |
| Malaysia | | | 15.5 | 33.3 | – | 12.8 | 18.4 | 0.7 |
| Philippines | | | | | – | | 0.4 | |
| Singapore | | | 4.3 | 11.7 | – | 17.5 | 0.3 | 0.1 |
| Thailand | | | | | | 1.6 | | 0.9 |
| Australia | 18.2 | 3.1 | | – | – | | 0.1 | 0.1 |
| China | | | | | 1.5 | 20.8 | 0.5 | 4.3 |
| Japan | | | | | – | 0.6 | 0.7 | 25.8 |
| New Zealand | | | | | | | | |
| Republic of Korea | | 10.5 | | | – | 0.1 | | 8.4 |
| Other ESCAP-member countries | | | | | – | | | |
| Total ESCAP | 18.2 | 13.6 | 19.8 | 46.7 | 32.9 | 78.7 | 92.0 | 43.4 |

Note: An em dash (–) indicates that the amount is negligible.

No imports of rice or vegetable oil.

Annex table 4. Intraregional share of Pakistan's exports of selected commodities, 1991-1992
(percentage share of total exports)

| | Rice | Spices | Oil seeds |
|------------------------------|-------------|-------------|-------------|
| SAARC | 3.0 | 18.4 | 1.0 |
| Bangladesh | 0.7 | 15.6 | |
| Bhutan | | 0.3 | 0.9 |
| India | 2.3 | 2.5 | 0.1 |
| Maldives | | | 0.1 |
| Nepal | | | |
| Sri Lanka | | | |
| ASEAN | 2.1 | 2.0 | 3.8 |
| Indonesia | | — | |
| Malaysia | 1.7 | 0.2 | 1.9 |
| Philippines | | | |
| Singapore | 0.4 | 1.5 | 1.8 |
| Thailand | | 0.3 | |
| Australia | 0.3 | 0.2 | 0.3 |
| China | 0.4 | | |
| Japan | 0.2 | 1.8 | 36.0 |
| New Zealand | | | |
| Republic of Korea | | 0.1 | |
| Other ESCAP-member countries | | | 0.1 |
| Total ESCAP | 30.0 | 25.8 | 41.3 |

Note: An em dash (—) indicates that the amount is negligible.

No exports of wheat products, coffee, cocoa, tea, natural rubber or vegetable oil.

J. POTENTIAL AND DIRECTION FOR FUTURE AGRICULTURAL TRADE OF SRI LANKA¹

In 1948, when Sri Lanka (Ceylon) gained independence, its economy was based on a classical colonial model. The most important sector was the plantation system of agriculture consisting of tea, rubber and coconut. These three agricultural commodities accounted for 95 per cent of Sri Lanka's export earnings. As recently as the 1960s, these three items still accounted for about 90 per cent of exports.

By the end of the 1970s, growth of Sri Lanka's industrial sector meant a reduced share for agricultural exports, to about 61 per cent of total exports. The share of agricultural exports in total exports was 36 per cent in 1990 and 23 per cent in 1993. Despite these declines, tea, rubber and coconuts accounted for the biggest share of agricultural exports.

1. Recent patterns of agricultural trade

The leading agricultural export from Sri Lanka is tea, which is exported mostly in bulk form. In 1993, half of the bulk tea was exported to the Syrian Arab Republic, Egypt, Jordan, the United Arab Emirates and other West Asian and North African countries. About 25 per cent of the bulk tea exports were sent to countries in the European Union, the United States of America, Canada and Australia.

About 60 per cent of exported tea is in packet form. In 1993, the main markets for packet tea were the Russian Federation, Jordan, the United Arab Emirates, Libya and other West Asian countries. Exports of tea bags in 1993 were to Australia, Saudi Arabia, Jordan, the United Arab Emirates and Kuwait.

The second of the three major agricultural exports is rubber. For the past 25 years, the main buyer of Sri Lankan rubber was China, which accounted for about 40 per cent of rubber exports in the 1980s. Since the early 1980s, when the Sri Lanka-China Rubber/Rice Agreement was being phased out, rubber exports to China have been declining. Important markets for Sri Lankan rubber are now the European Union, Pakistan, India, Poland, the United States and Japan.

There are three main types of rubber exports: (1) sheet, (2) crepe and (3) block rubber. The United Kingdom is the main importer of sheet rubber, and the United States and Germany are the main buyers of crepe rubber. Sri Lanka is the major supplier of latex crepe rubber in the world market. The third type of rubber export, block rubber, or technically specified rubber (TSR) is a new grade which Sri Lanka has been exporting in recent years.

¹ Based on a paper presented by Douglas Jayasekera, Director of International Economic Studies, Marga Institute, Colombo.

Several East Asian countries, such as Japan, China and the Republic of Korea, are major importers of natural rubber which accounts for 70 per cent of their total rubber consumption. However, in recent years Sri Lanka has not been a significant supplier to East Asian markets. It would appear that Indonesia, Malaysia and Thailand are the main suppliers to East Asian markets because of prices and other considerations.

One significant development for Sri Lanka has been growth in rubber manufacturing, which has led to higher levels of local consumption of rubber. By 1993, domestic consumption accounted for 30 per cent of total rubber production. At the same time, exports of processed rubber and articles manufactured of rubber had increased dramatically. By 1993, processed and manufactured rubber and products were earning more foreign exchange than raw rubber exports. Such exports include tyres, tyre cases and tubes, footwear, surgical gloves and articles of apparel and clothing. The main export markets for these processed and manufactured items of rubber are North America and Western Europe. Rubber shoes are exported to the United States, Italy, France and Germany. Surgical gloves of rubber are exported to the United States, the European Union, Japan and Saudi Arabia. Generally, Sri Lanka has not been a major competitor with South-East Asian rubber exporters for the markets in the Asian and Pacific region.

Exports of the third major agricultural product, coconut, is determined largely by the demand in the domestic market. Production of coconut has been static in recent years, while domestic consumption has been increasing. As a result, quantities available for export have also declined. In 1992/1993, less than 20 per cent of coconut production was exported. Exports of coconut oil and copra are marginal, and only desiccated coconut remains a competitive export for Sri Lanka. About 40 per cent of desiccated coconut exports are to the European Union, 30 per cent to West Asian and North African countries and about 10 per cent to countries in Latin America. The United Arab Emirates, the Syrian Arab Republic, Saudi Arabia, Pakistan and Lebanon are the main markets for desiccated coconut.

About 60 per cent of fresh coconuts exported from Sri Lanka are destined for West and South Asian countries (the United Arab Emirates, Pakistan and Mauritius). About 25 per cent of fresh coconut exports are sent to countries in the European Union, especially the United Kingdom. Exports of mattress fibre and bristle fibre from coconut are mainly to the European Union. Japan is also a major importer of Sri Lankan bristle fibre, as are Taiwan Province of China and Singapore. Japan also imports some mattress fibre as does Australia and Saudi Arabia.

In addition to the three major agricultural export products, there are a number of other agricultural commodities and their products which Sri Lanka exports. For example, exports of unprocessed (unmanufactured) tobacco have increased in recent years. The European Union accounts for over 90 per cent of Sri Lanka's tobacco exports.

The main spices exported from Sri Lanka are cinnamon (quills, quillings and chips), pepper cloves, nutmeg, mace and cardamom. Cinnamon is the most important spice export in the form of cinnamon quills. About 50 per cent is exported to Mexico,

20 per cent to the United States, 10 per cent to other Latin American countries and 5 per cent to the European Union. Pakistan is the destination for about 25 per cent of pepper exports. Other markets are India (12 per cent), the United Arab Emirates (9 per cent), the United States, Germany and Greece.

Cashews are another significant export, with about 70 per cent going to West Asian countries, such as the United Arab Emirates, Saudi Arabia, Kuwait, Qatar and Israel. Hong Kong also imports Sri Lankan cashews.

Exports of fruits and vegetables have been increasing recently, and this includes fresh fruits and vegetables. However, exports of processed fruits and vegetables are more significant. The main markets for fresh fruits and vegetables have been the Maldives and some West Asian countries. Processed fruit and vegetables are mainly exported to Europe and the United States.

There are few exports of live plants and cuttings, foliage and cut flowers. However, this sector has some potential for growth. About 70 per cent of these agricultural products are exported to the European Union.

2. General situation and policy environment for agricultural products

In terms of the gross value of exports, agricultural products have been surpassed by industrial products. However, there is no doubt that trade in agricultural products is still important for the country's export earnings and agriculture is important for employment, particularly in the plantation sector.

The agriculture sector and its role in international trade has been neglected by policy-makers for about seventeen years. As a result, efficiency in the plantation sector has declined and production of tea, rubber and coconut has been stagnant or in decline. In fact, Sri Lanka now has to import copra and coconut oil. Sri Lanka had been the third largest producer of rubber in the early 1960s, but in the early 1990s it has become the sixth largest producer. Yields are low and when the government's fertilizer subsidies were removed in 1990, the effect on agriculture was adverse.

Policy makers need to consider the importance of fertilizers in all parts of the agriculture sector if they want to revitalize Sri Lanka agriculture. When fertilizer subsidies were removed, the plantation sector made major reductions in fertilizer usage as did the producers of pepper, cinnamon and cloves. A report by the Central Bank in 1993 stated that fertilizer use in the minor export crop sector declined by 36 per cent in 1992 and declined further in 1993.² The Government which took office in August 1994 restored 30 per cent of the fertilizer subsidy and decided to consider a larger subsidy for the next crop season.

² Central Bank of Sri Lanka, *Annual Report 1993*, Colombo, 1993.

In 1989, the Government initiated the Perennial Crops Development Project (Percrodep) with assistance from the Asian Development Bank. The project is operating in five districts located in the central part of the country for the purpose of promoting commercial production and improving the marketing facilities for pepper, cocoa, coffee, cinnamon and fruit.

Sri Lanka's comparative advantage in agricultural production is derived from its seasonal flexibility, comparatively low labour costs and location between the major Pacific markets and Europe. However, Sri Lanka is not well served by either air or sea freight services. Air freight rates from Sri Lanka are relatively high, which is a problem for exporting tropical fruits and vegetables. For example, the cost of air freight to Europe can account for 30 to 60 per cent of retail prices in European markets. Other problems are lack of cold storage space in air terminals, the seasonal nature of demand for fruit and vegetables, heavy demand for space on west-bound routes out of Sri Lanka, overbooking and flight delays. The national airline, Air Lanka, has begun chartering cargo planes for exports. Special promotional rates are available for freight shipped by boat and this has helped increase exports of some minor agricultural products.

3. Prospects for export of agricultural products in the future

There has been a trend towards diversification of agricultural exports from Sri Lanka, but the three plantation crops, tea, rubber and coconuts continue to be the mainstays. It would be logical to explore ways to increase production and export of these three agricultural products. Each of the three products faces unique production, export and marketing challenges for the future.

The crucial challenge of the tea export industry concerns the increased consumption of tea bags in markets worldwide, for which cut, tear and curl (CTC) teas are preferred to standard forms of tea. Sri Lanka has increased its production of CTC teas, but it accounts for only about 3 per cent of total production. It is estimated that CTC teas should be 15 to 20 per cent of production. Problems in the production of tea relate to replanting of tea, the decline in fertilizer use, high financing costs and effective marketing.

Sri Lanka has decided to stress quality, price and packaging in the international marketing of rubber. Programmes of market development appear to be especially important for promoting Sri Lankan rubber in view of strong competition from South-East Asian exports.

The main challenge for coconut exports is the lack of supplies in view of increased domestic consumption and unchanging levels of production. Planting and replanting of coconut will have to be increased and accelerated.

Production of all three major plantation crops has been stagnant or in decline over recent years. This trend will have to be reversed in order to overcome supply

shortfalls that have resulted in the need to import certain coconut products, palm oil products and charcoal. Plans and programmes aimed at increasing production will be necessary in order to maximize exports.

4. Patterns of agricultural product imports

Sri Lanka's import patterns for agricultural products consist of five main groups: (1) sugar, (2) milk powder, (3) rice, (4) palm oil and (5) wheat and wheat flour. Sugar has been imported from India, China, Thailand, Brazil and Myanmar. There is some domestic production of sugar, but this meets only 15 per cent of demand.

Milk powder is imported from two Asian developed countries, Australia and New Zealand and from the European Union.

In 1993, all imports of rice were from other Asian countries; namely, Viet Nam, India, Pakistan, Thailand, Indonesia and Myanmar. However, Sri Lanka is about 85 to 90 per cent self-sufficient in rice production. It is expected that Sri Lanka will return to full self-sufficiency in rice, once internal political problems are resolved.

Almost all imports of palm oil are from Malaysia. Wheat and wheat flour are mostly imported from the United States.

Over the next few years, it is expected that imports of rice and sugar should decline as local production improves. Wheat and wheat flour and milk powder will continue to be imported for the foreseeable future.

5. Conclusion

Despite gains made in the industrial and service sectors, agricultural trade is likely to remain important for the Sri Lankan economy. If local production increases, then larger proportions should be available for export and some import substitution should also occur.

The Asian and Pacific region has been an increasingly important destination for agricultural exports, and it has a significant role as a source of sugar, rice and palm oil imports into Sri Lanka. However, West and South Asia have had a greater role in Sri Lanka's agricultural trade than East and South-East Asia. There appears to be a great potential for expanding Sri Lanka's agricultural trade with East and South-East Asia. The exact dimensions of this potential requires additional research with a focus on possible constraints and identification of complementarities.

At this time, few complementarities seem evident between Sri Lanka and South-East Asia, since they produce and export products that are identical or similar. However, increased affluence in East and South-East Asia may lead to changes in their agricultural sectors or changes in their consumers' tastes.

One area for research is the potential market in East and South-East Asia for CTC teas. The existing market in these two subregions is for green teas and standard teas. In developed countries of North America and Europe, CTC teas are considered as "teas of the future" to be used more and more in tea bags. A demand for CTC tea does exist in Pakistan, although the standard types of tea are still preferred in West Asian markets.

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K. TRENDS AND FUTURE DIRECTION OF JAPANESE AGRICULTURAL TRADE¹

Japan exports almost no agricultural products, while it imports almost all categories of agricultural products in quite large quantities, except for a few restricted items. The share of agriculture in Japan's gross domestic product (GDP) is extremely small, and it has been a declining sector for many years. The agriculture sector is expected to decline even further in the future, implying that Japan could provide an even larger market for agricultural exports from other countries in the years to come.

In view of such future prospects, more liberalized policies towards agricultural imports may have to be considered. As exemplified by the liberalization of policies on imports of beef and oranges, prices were lowered when tariff and import quotas were lifted, which in turn, adversely affected domestic production of beef and mandarin oranges. The chain of effects resulted in expanded imports of these items. Thus far, Japan has liberalized policies for a fairly wide range of agricultural products.

One of the last products for liberalized import policies will undoubtedly be rice. Japanese rice production was poor in 1993, leading the Japanese Government to import very large quantities of rice from the United States of America, China, Thailand and Australia. This drove up the prices of internationally-traded rice and caused financial difficulties for established rice-importing countries and directly affected rice consumers in Thailand.

In line with the agreements reached in the Uruguay Round, Japan agreed to open its rice market by importing 4 to 8 per cent of the total rice consumption starting in 1995. In the future, rice imports will be liberalized by changing to tariffs which will then be lowered gradually. It is expected that the quantity and direction of Japan's rice imports will have a substantial effect on international agricultural markets.

This paper outlines possible changes in Japanese agricultural policy and their impact on Japan's agricultural trade. This includes a review of past agricultural trade patterns, a discussion of some important factors which have induced changes in agricultural trade and a consideration of possible future directions for Japanese agricultural trade.

¹ Based on a paper presented by Professor Shigeyuki Abe, Research Institute for Economics and Business Administration, Kobe University, Kobe, Japan.

1. Recent patterns in Japan's agricultural sector

Agricultural trade takes place when domestic demand and supply do not match. When excess demand exists, a country will then import such products. Table 1 shows the main characteristics of Japan's agricultural sector and the share of agricultural trade in the national economy.

Table 1. Basic characteristics of the agricultural sector, various years

| | 1975 | 1980 | 1985 | 1990 | 1991 |
|--|-------|-------|-------|-------|-------|
| Cultivated area (thousand hectares) | 5 755 | 5 636 | 5 636 | 5 349 | 5 262 |
| Number of agricultural families (million) | 4.89 | 4.61 | 4.33 | 3.78 | 3.74 |
| Number of agricultural farmers (million) | 5.88 | 5.06 | 4.44 | 3.92 | 3.80 |
| Cereal self-sufficiency ratio for human consumption ^a | 77 | 75 | 74 | 67 | 65 |
| Cereal self-sufficiency ratio for animal feed ^a | | 33 | 31 | 30 | 29 |
| Agriculture's share of GDP (percentage) | 3.8 | 2.4 | 2.4 | 1.8 | 1.7 |
| Agricultural exports as share of total exports (percentage) | 0.7 | 0.7 | 0.7 | 0.4 | 0.4 |
| Agricultural imports as share of total imports (percentage) | 16.7 | 10.6 | 10.6 | 11.1 | 11.6 |

Source: Ministry of Agriculture, Forestry and Fisheries, *White Paper on Agriculture, (Nogyo Hakusho)*, Tokyo, 1994.

Note: ^a Ratio is on a scale from 1 to 100, with 100 indicating total self-sufficiency.

The importance of agriculture has diminished in Japan since about 1960, when the period of high economic growth began. This is indicated by the decline in the percentage contribution of agriculture to GDP, from 9 per cent share in 1960 to 1.6 per cent in 1992. The number of farm workers has also decreased, while their average age has increased, with about one third of farm workers being 65 years or older in 1992. Agriculture's declining contribution to the Japanese economy indicates Japan's general capacity to import agricultural products.

Table 2 presents another way to measure and assess recent patterns in terms of potential for agricultural trade. The table shows self-sufficiency ratios for major food items as well as an overall measure of self-sufficiency in terms of calories and in terms of the major cereals for human consumption.

The overall Japanese self-sufficiency ratio (the proportion of domestic supply to total supply in caloric terms) was down to 47 per cent in 1990. The Organization for Economic Cooperation and Development (OECD) made comparable estimates for other developed countries OECD and reported 143 per cent for France, 113 per cent for the

United States, 94 per cent for Germany, 73 per cent for the United Kingdom and 65 per cent for Switzerland.²

Table 2. Japan's self-sufficiency ratios for major food items, various years

| | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 |
|-----------------------------------|------|------|------|------|------|------|------|
| Rice | 102 | 95 | 106 | 110 | 100 | 107 | 100 |
| Wheat | 39 | 28 | 9 | 4 | 10 | 14 | 15 |
| Beans | 44 | 25 | 13 | 9 | 7 | 8 | 8 |
| Soybeans | 28 | 11 | 4 | 4 | 4 | 5 | 5 |
| Vegetables | 100 | 100 | 99 | 99 | 97 | 95 | 91 |
| Fruits | 100 | 90 | 84 | 84 | 81 | 77 | 63 |
| Eggs | 101 | 100 | 97 | 97 | 98 | 98 | 98 |
| Milk | 89 | 86 | 89 | 81 | 82 | 85 | 78 |
| Meat | 92 | 90 | 89 | 77 | 81 | 81 | 70 |
| Fish | 110 | 109 | 108 | 102 | 104 | 96 | 86 |
| Self-sufficiency in calorie terms | | | 73 | 54 | 52 | 49 | 47 |
| Self-sufficiency in major cereals | | | 86 | 77 | 74 | 69 | 67 |

Source: Ministry of Agriculture, Forestry and Fisheries, *Food Demand and Supply (Shokuryo Jukyu Hyou)*.

The low self-sufficiency rate for Japan was partly caused by changes in demand and a lower calorie intake for rice. As table 2 shows, the self-sufficiency rates have been low, except for rice and vegetables, which resulted in a drop in the overall self-sufficiency rate. Japan requires about 40 million tons of cereal for human consumption every year. It is not possible to supply this amount domestically due to high production costs and shortages of arable land.

2. Trends in agricultural trade

(a) Types of products traded

Japanese agricultural trade is large relative to its population size. Compared with a share of only 2.3 per cent of the world's population, Japan's share of world agricultural imports (including meats) was 8.4 per cent in 1990, and this has been increasing annually. The expansion of agricultural trade over the past decade was mainly achieved because of increased imports of meat, maize (for animal feed) and soybeans. Imports of unprocessed agricultural products, such as cereals and soybeans, have been decreasing since 1985. Imports of processed foods, such as chocolate, frozen vegetables, beef, pork, chicken, orange juice and mineral water, have been increasing. Although fresh fruits,

² OECD, *Food Consumption Statistics*, Paris, OECD, 1990.

such as mandarin oranges, Korean pears and cherries account for a small share of agricultural imports, the amounts imported have been increasing over the years.

Table 3 gives a general picture of trends in Japan's agricultural imports in the major categories of products from 1970 to 1993. The table shows that grains and sugar are the two most significant categories in terms of value. At the same time, the category of fancy foods has shown impressive growth during the period up to 1992. This can be compared to statistical trends for Japanese exports in the same categories for 1993 as shown in table 4. Agricultural exports were less than 1 per cent of total Japanese exports. The total value of Japan's agricultural exports was almost 6 per cent of the value of agricultural imports. It is clear that exports are a very minor, almost negligible part of Japan's agricultural trade.

**Table 3. Value of agricultural imports by main categories, various years
(100 million yen)**

| | 1970 | 1980 | 1991 | 1992 | 1993 |
|--|--------|--------|--------|--------|--------|
| Grains | 3 766 | 9 987 | 5 872 | 5 927 | 5 034 |
| Fruits, nuts etc. | 852 | 1 894 | 3 316 | 3 410 | 2 912 |
| Vegetables | 213 | 1 078 | 258 | 2 450 | 2 506 |
| Fancy foods | 687 | 3 758 | 5 244 | 4 949 | 4 359 |
| Vegetable oils and fats | 2 135 | 4 927 | 3 269 | 3 293 | 3 067 |
| Sugar | 3 060 | 7 048 | 7 707 | 7 277 | 6 465 |
| Rubber | .. | .. | .. | 752 | 637 |
| Sub-total | 10 713 | 28 692 | 25 666 | 28 058 | 24 980 |
| Total agricultural products ^a | 11 934 | 31 800 | 28 579 | 28 077 | 24 993 |

Source: Ministry of Agriculture, Forestry and Fisheries, *Monthly Statistical Report on Agriculture and Fishery Products (Norinsuisan Tokei Geppo)*, October, 1994.

Note: Two dots (..) indicate that data are not available.

^a Total includes the category of "other agricultural products".

In 1992, Japan was the largest net importer of agricultural products, with imports valued at about \$US 30 billion. The major categories, as shown in table 3, were sugar, cereals, fruits and nuts and vegetable oils.

The situation of an appreciating currency, referred to as the high yen, or *Yendaka*, caused greater disparities between domestic and international prices. Reductions in trade barriers made it more rational to import agricultural products.

(b) Origins of agricultural imports

Table 5 shows the main countries from which Japan imports major agricultural products. The United States has been the largest supplier for wheat, corn, grain sorghum and soybeans.

Table 4. Value of agricultural exports by main categories, 1993
(100 million yen)

| | 1993 | Exports as a share of imports (percentage) |
|-----------------------------|-------|--|
| Grains | 149.6 | 3.0 |
| Fruits, nuts etc. | 59.3 | 2.0 |
| Vegetables | 61.2 | 2.4 |
| Fancy foods | 196.7 | 4.5 |
| Vegetable oils and fats | 27.2 | 0.9 |
| Sugar | 503.1 | 7.8 |
| Rubber | 0.5 | 0.1 |
| Total agricultural products | 997.6 | |

Source: Ministry of Agriculture, Forestry and Fisheries, *Monthly Statistical Report on Agriculture and Fishery Products (Norinsuisan Tokei Geppo)*, October, 1994.

Table 5. Major sources for imports of agricultural products, various years
(percentage share by volume)

| | | 1970 | 1975 | 1980 | 1985 | 1991 | 1992 |
|---------------|---------------|------|------|------|------|------|------|
| Wheat | United States | 55.2 | 53.1 | 59.0 | 58.7 | 57.6 | 57.4 |
| | Canada | 25.5 | 26.1 | 23.6 | 22.4 | 24.0 | 25.9 |
| | Australia | 19.3 | 20.8 | 17.4 | 18.9 | 18.3 | 16.8 |
| Corn | United States | 73.0 | 71.7 | 91.0 | 77.1 | 84.4 | 82.5 |
| | China | | 1.1 | | 18.1 | 10.9 | 13.1 |
| Grain sorghum | United States | 57.7 | 53.0 | 90.4 | 53.7 | 51.8 | 56.0 |
| | Argentina | 34.0 | 22.0 | 1.9 | 26.4 | 33.9 | 28.2 |
| | China | | 0.3 | | 3.1 | 9.1 | 9.6 |
| Soybeans | United States | 91.0 | 91.2 | 96.0 | 88.5 | 85.9 | 82.5 |
| | Brazil | | 1.3 | 0.8 | 4.5 | 6.2 | 6.2 |
| | China | 9.0 | 7.2 | 2.3 | 5.9 | 6.4 | 5.5 |

Source: Ministry of Finance, *Statistics of Japanese Trade, (Nihon Boeki Tokei I)*, 1993.

Other suppliers are Argentina, Australia, Brazil, Canada and China for the four major agricultural products, especially cereals and soybeans. However, the overall picture for these particular products shows the dominant position of imports from the United States.

There have been some changes in the origin of certain imports during recent years. For example, China has become an important supplier of corn imports to Japan

since 1985. China has also been increasing its share as a supplier of grain sorghum to Japan. Several Asian and Pacific countries are the major suppliers of certain agricultural products, such as the Philippines as a source for bananas, China for tea, Thailand and Malaysia for natural rubber.

3. Factors affecting trade patterns

A number of factors have an influence on trade patterns for agricultural products imported by Japan. The most important factor in the case of Japan is policies of the government that set the level and forms of protection, since domestic agriculture is heavily protected. Demand and supply balances for domestic agricultural products are also important factors. Another factor is related to changes in consumer tastes which will affect demand; while cost differences will affect livestock production. The domestic livestock which are fed imported cereals is another factor that can influence the level of such imports.

Four factors that influence demand for agricultural imports will be considered in this section. There is also a discussion of the recent experience involving the Japanese Government's liberalization of beef and orange imports in the early 1990s.

(a) Tariffs and quantitative restrictions

It is possible that Japan could import more agricultural products if tariffs and quantitative (quota) restrictions are lifted. The differences between international prices and domestic prices are enormous when tariff rates are set at high levels. In the case of rice, the domestic prices are eight times higher than the international price. When tariff restrictions are removed, the price gap can be expected to get smaller. Domestic production will obviously be directly affected, usually in an adverse way, but imports can be expected to grow.

One indicator of excess domestic demand is the self-sufficiency rate. A high self-sufficiency rate means a low import ratio. Self-sufficiency rates for many agricultural products in Japan are expected to keep going down. This suggests that agricultural items with high self-sufficiency rates at the present time can, in fact, be expected to achieve large quantity imports in the future.

(b) Changes in consumer tastes

Rising levels of income since 1960 have coincided with a progressive change in the Japanese diet to more western-style food, away from the traditional rice-centered Japanese diet. Japanese diets now include meats, milk, dairy products and a wide variety of fruits. The amounts consumed have also increased as they have changed. Domestic production of certain foodstuffs has changed accordingly. However, consumption of some items such as rice, mandarin oranges, raw milk and hen's eggs, has levelled off and these items are now in a general state of overproduction.

(c) Secondary demand in the livestock and other industries

Imports of agricultural products are also affected by industries that use agricultural products as inputs. A typical example is the livestock industry. The Japanese livestock business is very dependent on imports of cereal for animal feed. For example, the share of imported feed in meat production is 50 per cent for pork, 53 per cent for egg production, 67 per cent for broilers. Total meat consumption has been rising in Japan, and imports have complemented, not competed with, domestic meat supplies. However, if domestic production of meats should be reduced substantially, then imports of cereal for animal feed will be affected. Similarly, imports of beer will affect imports of inputs for beer production, including hops; imports of sake and arare will affect rice imports; and imports of confectionery will affect sugar imports.

(d) Experiences from the liberalization of orange and beef imports

Until the first half of the 1960s, Japan had recorded trade deficits with the United States. Since the 1960s, Japan has had balance of payments surpluses, which has caused ongoing trade friction. Many different products were subject to various bilateral negotiations and agreements between the United States and Japan. One significant area for negotiation covered twelve agricultural items, including beef, citrus fruits and rice, for which the United States wanted import liberalization for easier access in the Japanese market.

Imports of beef and oranges were liberalized in 1991 and orange juice in 1992. Such liberalization had a substantial impact on Japanese domestic markets through lower domestic cultivation and production. Table 6 shows how the import volumes for beef and oranges increased dramatically while the self-sufficiency ratio went down substantially. Japan's self-sufficiency ratio in beef is predicted to decline to the 30 per cent level.

**Table 6. Imports and self-sufficiency ratio for beef and oranges, various years
(hundred thousand tons)**

| | | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 |
|---------|--------------------------------------|------|------|------|------|------|------|
| Beef | Import volume | 1.1 | 3.3 | 9.1 | 17.2 | 22.5 | 54.9 |
| | Self-sufficiency ratio (per cent) | 94.7 | 89.5 | 78.6 | 71.4 | 71.1 | 50.2 |
| Oranges | Import volume | 0.1 | 0.4 | 2.2 | 7.1 | 11.2 | 14.5 |
| | Self-sufficiency ratio (per cent) | 99.9 | 99.8 | 99.6 | 93.4 | 91.4 | 84.6 |

Source: Mitoshi Yamaguchi, *New Theory of Agricultural Economics, (Atarashii Nogyo Keizairon)*, Tokyo, Yuhikaku, 1994.

Import quotas for beef and oranges had been increasing yearly since 1972 and provided the basis for the Tokyo Round of GATT negotiations. In 1988, Japan accepted a

GATT decision covering twelve agricultural products and agreed to liberalize imports of beef and oranges from 1 April 1991. Quotas from 1988 to 1990 were increased steadily for both beef and oranges. As the volumes imported under the quotas were increasing, the self-sufficiency ratios went down, even as domestic production increased in the case of beef. The price of beef also declined. Per capita beef consumption rose rapidly after liberalization. In the same period, consumption of pork and chicken remained relatively stable; liberalization made consumers substitute beef for chicken and pork.

The self-sufficiency ratio for oranges has declined as a result of import liberalization, but not as dramatically as the case for beef. There had been overproduction of mandarin oranges before liberalization, but government policy since the late 1970s has sought to discourage production. To a certain extent, it appears that Japanese consumers do not readily substitute imported oranges for domestic mandarin oranges or other citrus fruits. Nevertheless, by 1993 Japan was importing 165,000 tons of oranges. This can be compared with 237,000 tons of grapefruit imports in 1993.³

4. Future potential and direction of agricultural trade flows

The future potential and direction of agricultural trade flows are likely to be affected by several of the factors that were identified as influencing recent trends. Changing consumer tastes, for example, can be expected to influence increased imports of fresh vegetables and fruits. In addition, agriculture is a declining industry in Japan such that the products with high self-sufficiency ratios might be expected to have lower ratios, which implies a potential for expansion of imports. As was shown in table 2, rice, vegetables and fruits might be expected to have lower self-sufficiency ratios. As levels of protection for beef and other meats become much weaker in the future, imports are expected to increase. If domestic demand for meat should remain about the same, imported meats will substitute for domestically-produced meats. This implies the possibility of reduced demand for imported cereals used as animal feed.

The most important factor affecting the future potential for agricultural imports is government policies that determine the tariff and import quota reduction schedule. As a result of the multilateral agreement reached in the Uruguay Round, the Japanese Government has agreed to liberalize imports of all agricultural products which had been restricted through quantitative (quota) controls and government trading. Tariffs will be adjusted for items such as dairy products, starch and wheat. The agreement will be implemented from 1995 to 2000.

Rice was one exception under the agreement's import liberalization policies. A minimum amount for rice imports would be set at about 4 to 8 per cent of consumption over a time during which a six-year grace period for tariffication was approved. Japan has agreed to import a minimum of 379,000 tons of rice in 1995, which represents 4 per cent of consumption in the base year. By 2000, the quantity of imported rice would be

³ Ministry of Agriculture, Forestry and Fisheries, *Food Demand and Supply* (Shokuryo Jukyuu Hyo) and Ministry of Finance, *Monthly Trade Statistics of Japan*.

increased to 758,000 tons, 8 per cent of base year consumption. Tariffication would be waived for six years by allowing such minimum access. The Government's Food Agency would subsidize the price difference between domestic and international prices up to 292 yen per kilogram, which can be compared with the current Government selling price of standard rice of 302 yen per kilogram. This implies that rice farmers can continue to produce under the protection of government. In the case of rice, therefore, the real effects of liberalization will be realized only after tariffication.

Tables 7 and 8 present the results of the Uruguay Round agreements which Japan would accept for heavily protected agricultural products and for major agricultural and food items. For example, the tariff equivalent for wheat is 65 yen for the base period and would be lowered by 15 per cent over the period, in cases where the amount exceeds the current access amount. For the current access amount, as it is now implemented, the government's Food Agency would collect the difference between international and domestic prices and use it to adjust domestic selling prices. The amount of imports allowed would be expanded from 5.56 million tons in 1995 to 5.74 million tons in 2000. Table 8 shows the reductions in ad valorem and specific tariffs for major imported food items.

The question of what would happen when Japan liberalizes rice imports was studied by two university research groups who ran simulation models for the case of tariffication and for minimum access plans. The simulations were, however, different from the actual plan worked out in the GATT negotiations of the Uruguay Round.

Seisaku Koso Forum (Policy Planning Forum, led by Yujiro Hayami of Aoyama Gakuin University) simulation exercises showed that the amount of rice imports would be limited to 0.7 to 0.8 million tons. There would be only a slight impact on domestic producers if an appropriate initial tariff was introduced with only 15 per cent reduction during the specified time period. If domestic farmers could produce rice more efficiently, then prices could be reduced by 2.5 per cent annually.

Kome Seisaku Kenkyukai (Rice Policy Research Group, led by Professor Morishima Takeshi of Tokyo University) ran a simulation on the amount of rice imports showing that imports would account for 30 per cent of consumption, which was about 3 million tons. This was expected to completely damage rice production in Japan. Their simulated scenario indicated that in the initial year a tariff of 700 per cent would be levied and it would be lowered by 36 per cent by the end of sixth year. Supplies in the first year would increase sharply and the domestic price of rice would be cut in half. From the second year, domestic production would decrease and prices would rise again.

The sources for rice imports under liberalization also raise significant questions. Possible answers might be found by looking at recent experience involving import allocations. The Ministry of Agriculture imported 2.65 million tons of rice in 1993 and 1994. In 1993, the original plan was to import 30 per cent of requirements from the three main sources (Thailand, China and the United States) and 10 per cent from Australia. The actual result for 1993 was that 41 per cent of rice imports were from China, 34 per cent from Thailand, 21 per cent from the United States and 4 per cent from Australia.

Table 7. Agreement in the Uruguay Round on heavily-protected agricultural products

| | Current access ^a (thousand tons) | | Price difference (yen/kilogram) profit accruing from import | | | Other access ^a (yen/kilogram) tariff equivalents | | |
|--------------------|--|---------|--|------|------|--|-------|-------|
| | 1995 | 2000 | Base period | 1995 | 2000 | Base period | 1995 | 2000 |
| Wheat ^b | 5 565.0 | 5 740.0 | 55 | 51.7 | 45.2 | 65 | 63 | 55 |
| Rye ^b | 1 326.5 | 1 369.0 | 34 | 33.1 | 28.6 | 46 | 45 | 39 |
| Starch | 157 | | | | | 140 | 137 | 119 |
| Miscellaneous | 120 | | | | | 417 | 407 | 354 |
| Beans | | | | | | | | |
| Peanuts | 75 | | | | | 726 | 708 | 617 |
| Kannyaku | .267 | | | | | 3 289 | 3 207 | 2 796 |
| Cocoon | .798 | | | | | 2 968 | 2 894 | 2 523 |
| Silk | | | | | | 8 209 | 8 004 | 6 978 |

Source: Ministry of Agriculture, Forestry and Fisheries, *White Paper on Agriculture, (Nogyo Hakusho)*, Tokyo, 1994.

Notes: Profits accruing from imports and tariff equivalent are for 1 kilogram. Base period is 1986 to 1988.

^a Current access is the amount of base period imports for the restricted items, either government trading or import quota items. Other access is the amount of imports exceeding current access.

^b Items subject to government trading.

Table 8. Agreed tariff reductions for major agricultural products

| | Current tariff rate (per cent) | Tariff rate in 2000 (per cent) |
|------------------------|-----------------------------------|-----------------------------------|
| Beef | 50 | 39 |
| Fresh oranges | | |
| (June-November) | 20 | 16 |
| (December-May) | 40 | 32 |
| Natural cheese | 35 | 30 |
| Ice cream | 28 | 21 |
| Candies | 35 | 25 |
| Macaroni and spaghetti | 40 yen/kilogram | 30 yen/kilogram |
| Biscuits | 24 | 15 |
| Soybeans | 17 yen/kilogram | 10.9 yen/kilogram |

Source: Same as table 7.

One potential problem for future rice imports is that Japanese consumers generally do not like the taste of so-called foreign rice. After its experience importing rice from a few countries, the government should consider importing rice from other sources as well. Alternative uses for imported rice could be considered besides sale in the Japanese market. One alternative that the Government was reported to be considering would be to import rice from all sources and then send it elsewhere as the Japanese government's development aid.⁴ This might prevent the creation of a rice surplus in Japan and promote food as a form of agricultural aid to developing nations.

The creation of a rice surplus in the future is possible, because Japan agreed in the Uruguay Round to import a minimum of 379,000 tons of rice in 1995. The amount of imported rice would be raised to 758,000 tons in 2000. When the domestic harvest is also abundant, the rice surplus could be created. According to a proposal by the Ministry of Agriculture, Forestry and Fisheries, part of the imported rice and some domestic rice would be set aside for at least one year. Part of this stored rice would then be sold on the domestic market as whole grain, in processed foods or as animal feed. The rest would be donated as aid to other countries. The amount of imported rice to be sent as aid would depend on domestic demand and supply. Some private organizations already donate surplus imported rice by redirecting shipments to other nations.

However, the Foreign Ministry has voiced concern about the Government's rice aid plan. The Foreign Ministry says that many African countries which would receive such Japanese aid are markets that already purchase rice from the United States, Australia and Thailand. This set of rice exporters might consider the Japan's rice aid would have a negative effect on their international sales of rice.

⁴ *Asahi Evening News*, 17 October 1994.

In the early 1980s, Japan solved a problem of surplus domestic rice by establishing rice export contracts under deferred payments. Some grain was also donated. Japanese farm groups, who have opposed liberalization of the domestic rice market, have called on the Government to send all imported rice as aid to other nations.

5. Conclusion

A review of recent trends and future prospects for Japan's agricultural trade must begin with an understanding of how domestic agricultural production is heavily protected. Liberalization of import policies can be expected to lead to more agricultural trade, especially imports of agricultural products and food items. In general, high self-sufficiency ratios mean heavy protection in the Japanese context. Japan should be able to import relatively more quantities for heavily protected products, such as rice. However, deciding how much to import and from which sources depends upon political as well as economic factors. The experience with liberalization of beef and orange imports indicates that the future could be bright for agricultural trade with Japan, although Japan's domestic agriculture sector would be seriously affected.

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L. PROSPECTS FOR GROWTH IN AUSTRALIA'S AGRICULTURAL TRADE WITHIN ASIA AND THE PACIFIC¹

The member countries and areas of ESCAP comprise a group that is economically, climatically and geographically diverse; including least developed and island developing countries, less developed countries, rapidly growing newly industrializing economies and slower growing Organization for Economic Cooperation and Development (OECD) members. There is a wide variation in agricultural production patterns, from major wheat, rice and beef producers and exporters to countries trying to maintain policies of food self-sufficiency.

Australia is a developed member of ESCAP. Australia's location and history has helped determine some of its major trading partners in agricultural products, as have the subsidization policies of competing exporters. Many potential export markets for Australia's agricultural products have grown in output and value between 1983-85 and 1991-93. It is likely that economic growth will continue to rise rapidly in the next five to ten years, expanding demand for and trade in food, raw materials and consumer products. This growth and expansion, together with the further development of trading relationships among Asian and Pacific countries, should give Australia the potential to benefit from continued trade expansion in the region.

Many of these potential benefits are the particular result of recent summit decisions by members of Asia and Pacific Economic Cooperation (APEC) to liberalize trade in the region during the period up to the year 2020. However, the magnitude of these benefits will depend in part on the extent to which Australian exporters can take advantage of changes in Asian demand for the goods and services for which Australia has a comparative advantage in production.

This paper concentrates on Australian trade patterns with Asian and Pacific countries and areas. Most of Australia's trade is with countries and areas in East Asia, South-East Asia and the Pacific islands. However, it is important to consider the potential for increased trade and new trade opportunities with countries in South Asia. The discussion focuses on Australia's recent and future trading patterns with other countries of the region. An important element of trade expansion will be based on consideration of how food trade patterns change as each country moves to the next stage in its economic development. However, it is equally important to consider how future trade will be affected by the degree of trade liberalization within the region.

¹ Based on a paper presented by Rick Cannan, Kris Tarchalski, Peter Connell and Paul Morris, Australian Bureau of Agricultural and Resource Economics (ABARE), Canberra.

1. Australia's agricultural trade within the Asian and Pacific region

The growth of Australia's agricultural exports over the past ten years reflects the comparative advantage of Australian crop farmers and broad-acre grazing enterprises over other agricultural producers. Australia also has a location advantage in supplying the rest of the Asian and Pacific region for many agricultural products. Production and marketing strategies have been developed to meet Asian and Pacific market requirements or to establish a market niche for quality products.

The changing composition of demand for Australia's agricultural exports reflects the relative impact of tastes, incomes and technological changes in the economies of other Asian and Pacific countries and areas, as well as similar changes in the rest of the world. Strategic subsidies have also been used by some nations and trading blocs to displace Australian agricultural products from particular markets, especially in years when the subsidizing or importing country has had good harvests.

Australia's recent patterns of trade have reflected movement away from countries outside the region and movement towards Asian and Pacific neighbours who are nearby. Despite the large population, increasing incomes and growing food demand in South Asia, little progress has been made towards establishing markets for Australian exports in that subregion.

Among ESCAP members, Japan and the group of ASEAN-member countries have been Australia's most important customers for agricultural products. ASEAN has grown in importance as a buyer of Australian agricultural products over the past decade as output of fibre products has expanded through technological improvements in the importing countries. Moreover, support programmes aimed at increasing farm incomes in some ASEAN-member countries have created demand for some Australian agricultural products such as feedstuff and live cattle.

On average in the period from 1991 to 1993, Australian exports of food and fibre products (excluding grains and sugar) to the region exceeded \$A 6.6 billion, based on data compiled in the SITC (3) classification system. This was 61 per cent of the yearly export values, as shown in tables 1 and 2.

The values by destination for Australia's wheat, the main grain export and for raw sugar exports are unavailable owing to confidentiality requirements. Nevertheless, the Australian Bureau of Agricultural and Resource Economics (ABARE) has estimated the value of wheat and sugar exports by destination based on the average unit export value and physical exports in fiscal years. This result is shown in table 3. The wheat and sugar estimates cannot be directly compared or discussed with the export values for other commodities. For fiscal years 1990-1991 to 1992-1993, ABARE estimates that out of a total value of \$A 2.6 billion in wheat and sugar exports, 57 per cent was exported to Asian and Pacific countries and areas. These may overestimate the export values in low-priced markets, such as wheat to China, and underestimate export values to higher-priced markets such as Japan.

Table 1. Australian food exports to selected Asian and Pacific destinations, 1983-1985 and 1991-1993^a

| | Live cattle | | Meat | | Animal feed | |
|----------------------------------|--------------|--------------|-----------------|-----------------|---------------|---------------|
| | 1983-1985 | 1991-1993 | 1983-1985 | 1991-1993 | 1983-1985 | 1991-1993 |
| East Asia | 13.06 | 17.05 | 516.18 | 1,712.85 | 34.63 | 211.78 |
| Japan | 6.72 | 16.80 | 395.99 | 1,299.79 | 20.73 | 178.90 |
| Republic of Korea | 5.70 | .. | 48.60 | 223.06 | 3.99 | 12.16 |
| Taiwan Province of China | 0.56 | 0.17 | 62.05 | 153.42 | 8.81 | 15.07 |
| China | 0.05 | 0.08 | 0.03 | 4.61 | 0.02 | 0.26 |
| Hong Kong | 0.03 | .. | 9.50 | 31.97 | 1.08 | 5.39 |
| ASEAN | 11.84 | 62.32 | 41.96 | 79.97 | 6.48 | 30.25 |
| Brunei Darussalam | 2.82 | 4.56 | 0.89 | 1.76 | 0.12 | 0.26 |
| Indonesia | 3.20 | 14.59 | 2.54 | 11.55 | 1.51 | 12.99 |
| Malaysia | 4.26 | 9.97 | 16.40 | 28.73 | 1.17 | 6.80 |
| Philippines | 0.75 | 25.21 | 2.60 | 9.30 | 2.04 | 6.06 |
| Singapore | 0.73 | 0.85 | 19.49 | 23.56 | 1.55 | 2.95 |
| Thailand | 0.08 | 6.84 | 0.04 | 2.07 | 0.09 | 1.19 |
| South Asia | 0.12 | 0.34 | 0.13 | 1.03 | 0.32 | 1.81 |
| Bangladesh | .. | 0.18 | .. | 0.04 | .. | .. |
| India | 0.04 | 0.02 | 0.02 | 0.01 | 0.28 | 0.57 |
| Maldives | .. | .. | 0.02 | 0.18 | .. | .. |
| Pakistan | 0.05 | 0.08 | .. | 0.02 | 0.01 | 1.12 |
| Sri Lanka | 0.02 | 0.07 | 0.09 | 0.78 | 0.04 | 0.12 |
| Indo-China | .. | .. | .. | 0.11 | .. | 0.04 |
| Cambodia | .. | .. | .. | 0.09 | .. | .. |
| Lao People's Democratic Republic | .. | .. | .. | .. | .. | .. |
| Viet Nam | .. | .. | .. | 0.02 | .. | 0.04 |
| Other | 0.12 | 0.33 | 7.81 | 31.94 | 1.52 | 22.86 |
| Afghanistan | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. |
| Islamic Republic of Iran | .. | .. | 7.36 | 15.05 | .. | 0.06 |
| Mongolia | .. | .. | .. | .. | .. | .. |
| Myanmar | 0.03 | 0.09 | .. | .. | .. | .. |
| New Zealand | 0.09 | 0.23 | 0.45 | 16.89 | 1.52 | 22.80 |
| Subtotal | 25.14 | 80.04 | 566.08 | 1,822.90 | 42.95 | 266.77 |
| Other destinations | 4.95 | 3.28 | 841.85 | 1,755.14 | 64.00 | 112.23 |
| Total World | 30.08 | 83.32 | 1,407.95 | 3,578.05 | 106.95 | 378.96 |

Table 1. (continued)

| | Dairy products | | Fish, crustaceans and molluscs | | Fresh, chilled and frozen fruit and vegetables | |
|----------------------------------|----------------|-----------------|--------------------------------|---------------|--|---------------|
| | 1983-1985 | 1991-1993 | 1983-1985 | 1991-1993 | 1983-1985 | 1991-1993 |
| East Asia | 103.75 | 306.04 | 231.78 | 664.09 | 22.69 | 109.69 |
| Japan | 46.02 | 184.15 | 199.63 | 397.78 | 7.60 | 43.00 |
| Republic of Korea | 0.89 | 6.01 | 0.34 | 3.51 | .. | 0.48 |
| Taiwan Province of China | 41.03 | 67.21 | 4.15 | 144.56 | 1.86 | 8.70 |
| China | 0.83 | 2.67 | 0.02 | 1.44 | 0.13 | 0.20 |
| Hong Kong | 14.98 | 46.00 | 27.64 | 116.80 | 13.10 | 57.31 |
| ASEAN | 111.26 | 396.97 | 11.40 | 38.72 | 47.69 | 163.94 |
| Brunei Darussalam | 0.12 | 0.26 | 0.02 | 0.13 | 1.11 | 1.53 |
| Indonesia | 16.25 | 35.74 | 0.20 | 0.73 | 1.25 | 19.99 |
| Malaysia | 33.06 | 94.81 | 0.72 | 4.89 | 16.04 | 50.70 |
| Philippines | 25.76 | 121.80 | 0.14 | 0.17 | 0.55 | 3.86 |
| Singapore | 22.07 | 82.06 | 10.04 | 25.98 | 28.54 | 86.61 |
| Thailand | 14.00 | 62.20 | 0.28 | 6.81 | 0.19 | 1.25 |
| South Asia | 7.79 | 18.70 | .. | 0.03 | 6.56 | 64.87 |
| Bangladesh | 2.01 | 12.48 | .. | .. | 0.01 | 17.97 |
| India | 0.59 | 0.38 | .. | 0.01 | 6.01 | 22.00 |
| Maldives | 0.03 | 0.03 | .. | .. | .. | 0.02 |
| Nepal | 0.33 | 0.04 | .. | .. | .. | 0.01 |
| Pakistan | 1.47 | 0.07 | .. | .. | .. | 17.40 |
| Sri Lanka | 3.36 | 5.70 | .. | 0.01 | 0.53 | 7.47 |
| Indo-China | 0.23 | 2.23 | .. | 0.05 | .. | 0.17 |
| Cambodia | .. | 0.08 | .. | 0.01 | .. | 0.03 |
| Lao People's Democratic Republic | .. | .. | .. | .. | .. | .. |
| Viet Nam | 0.23 | 2.15 | .. | 0.04 | .. | 0.15 |
| Other | 2.27 | 5.80 | 3.94 | 3.29 | 13.35 | 35.39 |
| Afghanistan | .. | .. | .. | .. | .. | 0.01 |
| Bhutan | .. | .. | .. | .. | 0.01 | .. |
| Islamic Republic of Iran | 1.15 | 1.00 | 0.01 | 0.01 | .. | 3.53 |
| Myanmar | 0.06 | 0.02 | .. | .. | .. | .. |
| New Zealand | 1.06 | 4.77 | 3.93 | 3.28 | 13.34 | 31.85 |
| Subtotal | 356.29 | 7,293.63 | 247.12 | 706.17 | 90.28 | 374.07 |
| Other destinations | 156.12 | 215.51 | 169.87 | 197.62 | 101.57 | 254.54 |
| Total World | 381.42 | 945.14 | 416.99 | 903.79 | 191.85 | 628.61 |

Table 1. (continued)

| | Other food products | | Total of listed items | |
|----------------------------------|---------------------|---------------|-----------------------|-----------------|
| | 1983-1985 | 1991-1993 | 1983-1985 | 1991-1993 |
| East Asia | 25.80 | 109.11 | 947.89 | 3,130.61 |
| Japan | 15.49 | 40.13 | 692.18 | 2,160.55 |
| Republic of Korea | 0.22 | 7.68 | 59.74 | 252.90 |
| Taiwan Province of China | 0.41 | 7.60 | 118.87 | 396.74 |
| China | 0.58 | 2.37 | 1.65 | 11.63 |
| Hong Kong | 9.11 | 51.33 | 75.44 | 308.80 |
| ASEAN | 27.15 | 48.67 | 257.78 | 817.84 |
| Brunei Darussalam | 0.23 | 0.80 | 5.31 | 9.30 |
| Indonesia | 2.69 | 7.14 | 27.65 | 103.03 |
| Malaysia | 15.33 | 9.28 | 86.98 | 205.17 |
| Philippines | 0.55 | 7.92 | 32.39 | 174.32 |
| Singapore | 8.01 | 20.47 | 90.43 | 242.49 |
| Thailand | 0.34 | 3.06 | 15.02 | 83.43 |
| South Asia | 0.76 | 4.23 | 15.68 | 91.01 |
| Bangladesh | 0.01 | 0.01 | 2.03 | 30.68 |
| India | 0.11 | 0.04 | 7.05 | 23.03 |
| Maldives | .. | 0.16 | 0.03 | 0.40 |
| Nepal | .. | .. | 0.33 | 0.04 |
| Pakistan | .. | 0.06 | 1.54 | 18.74 |
| Sri Lanka | 0.63 | 3.96 | 4.67 | 18.12 |
| Indo-China | .. | 0.18 | 0.23 | 2.78 |
| Cambodia | .. | 0.03 | .. | 0.24 |
| Lao People's Democratic Republic | .. | .. | .. | .. |
| Viet Nam | .. | 0.14 | 0.23 | 2.54 |
| Other | 10.02 | 85.34 | 39.04 | 184.94 |
| Afghanistan | .. | .. | .. | 0.01 |
| Bhutan | .. | .. | 0.01 | .. |
| Islamic Republic of Iran | .. | .. | 8.52 | 19.65 |
| Myanmar | 0.01 | .. | 0.10 | 0.12 |
| New Zealand | 10.02 | 85.34 | 30.40 | 165.16 |
| Subtotal | 63.73 | 247.53 | 1,260.62 | 4,227.18 |
| Other destinations | 65.09 | 142.62 | 1,403.45 | 2,680.94 |
| Total | 128.82 | 390.15 | 2,664.06 | 6,908.02 |

Source: Compiled by the Department of Foreign Affairs and Trade from information supplied by the Australian Bureau of Statistics, November 1994.

Note: Data on some grain and sugar items are confidential. These data are not included in the table.

^a Average of calendar years.

**Table 2. Value of fibre exports to Asian and Pacific destinations,
1983-1985 and 1991-1993^a**
(value in Australian \$ million)

| | Cotton | | Wool | | Fibre | |
|--------------------------|---------------|---------------|-----------------|-----------------|-----------------|-----------------|
| | 1983-1985 | 1991-1993 | 1983-1985 | 1991-1993 | 1983-1985 | 1991-1993 |
| East Asia | 192.06 | 481.53 | 763.54 | 1 458.98 | 955.60 | 1 940.51 |
| Japan | 120.17 | 292.28 | 427.88 | 566.98 | 548.05 | 859.26 |
| Republic of Korea | 25.76 | 113.23 | 91.67 | 209.02 | 117.43 | 322.25 |
| Taiwan Province of China | 38.40 | 54.97 | 83.66 | 171.44 | 122.06 | 226.41 |
| China | 4.70 | 5.68 | 151.25 | 456.66 | 155.95 | 462.34 |
| Hong Kong | 3.03 | 15.37 | 9.08 | 54.88 | 12.11 | 70.25 |
| South-East Asia | 13.27 | 256.46 | 160.01 | 103.26 | 29.29 | 359.71 |
| Brunei Darussalam | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Indonesia | 8.86 | 193.35 | 0.08 | 0.60 | 8.94 | 193.95 |
| Malaysia | 0.64 | 15.09 | 15.28 | 74.72 | 15.92 | 89.81 |
| Philippines | 1.13 | 13.04 | | 0.10 | 1.13 | 13.14 |
| Singapore | 0.13 | 1.17 | 0.65 | 0.10 | 0.78 | 1.27 |
| Thailand | 2.51 | 31.92 | 0.01 | 26.52 | 2.52 | 58.44 |
| Viet Nam | | 1.89 | | 1.22 | | 3.10 |
| South Asia | 0.39 | 9.64 | 63.42 | 88.00 | 63.80 | 97.65 |
| Bangladesh | 0.12 | 0.11 | 0.01 | | 0.12 | 0.11 |
| India | 0.13 | 4.97 | 57.95 | 81.20 | 58.08 | 86.18 |
| Nepal | | | 0.02 | | 0.02 | |
| Pakistan | | | 5.42 | 6.80 | 5.42 | 6.80 |
| Sri Lanka | 0.14 | 4.56 | 0.02 | | 0.16 | 4.56 |
| Islamic Republic of Iran | | | 4.31 | 4.70 | 4.31 | 4.70 |
| New Zealand | 0.02 | 0.37 | 1.89 | 1.50 | 1.91 | 1.87 |
| Subtotal | 205.74 | 748.00 | 868.73 | 1 656.44 | 1 054.91 | 2 404.44 |
| Other destinations | 35.41 | 78.69 | 1 322.78 | 1 498.10 | 1 358.19 | 1 576.79 |
| Total world | 241.15 | 826.69 | 2 171.96 | 3 154.54 | 2 413.10 | 3 981.23 |

Source: Compiled by the Department of Foreign Affairs and Trade from information supplied by the Australian Bureau of Statistics, November, 1994.

Note: ^a Average of calendar years.

n.a. indicates not available.

Table 3. Estimates of Australian wheat and sugar exports to selected destinations, 1982-1984 and 1990-1992^a
(value in Australian \$ million)

| | Wheat | | Sugar | | Total | |
|--------------------------|-----------------|-----------------|---------------|---------------|-----------------|-----------------|
| | 1982-1984 | 1990-1992 | 1982-1984 | 1990-1992 | 1982-1984 | 1990-1992 |
| East Asia | 500.20 | 439.74 | 274.34 | 385.66 | 774.54 | 825.41 |
| Japan | 173.84 | 187.26 | 124.44 | 192.45 | 298.29 | 379.71 |
| Republic of Korea | 75.50 | 161.78 | 73.37 | 130.10 | 148.87 | 291.88 |
| Taiwan Province of China | | | .. | 7.49 | .. | 7.49 |
| China | 250.86 | 90.70 | 74.54 | 55.62 | 327.39 | 146.32 |
| Hong Kong | | | | | .. | .. |
| South-East Asia | | | | | | |
| Brunei Darussalam | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Indonesia | 69.63 | 156.23 | | | .. | .. |
| Malaysia | 49.03 | 95.94 | 71.03 | 161.52 | 120.06 | 257.46 |
| Philippines | | | | | .. | .. |
| Singapore | 37.55 | 20.68 | 21.15 | 40.67 | 58.70 | 61.35 |
| Thailand | 6.76 | 12.60 | | | 6.76 | 12.60 |
| South Asia | 93.09 | 127.75 | | | 93.09 | 127.75 |
| Bangladesh | 43.35 | 14.20 | | | 43.35 | 14.20 |
| India | 1.52 | 75.20 | | | 1.52 | 75.20 |
| Pakistan | 34.31 | 37.42 | | | 34.31 | 37.42 |
| Sri Lanka | 13.92 | 0.93 | | | 13.92 | 0.93 |
| New Zealand | 15.39 | 19.32 | 20.49 | 29.64 | 35.88 | 48.96 |
| Subtotal | | | | | | |
| Other destinations | 2 260.00 | 885.07 | 196.99 | 231.84 | 1 456.99 | 1 116.90 |
| Total world | 2 031.67 | 1 757.33 | 584.00 | 849.33 | 2 615.67 | 2 606.67 |

Source: Compiled by the Department of Foreign Affairs and Trade from information supplied by the Australian Bureau of Statistics, November, 1994.

Note: ^a Average of calendar years.

n.a. indicates not available.

.. indicates data unknown or negligible.

The value of Australian fibre exports to North Asia and ASEAN-member countries grew by 26 per cent a year in nominal terms over the period 1985 to 1993 (19 per cent in real terms). Over the three-year period 1991-1993, fibre exports to Asian and Pacific countries averaged \$A 2.4 billion which was 60 per cent of the value for total Australian fibre exports. (Refer to table 2.) More detailed discussion of exports by product and by country of destination is presented below.

(a) Wheat

Some of Australia's major wheat markets are countries in Asia and the Pacific. Taken together, they purchased half of Australia's average annual wheat exports of 9.9 million tons during the period from 1990-1991 to 1992-1993. Indonesia (A\$ 156 million), the Republic of Korea (\$A 162 million) and Malaysia (\$A 96 million) have become important markets. Australia still maintains a strong presence in the Japanese market for wheat which was valued at \$A 187 million. The value of Australian wheat exported to China was \$A 91 million, which makes China an important market. However, China also imports subsidized wheat exports from the United States and, to a lesser extent from the European Union. This has meant that China is a less remunerative market than other markets in the region.

Australia does have some marketing advantages in supplying the Asian markets. All of Australia's exports are from white wheat varieties which tend to be preferred in Asian countries, in contrast to the mostly red wheat varieties from Canada and the United States. Moreover, the hot weather conditions at harvesting time enables Australia to supply wheat with a low moisture content which is more acceptable for longer-term storage. At the same time, Australia's wheat breeding programme has been directed at developing varieties suitable for specific market needs, such as noodle wheats. Grower payment schemes are scheduled to encourage growers to produce wheats which meet specific quality needs.

(b) Rice

Australia is a very small rice producer by world standards, with production at about 1 million tons (paddy basis) which was 0.2 per cent of world production. However, almost 90 per cent of the Australian crop is exported and represents about 4 per cent of world trade. Before 1993-1994, exports of rice to the region were minor, because Thailand has dominated rice exports to regional markets.

Australia is an important exporter of the *japonica* rice variety. This is the type of rice grown in more temperate regions and is the preferred rice variety in North-East Asian markets of Japan and the Republic of Korea. As a result of the Uruguay Round of GATT negotiations, both countries will open their rice markets to import competition from 1995. The extent of agreed imports is, however, small relative to current domestic consumption in these two countries. Australia should be well placed to benefit from the market liberalization in Japan and the Republic of Korea.

(c) Animal feedstuffs

The pattern of Australian trade in animal feedstuffs has changed significantly between 1983-1985 and 1991-1993. Over this period, Asian and Pacific destinations have come to account for about 70 per cent of Australian exports by value, an increase from 60 per cent in 1983-1985. Japan has grown in importance as an importer of animal feedstuff

and is the single most important importer of Australian animal feed. Japan's share expanded from 19 per cent of Australian exports in 1983-1985 to 47 per cent in 1991-1993. The Japanese market demands that animal feed meets exacting specifications, and Australian suppliers have made changes to make their product suit this market, especially for hay. New Zealand, Indonesia and the other ASEAN-member countries have increased the proportion of their imports of Australian animal feed during this time period. However, the Republic of Korea and Taiwan Province of China had not expanded their demand for Australian feedstuffs as fast as the growth in Australian exports.

(d) Coarse grains

Australia's exports of barley and sorghum for feed purposes are relatively small, since it has no great advantages in marketing these products in the region. Competition would be mostly against corn exports from Thailand, China and the United States. Australian grain is considered to be insect-free and of low moisture content, which enhances storage properties. However, world prices are set largely on the basis on the grains' nutritional value against the price and nutritional value of American corn. As domestic demand increases for grain needed to feed livestock, Australian coarse grain producers will become less dependent on the export market in the future.

The growing market for beer in developing Asian and Pacific countries has created opportunities for Australian exports of malting barley and malt. At the same time, Australian brewers are also taking the opportunity to become involved in joint ventures for brewing beer in the Asian and Pacific region.

(e) Beef

Beef is Australia's major meat export and 51 per cent of Australia's exports go to destinations in the region in 1991-1993, as compared with 40 per cent in 1983-1985. The value for Australian beef exports in Asia and the Pacific has expanded from \$A 1.4 billion in 1983-1985 to \$A 3.6 billion in 1991-1993. The most important market for Australian beef has been Japan, which accounted for 36 per cent (\$A 1.3 billion) of beef exports in 1991-1993, a significant increase from 28 per cent (\$A 396 million) in 1983-1985. The Republic of Korea was the fastest growing market for Australian beef from 1983-1985 to 1991-1993, with annual average beef imports of \$A 233 million during 1991-1993.

Since 1992-1993, the North-East Asian markets of Japan and the Republic of Korea have been the largest importers of Australian beef. Much of the Australian beef supplied to these two markets has been of manufacturing-grade quality, but Australia has been increasing production of grainfed and grain-finished beef in order to gain access to the more lucrative segments of these two markets. The result has been a shift away from frozen beef exports in order to supply chilled beef, which has a shorter shelf-life and is suitable for direct consumer purchases.

Australia, New Zealand and the United States have been the major beef exporters in the Asian and Pacific region, together they account for over 90 per cent of total beef traded. Beef importers in Asian and Pacific countries purchase less than 5 per cent of their beef from non-Pacific suppliers. The main reasons for this trade pattern are: (1) Asian and Pacific countries will not trade with countries that have endemic foot and mouth disease; (2) transport costs for products coming from outside the region are relatively high; and (3) the European Union has agreed under the Andriessen Assurance that it will not subsidize beef sales to Australia's traditional Asian markets.

(f) Live cattle

The value of Australian live cattle exports has expanded significantly from 1983-1985 to 1991-1993. The value of the total live cattle market has expanded by 177 per cent in this period and is now worth over \$A 83 million a year. Most growth in this market has occurred in exports to ASEAN-member countries which now account for 75 per cent of Australia's live cattle exports by value, up from 39 per cent in 1983-1985. The largest growth in sales was recorded for the Philippines, increasing from 2.5 per cent to 30 per cent of Australian exports. The growing demand for beef in the South-East Asian region has led to increased live cattle imports. This new market has benefited the cattle industry of northern Australia, in particular. Previously, cattle from northern Australia were slaughtered for sale mainly to the North American market.

Bos indicus cattle in northern Australia are close to the market, in ready supply and are more suited to the tropical environment of South-East Asia. Trade in live cattle from Australia has been growing: \$A 25 million to the Philippines, \$A 15 million to Indonesia and \$A 10 million to Malaysia. There are lower tariffs on live animals in comparison to tariffs on meat, a situation which has also favoured the trade.

Japan is another major importer of live cattle, accounting for an average of about \$A 17 million worth of cattle a year from 1991 to 1993. Sales to Thailand and Indonesia have also increased significantly between 1983-1985 and 1991-1993. However, sales of live cattle to the Republic of Korea have gone to almost none, after accounting for a 19 per cent share of cattle exports during the period from 1983 to 1985.

(g) Dairy products

Dairy products have generally not been part of the traditional cuisine of many countries in the Asian and Pacific region. Nevertheless, exports of Australian dairy products are directed towards ESCAP-member countries and areas to a significant extent. These markets accounted for 77 per cent of Australian dairy product exports by value during 1991 to 1993. Japan remains Australia's most important market for dairy products, taking 19 per cent of exports by value in 1991-1993, up from 12 per cent in 1983-1985. Japan is the major market for Australian cheese exports. ASEAN-member countries are the major markets for Australian dried milk powder exports. New Zealand is a major competitor in these markets.

Exports of Australian dairy products have expanded from relatively small bases at rates approaching 20 per cent a year in many Asian and Pacific markets. Among markets in the region, Japan bought \$A 184 million, the Philippines bought \$A 122 million and Malaysia \$A 95 million, and they are Australia's largest markets.

Collectively, the ASEAN-member countries accounted for 42 per cent of Australian dairy exports in 1991-1993, up from 29 per cent in 1983-1985. The Philippines has shown the strongest growth, from 7 per cent to 13 per cent of Australian dairy product exports.

(h) Sugar

The Asian and Pacific region purchased 73 per cent of Australia's average annual raw sugar exports of 2.7 million tons, which had an average total value of \$A 849 million a year from fiscal year 1990-1991 to 1992-1993. According to ABARE estimates, Australia's major sugar markets in that same period were Japan with \$A 192 million, Malaysia with \$A 162 million and the Republic of Korea with \$A 130 million. China is an important market from time to time, with sugar imports from Australia valued at \$A 56 million. Thailand has been a major competitor in the region's sugar markets, but different harvesting seasons means that both Thailand and Australia can have different marketing opportunities.

Prior to 1994, Australia's exports of white or refined sugar were minor and were concentrated in very small shipments, mainly to Pacific island countries. However, in 1994 a modern high technology refinery was opened in Mackay and it uses modern "bulk in bags/bulk out" shipping technology for transporting white sugar for export. Australia now has refining capacity of about 300,000 tons, which is in excess of domestic market needs.

(i) Fruit and vegetables

Australia is a small, but growing exporter of fresh fruit and vegetables to the rapidly expanding markets in the Asian and Pacific region. Australia has a seasonal advantage over northern hemisphere suppliers, because it is able to provide products out of season and has a transport advantage over other southern suppliers. The region forms an important part of fruit and vegetable sales, taking 60 per cent of Australia's exports which had an average annual value of \$A 628 million during 1991-1993. During this period, Australia's major markets among Asian and Pacific countries and areas were Singapore \$A 87 million, Hong Kong \$A 57 million, Malaysia \$A 51 million and Japan \$A 43 million, all of which have shown rapid growth in the value of both fresh fruit and vegetable imports.

Collectively, ASEAN-member countries are the most important Australian market for fresh, chilled and frozen fruit and vegetables. About 26 per cent of Australia's fresh, chilled and frozen fruit and vegetable exports go to this group, with Singapore

accounting for 14 per cent and Malaysia 8 per cent as the most important customers in the subregion. Countries in South Asia now purchase 10 per cent of Australia's exports of fresh, chilled and frozen fruit and vegetable products, up from 3 per cent in 1983-1985.

(j) Fish, crustaceans and molluscs

Australian exports of fish, crustaceans and molluscs had an average annual value of \$A 904 million in 1991-1993, representing 78 per cent of the total exports. Australia's primary export market for these products is Japan, which takes 44 per cent of total exports. However, exports to Taiwan Province of China have increased significantly as a proportion of fish, crustacean and mollusc exports, from 1 per cent in 1983-1985 to 16 per cent in 1991-1993. In addition, Hong Kong's share has increased from 7 per cent to 13 per cent of fish, crustacean and mollusc exports from Australia. Hong Kong's share may reflect, in part, its role as an entrepôt.

(k) Fibre products

The growth of the textile industry throughout the region during the 1980s has provided a major benefit to Australia's wool and cotton industries. Purchases by Asian and Pacific countries of fibre product exports from Australia rose from 44 per cent to 60 per cent by value between 1983-1985 and 1991-1993. Collectively, this same set of countries and areas bought 90 per cent of Australia's cotton exports and 53 per cent of wool exports in 1991-1993, up from 85 per cent for cotton and 39 per cent for wool in 1983-1985.

Australia is the world's largest producer and exporter of wool, but is a relatively small producer of cotton, producing about 3 per cent of the world's cotton. About 90 per cent of Australia's cotton is exported, with the result that Australia is one of the top five cotton exporters. The value of Australian cotton exports has expanded to an annual average of \$A 827 million during 1991-1993, which represents about one fourth of the average value of wool exports, \$A 3,155 million during the same period.

China, Japan, Taiwan Province of China and the Republic of Korea have, on average, purchased about 45 per cent of Australia's wool exports in 1991-1993. Japan remains Australia's main customer for wool, taking 18 per cent of wool exports by value. Wool exports to China have increased from 7 per cent to 14 per cent share of Australian wool exports, between 1983-1985 and 1991-1993, but only small increases were recorded in other Asian and Pacific markets. In 1983-1985, countries outside the Asian and Pacific region bought 61 per cent of total wool exports, but as a result of expanding demand from Asian and Pacific countries and areas, this share dropped to 47 per cent in 1991-1993.

About 90 per cent of Australia's cotton exports go to Asian and Pacific countries and areas, with Japan, Indonesia and the Republic of Korea accounting for about 72 per cent of shipments in 1991-1993. Australia has to face strong competition from subsidized exports by the United States. The way to meet the challenge is largely through increasing

the quality and yield of the Australian cotton crop. Australian cotton exports to ASEAN-member countries have grown significantly as a proportion of total cotton exports, rising from 5 per cent in 1983-1985 to 31 per cent in 1991-1993.

Even with increasing cotton crops during the 1980s, exports to Indonesia grew from 4 per cent to 23 per cent of total cotton exports. At the same time, exports to Japan and Taiwan Province of China have declined in importance. Japan is still Australia's largest buyer of cotton, taking 35 per cent of the crop in 1991-1993.

2. Future directions for Australia's agricultural trade and changes in Asian food demand and food imports

The prospects for continued growth in the Asian and Pacific region and the expectation of greater trade liberalization mean that Australia's future trade focus will probably continue to be directed to the region. It is unlikely that this regional group would become self-sufficient in all agricultural food products. Food demand is determined by population growth, increased disposable income, the Westernization of eating habits and the spread of supermarkets. There appear to be three stages that characterize changing food consumption habits as real income levels increase when measured on a per capita basis.²

- (a) First, countries with low levels of income per capita are characterized by consumption of traditional secondary starchy staples such as cassava, sweet potatoes and maize, but this consumption declines as real income per capita rises. People then tend to favour increased consumption of a primary staple such as rice.
- (b) Second, further increases in per capita incomes are accompanied by a shift towards alternative staples (wheat) and increased purchases of animal products such as dairy products, meat, fish, fruit, vegetables and more processed food products. Consumption of traditional staple foods levels off.
- (c) The third stage of income growth leads to increased consumption of animal products, greater consumption of processed foods, while consumption of staples such as rice and wheat declines.

Table 4 presents food consumption levels for three ASEAN-member countries, Malaysia, Thailand and Indonesia, which can be compared with Japan, a high-income, developed country, and Taiwan Province of China, an upper middle-income economy. The comparison gives an indication of the variation in patterns of food consumption.

² R. Garnaut and G. Ma, *Grain in China*, Canberra, Government of Australia, Department of Foreign Affairs, East Asia Analytical Unit, 1992.

Table 4. Per capita GNP and apparent annual per capita consumption of selected food items for selected Asian and Pacific countries and areas, 1989-1991
(consumption in kilograms)

| | Japan | Taiwan Province of China | Malaysia | Thailand | Indonesia |
|---|--------------------|-----------------------------|----------|----------|-----------|
| GDP per capita (\$US) | 27 201 | 7 849 | 2 482 | 1 519 | 610 |
| Rice | 82 | 79 | 113 | 152 | 147 |
| Wheat | | | | | |
| Beef and veal | 3 | 3 | 3 | 3 | 1 |
| Pork | 17 | 38 | 11 | 11 | 2 |
| Poultry | n.a. | 23 | 19 | 9 | 3 |
| Dairy products ^a | 55 | 44 ^b | 42 | 20 | 4 |
| Sugar | 20 | 27 | 39 | 32 | 14 |
| Energy intake, daily calories per person | 2 921 ^c | n.a. | 2 404 | 2 052 | 2 345 |

Sources: M. Giordano, *Malaysia, Situation and Outlook Series: Asia*, Washington, D.C., United States Department of Agriculture (USDA), Economic Research Service (ERS), RS-93-6, August, 1993, pp. 82-93. M. Giordano and T. Raney, *Thailand, Situation and Outlook Series: Asia*, Washington, D.C., USDA, ERS, RS-93-6, August, 1993, pp. 136-44. K. Hjort and R. Landes, *Indonesia, Situation and Outlook Series: Asia*, Washington, D.C., USDA, ERS, RS-93-6, 1993. *Abstracts of Statistics on Agriculture, Forestry and Fisheries*, Tokyo, Government of Japan, Ministry of Agriculture, Forestry and Fisheries, 1993. United Nations, *FAO Yearbook: Production 1992*, Rome, FAO, 1993. Asian Development Bank, *Asian Development Outlook*, Manila, ADB, 1993 and 1994. *Dairy Market Briefings*, Melbourne, Australian Dairy Corporation, 1993.

Notes: ^a Figures on dairy products, except for Japan, are measured in milk equivalent.

^b For 1991 only.

^c For 1988-1990.

n.a. indicates not available.

It is not possible to be precise about levels of per capita income at which the shift to higher consumption habits takes place. Differences in climate, as well as social and cultural factors are responsible for most residual differences among countries in food consumption habits at similar levels of per capita income. However, some general income ranges can be discerned. One study of seven Asian countries concluded that the biggest changes in per capita consumption of cereals take place as per capita incomes rise on average to the range of \$US 800 and \$US 1,300, while the biggest increases in per capita consumption of all food (including higher value foods) take place in the range of \$US 1,500 and \$US 2,200.³ A recent Australian study offered three ranges of income in terms of increased and diversified food consumption: (1) \$US 500-1,000, (2) \$US 1,000-2,000 and (3) \$US 2,000 and above.⁴ Several of the ASEAN-member nations are already in or are approaching the top income range.

³ World Bank, *Indonesia: Agricultural Transformation: Challenges and Opportunities*, Report # 10504-IND, Washington, D.C., World Bank, September, 1992, pp. 17-19.

⁴ *Subsistence to Supermarket*, Canberra, Department of Foreign Affairs and Trade, East Asia Analytical Unit, August, 1994.

3. Implications for Australia

Changing consumption patterns in the Asian and Pacific region will provide significant opportunities for Australia to expand its agricultural-based exports. It will be important for Australia to maintain and improve the competitiveness of its agricultural and food processing industries to take advantage of these market opportunities. At the same time, however, all growth in trade, and particularly for major commodities such as beef and grains, will be highly dependent on the further liberalization of trade barriers in the region.

Projections recently made by ABARE indicate potential gains from liberalization of beef markets in Japan and the Republic of Korea, according to various liberalization scenarios. The scenarios for these two countries indicated that for the five-year period from 1993-1994 to 1998-1999, Australian beef exports to the Republic of Korea would increase by nearly 80 per cent to 131,000 tons, while Japanese imports could increase by nearly 50 per cent to 449,000 tons. Should this growth occur, Australia's share of beef exported to these two markets would rise from 50 to 58 per cent in 1998-1999.⁵

Potential gains to the Australian rice industry from opening the North-East Asian rice markets of Japan and the Republic of Korea have already been noted. For other grains, it is expected that wheat consumption will increase in the region, which means that regional demand will more than likely surpass Australia's potential to expand grain production. A possible consequence is that wheat exports will be reduced for some of the high volume export markets Australia currently has in the Middle East and the Russian Federation in order to meet growing Asian demand. In contrast, the growth in demand expected for meat would probably result in expansion of livestock feeding enterprises in Australia, with a subsequent contraction in Australian feedgrain exports. For example, providing grainfed and grain-finished beef to export markets would probably increase demand for feedgrains in the domestic market and reduce its availability for export.

Relocation is occurring in the fibre and textile industries to lower cost processing countries in East and South-East Asia. The gradual dismantling of the Multifibre Arrangement under agreement reached in the Uruguay Round should assist in this process. For the Australian wool industry, this should also shift Australia's wool exports towards Asia and away from Europe.⁶ Whether this increases market opportunities for Australian wool exports will depend on changing demand for textile products and the efforts to increase wool's share of the world fibre market, a share which currently is less than 5 per cent.

⁵ R. Reynolds, et al, *North Asian Markets for Australian Beef*, Canberra, ABARE Research Report 94.10, 1994.

⁶ *Wool: Structuring for Global Realities*, Canberra, Wool Industry Review Committee, Department of Primary Industries and Energy, August, 1993.

The Australian cotton industry is already focused on supplying the Asian and Pacific region, and it is well placed to meet the growing demand for cotton fibre in East Asia as fibre processing capacity relocates to the region. Recent estimates give the industry potential to expand from current average seasonal production levels of about 480,000 tons of lint production to 680,000 tons by 2000.⁷ However, as experience shows in the current season in much of eastern Australia, such expansion largely depends on adequate and more efficient use of irrigation water supplies.

4. International trade and trade policy in Asia and the Pacific

Australia has consistently supported free world trade in agricultural products in various fora, including APEC and other international meetings, for a considerable time. At present, emphasis is on three main issues: (1) freeing world trade on a basis consistent with GATT/World Trade Organization; (2) implementing the agreements from the Uruguay Round as early as possible; and (3) avoiding increases in levels of protection.

Worldwide moves toward more free trade are important. The potential for establishing an open multilateral free trade zone among the APEC-member countries was enhanced by the recent decision by APEC leaders to liberalize trade over the next 25 years. Establishing a free trade area among countries with dissimilar incomes could alter patterns of world trade and income significantly. About two thirds of APEC trade already occurs among countries within the grouping, and this is higher than the corresponding share for the European Union.⁸ The APEC economies accounted for about 30 per cent of world trade in 1980 and about 37 per cent in 1990. By the year 2000, their share of world trade is expected to increase to almost 50 per cent.

There are already a number of formal trade arrangements among various groups of countries in the region which are directed at reducing barriers to trade. Two arrangements worth noting are: (1) the Closer Economic Relations (CER) Agreement between Australia and New Zealand and (2) the ASEAN Free Trade Area (AFTA). These arrangements aim at reduction of barriers among countries who are parties to the agreements while maintaining barriers against countries outside. Possible links between CER and AFTA have been proposed in order to form a larger trading group.

AFTA was established in January, 1992 to provide a framework for increasing regional economic growth by expanding intraregional trade. AFTA operates based on a common effective preferential tariff (CEPT), where tariffs applied to a variety of processed agricultural products and all manufactured products will be reduced to a range between zero and 5 per cent within fifteen years. Unprocessed agricultural products are formally exempt from the CEPT, but some ASEAN-member countries have tried to include these products on their agendas. Gradual elimination of non-tariff barriers is also

⁷ A. Haire, "Outlook for Cotton", paper presented at Queensland Rural Outlook Conference, Toowoomba, 8 November 1994.

⁸ A. Elek, "Trade Policy Options for the Asia-Pacific Region in the 1990s: The Potential of Open Regionalism", *American Economic Review*, vol. 82, #2 (1992), pp. 74-78.

expected over the period of scheduled tariff reductions. AFTA is consistent with GATT in that no new barriers to trade are to be established, nor are any existing barriers to be increased.⁹

Free trade areas have elements that are both liberal and protectionist. There is likely to be increased growth within the region as a direct result of increased regional trade within AFTA, leading, in turn, to increased consumption of imports. However, a free trade area can cause trade diversion, because imports from outside the region that were once competitive may not be able to compete against the AFTA producers who now face a different set of lower trade barriers.

The direct and indirect trade effects of AFTA are uncertain to some extent, because each ASEAN member has much discretion in its scheduled implementation of the tariff reductions. However, the overall extent of trade diversion for Australia is expected to be minimal. Increased ASEAN demand for imports, especially agricultural imports, is expected to partially offset any negative effects.¹⁰ It is expected that total Australian exports to ASEAN may decline by 2 per cent as a result of the full implementation of AFTA. However, most of the decline is expected to be accounted for by transformed manufactured products.¹¹ Australian exports of unprocessed agricultural products to ASEAN are expected to remain strong, since these commodity exports already have a dominant position in the region. Local producers in ASEAN-member countries are unlikely to be able to supply the agricultural products exported by Australia, notwithstanding AFTA.

Nevertheless, minimizing trade diversion effects within such regional groupings would be desirable. This makes it important to continue pushing for more general trade liberalization among countries in the APEC group. A formal dialogue involving links between CER and AFTA could help promote open regionalism and accelerate work towards greater trade liberalization within the region.

5. Barriers to trade in Asian and the Pacific

The reduction of trade barriers in the Asian and Pacific region and moves towards a more liberal trading environment will require fundamental policy changes for a number of countries in the region. Despite increased costs to taxpayers and consumers, many Governments pursue policies of self-sufficiency in food production. The rationale for such policies include: (1) political reasons, such as food security; (2) distributional considerations, such as support for farmers' income; (3) social reasons, such as the prevention of mass unemployment; and (4) balance of payments considerations. However, most of these objectives could be attained by other measures that are more direct and less expensive.

⁹ *Subsistence to Supermarket*, op. cit.

¹⁰ J. Melanie, G. Barry and B. Phillips, "ASEAN: Effect of Economic Growth and AFTA on Australian Primary Industries", *Australian Commodities*, vol. 1, #1 (1994), pp. 67-83.

¹¹ *Subsistence to Supermarket*, op. cit.

Agricultural protection in Asian and Pacific countries has taken many forms, consisting of indirect measures affecting the price of the product and direct measures affecting producers' income. Among the indirect measures, border protection measures such as tariff and non-tariff barriers to trade stand out. Refer to table 5 which presents some recent *ad valorem* tariffs applied to imported agricultural products by selected Asian and Pacific countries and areas.

Three groups of countries and areas can be differentiated according to the information in table 5: (1) China, Thailand and the Philippines apply very high tariffs on major agricultural products; (2) Japan, the Republic of Korea, Taiwan Province of China and Indonesia apply relatively high tariffs; and (3) Malaysia (plus Singapore and Hong Kong, which are not in table 5) apply low or very low tariffs. During the Uruguay Round negotiations, many countries of the region reduced their trade barriers, often on a unilateral basis.¹² Many tariffs and a number of import licensing requirements were reduced, and export subsidies in a number of countries were eliminated. However, a large number of the barriers still in force have been found to be well above the OECD average levels.¹³

Non-tariff barriers to trade are less visible, but often more distorting than tariffs. Average levels and the variability of tariff rates have been falling, but non-tariff barriers have been proliferating. By 1986, non-tariff barriers affected nearly 90 per cent of world food imports in value terms.¹⁴ Table 6 presents information on recent non-tariff measures applied to agricultural products imported by selected Asian and Pacific countries and areas.

Non-tariff barriers take a number of forms, including:

- (a) Additional taxes (value added, excise, business taxes, and so on) applied to trade over and above the usual customs duties;
- (b) Quantitative restrictions on imports, including non-automatic licensing, local content requirements, lists of restricted or prohibited imports, bans and trade quotas, voluntary export restrictions;
- (c) Excessive safety, sanitary and phytosanitary regulations.

The provision of safety and protection of health noted in this last category are, of course, among the most basic functions of any government. However, the line between the legitimate and excessive application of safety and health regulations can be very vague. It is worth noting that between 1980 and 1992, GATT notified its member countries that nearly 170 new technical trade barriers were introduced concerning public health and food standards.¹⁵

¹² Ibid.

¹³ A. Oxley, "Accelerating Trade Liberalization in Asia-Pacific," in Proceedings of ABARE's National Agricultural and Resources Outlook Conference, Canberra, 1-3 February 1994. *Outlook 94*, vol. 1, *World Commodity Markets and Trade*, Canberra, ABARE, 1994, pp. 87-92.

¹⁴ J. Kinsley, "GATT and the Economics of Food Safety", *Food Policy*, vol. 18 (April, 1993), pp. 163-176.

¹⁵ S. Doyle, N. Andrews and B. Fisher, "World Agriculture in a Post-GATT Environment: An Australian Perspective", ABARE paper presented at the World Agriculture in a Post-GATT Environment Conference, University of Saskatchewan, Saskatoon, Canada, 13-15 June 1994.

Table 5. Recent ad valorem tariffs on agricultural imports by selected Asian and Pacific countries and areas^a
(percentage)

| | Beef | | | Wheat | | | Dairy products | | Sugar | |
|--------------------------|-------------|-------------------|------------------|-------------|-------------------|------------------|-------------------|------------------|-------|---------|
| | Unprocessed | Lightly processed | Highly processed | Unprocessed | Lightly processed | Highly processed | Lightly processed | Highly processed | Raw | Refined |
| Japan | | | | | | | | | | |
| average | 0 | 49 | 26 | 20 | 19 | 29 | 35 | 36 | 0 | 0 |
| range | | 15-60 | 0-50 | 20 | 12.5-25 | 10-40 | 0-45 | 35-45 | | |
| Republic of Korea | | | | | | | | | | |
| average | 17 | 30 | 30 | 3 | 21 | 16 | 37 | 40 | 10 | 13 |
| range | 0-20 | 30 | 30 | 3 | 10-40 | 13-40 | 20-40 | 40 | 10 | 13 |
| Taiwan Province of China | | | | | | | | | | |
| average | 10 | 35 | 43 | 7 | 29 | 29 | 27 | 19 | 25 | 33 |
| range | 10 | 30-50 | 40-45 | 7 | 20-50 | 10-50 | 5-40 | 15-35 | 25 | 25-35 |
| Indonesia | | | | | | | | | | |
| average | 5 | 30 | 32 | 1 | 6 | 33 | 28 | 27 | 10 | 10 |
| range | 0-15 | 30 | 30-40 | 0-5 | 0-15 | 10-60 | 5-40 | 20-40 | 10 | 10 |
| Malaysia | | | | | | | | | | |
| average | 0 | 0 | 10 | 1 | 7 | 22 | 8 | 26 | 0 | 3 |
| range | | | 0-25 | 0-2 | 2-25 | 0-50 | 0-50 | 0-50 | | 0-5 |
| Thailand | | | | | | | | | | |
| average | 20 | 60 | 60 | 0 | 29 | 50 | 38 | 56 | 0 | 33 |
| range | 0-40 | 60 | 60 | | 0-40 | 10-60 | 10-90 | 40-60 | | 0-65 |
| Philippines | | | | | | | | | | |
| average | 12 | 30 | 50 | 10 | 27 | 40 | 16 | 33 | 50 | 50 |
| range | 3-30 | 30 | 50 | 10 | 20-30 | 10-50 | 10-50 | 20-50 | 50 | 50 |
| China | | | | | | | | | | |
| average | 10 | 50 | 63 | 0 | 33 | 53 | 57 | 70 | 50 | 50 |
| range | 0-20 | 50 | 50-70 | | 6-60 | 30-60 | 30-70 | 70 | 50 | 30-60 |

Sources: *Customs Tariff of Thailand*, Bangkok, Customs Department, 1990; *Customs Tariff*, Jakarta, Republic of Indonesia, 1989; *Practical Guide to Customs Duties Order*, vol. 1, Kuala Lumpur, Research Division and Customs Updating Service, 1991; *Tariff and Customs Code of the Philippines*, Quezon City, Philippine Tariff Commission, 1991; United Nations, *Data Base on Trade Measures*, Geneva, UNCTAD, 1990.

Notes: ^a Relevant years are: Japan, Malaysia and the Philippines, 1991; Indonesia, Thailand and China, 1990; Republic of Korea, 1989; Taiwan Province of China, 1988.

Ad valorem tariffs might underestimate the true level of tariff protection due to the existence of specific tariffs as well.

The following classification is used: (1) *Unprocessed*: wheat, live cattle; (2) *Lightly processed*: fresh, chilled or frozen meat, wheat flour, milk, milk powders, cream, butter, low value cheese; (3) *Highly processed*: dried, salted or smoked meat, meat preparations, cheese, other processed dairy (yoghurt, etc.), cereal preparations (pasta, etc.)

Table 6. Recent non-tariff measures applied to agricultural imports by selected Asian and Pacific countries and areas^a

| | Beef | | | Wheat | | | Dairy products | | Sugar | |
|--------------------------|----------------|-------------------|------------------|----------------|-------------------|------------------|--------------------|------------------|------------|------------|
| | Unprocessed | Lightly processed | Highly processed | Unprocessed | Lightly processed | Highly processed | Lightly processed | Highly processed | Raw | Refined |
| Japan | TQ HSP | HSP | HSP | STM, GQ HSP | HSP GQ, TQ | GQ HSP | HSP GQ | HSP TQ | HSP VL | HSP VL |
| Republic of Korea | NAL | NAL AQ | NAL | | NAL | NAL | NAL | NAL | NAL | NAL |
| Taiwan Province of China | HSP | HSP, TS | BQ, HSP, BA | NAL BQ | NAL BA | HSP BA, NAL | NAL, BA HSP, TS | HSP BA | NAL | NAL BA |
| Indonesia | | | | NAL | | NAL | LCR | NAL | | |
| Malaysia | HSP | HSP NAL | HSP | HSP TS | HSP, TS NAL | NAL | HSP NAL | HSP | NAL | NAL |
| Thailand | | | | | | NAL | NAL LCR, TS | | NAL | NAL |
| Philippines | NAL, GQ HSP | NAL HSP | NAL HSP | NAL HSP | | HSP | HSP NAL | HSP | STM HSP | STM HSP |
| China | STM | STM | STM | STM | STM | STM | STM | STM | STM | STM |

Sources: United Nations, *Data Base on Trade Measures*, Geneva, UNCTAD, 1990; H.D.B.H. Gunasekera et al, *Agricultural Policy Reform in China*, Canberra, ABARE Discussion Paper 91.4, AGPS, 1991; GATT, *Trade Policy Review: Indonesia*, Geneva, GATT, 1991; *Subsistence to Supermarket*, op. cit.

Notes: ^a Key to abbreviations: TQ = tariff quota, BQ = bilateral quota, AQ = allocated quota, GQ = global quota, HSP = health and safety protection, NAL = non-automatic license, LCR = local content requirement, TS = technical standards, STM = state trading monopoly, TP = total prohibition, BA = bank authorization, VL = variable levy.

See table 5 for product classifications.

In addition to tariff and non-tariff measures, many countries also provide other forms of price or income protection for agricultural producers in forms which are linked to the level of agricultural production. Such assistance increases the level of production but diverts resources away from more productive sectors of the economy. Estimates are available on the production tax equivalents as a percentage of producers' prices for some countries in Asia and the Pacific. The results suggest that at the end of the 1980s, the prices paid to farmers exceeded the market prices in most countries, with the exception of China, Malaysia, the Philippines and Singapore. On the other hand, most countries in the region taxed their food processing industries, although Australia and New Zealand were notable exceptions.

In many Asian countries, the ability to produce agricultural products, such as beef cattle and grains, is limited by land availability and climate. In these countries, competition for resources, including land, labour and energy, is becoming more intense as industrial activity expands. Similarly, the government budget costs are high and will continue to grow in the form of government subsidies to food producers, especially in developed countries of the region which have made self-sufficiency a costly exercise. Moreover, regional trends in consumption of more meat and wheat, and reduced consumption of traditional staples, such as rice, will reduce the likelihood of achieving self-sufficiency in food. Trade-friendly economic policies combined with links to food-supplying countries such as Australia could provide greater food security and improved economic growth better than policies aimed at sustaining those parts of the agricultural sector that are not viable.

6. The Uruguay Round Agreements and the Asian-Pacific region

A major step towards the liberalization of international trade in food and food products has been made during the Uruguay Round, which resulted in the Agreement on Agriculture concluded in December 1993. In general, industrialized countries have agreed to increase market access and to reduce domestic support and export subsidies for their agricultural products over a six-year period beginning in 1995. Developing countries will reduce their levels of support to their agricultural sectors by two thirds of the reduction prescribed for industrialized countries, and they will do this over a ten-year period beginning in 1995.

ABARE has done simulations of the likely effects of the Uruguay Round Agreement on Agriculture using two models of world trade. One is SWOPSIM¹⁶ and the other is GTAP.¹⁷ One major result from the SWOPSIM model was that increases were expected in the world prices of major agricultural products in the long run. These increases would result from the implementation of the Uruguay Round Agreement on

¹⁶ For details see V. Roningen, J. Sullivan and P. Dixit, *Documentation of the Static World Policy Simulation (SWOPSIM) Modeling Framework*, Washington, D.C., USDA, ERS, Staff Report # AGES 9151, 1991.

¹⁷ G. Murtough, Y.H. Mai and D. Vanzetti, "APEC Trade Liberalization, Post-Uruguay Round: A General Equilibrium Analysis", ABARE paper presented at the 23rd Conference of Economists, Queensland, 25-28 September 1994.

Agriculture. In particular, price increases were expected for cheese (20 per cent), milk powders (16 per cent), wheat (8 per cent), rice (8 per cent), pork (7 per cent) and beef (6 per cent). It was estimated that the aggregate value of Australian exports would increase by \$A 950 million a year as a consequence of such price increases, when combined with increases in the quantities exported. About \$A 50 million of the increase can be directly attributed to the liberalization that would be implemented in three ASEAN-member countries: Malaysia, Thailand and Indonesia.¹⁸ If these three countries fully liberalized their agricultural and food product trade arrangements, Australian exports could be expected to increase by \$A 300 million, with exports of beef, wheat, rice and sugar increasing the most.

The simulation results from the GTAP model were similar to those generated by SWOPSIM, despite some differences in the assumptions used. The GTAP model estimated that the value of net exports generated by Australian agricultural and food processing sectors would increase by about \$A 1 600 million as a result of the Uruguay Round agreements. It was estimated that most major trading countries in Asia and the Pacific would gain in terms of aggregate real income, with real incomes of APEC members expected to rise by an average of 0.6 per cent. The estimates showed that the countries and areas making the largest gains would be China, Singapore, the Philippines, Thailand, Taiwan Province of China and the Republic of Korea. However, not all countries or groups around the world could expect to obtain income gains from their agricultural and food processing sectors, as shown in table 7.

The GTAP model was also used to simulate the effects of full trade liberalization among countries in the APEC group. The results were expressed in terms of a one time change in output from the base year. All countries in the APEC group would gain in terms of real income, as shown in table 8, with major gains achieved by China (9.8 per cent), New Zealand (9.2 per cent), Malaysia (9.2 per cent), the Philippines (8.6 per cent) and Singapore (8.6 per cent). Full liberalization of trade by all APEC members would bring about significant structural change in the member countries. Agricultural output in Japan, the Republic of Korea, Taiwan Province of China and a number of developing countries of Asia and the Pacific, except Indonesia and Singapore, would be lower than otherwise expected. Agricultural output of Australia, New Zealand and the United States would be higher than otherwise expected. It was estimated that the value of Australian net exports of agricultural and processed food products would increase by about \$A 4 billion.

¹⁸ D. Vanzetti, J. Melanie and G. Barry, "South East Asia: Agriculture in the Post-Uruguay Round", *Australian Commodities*, vol. 1, #2 (1994), pp. 247-259.

Table 7. Effects from Uruguay Round outcomes on agricultural and food processing sectors of various groups, countries and areas
(percentage changes in sectoral output and real income)

| | Agricultural sector | Food processing sector | Real income |
|--------------------------|---------------------|------------------------|-------------|
| Australia | 3.5 | 3.5 | 1.3 |
| New Zealand | 4.0 | 5.7 | 1.3 |
| Canada | 10.3 | 2.7 | 0.3 |
| United States | 2.3 | -0.3 | 0.1 |
| Japan | -1.3 | -1.6 | 0.5 |
| Republic of Korea | -1.2 | -0.1 | 1.7 |
| Indonesia | 0.8 | -2.4 | 1.1 |
| Malaysia | 3.5 | 8.3 | 2.0 |
| Philippines | -2.9 | -3.8 | 2.4 |
| Singapore | 5.7 | 20.0 | 3.1 |
| Thailand | -0.7 | 0.9 | 2.2 |
| China | -0.7 | 3.4 | 4.5 |
| Taiwan Province of China | 3.1 | 4.5 | 1.7 |
| European Union | -1.6 | -1.8 | 0.1 |
| Rest of world | -0.2 | 1.1 | 0.3 |

Source: G. Murtough and others, op. cit.

Table 8. Effects from Uruguay Round outcomes and full liberalization within the APEC group on real income of various groups, countries and areas^a
(percentage changes in real income)

| | Uruguay Round | Full liberalization within APEC |
|--------------------------|---------------|---------------------------------|
| Australia | 1.3 | 3.4 |
| New Zealand | 1.3 | 9.2 |
| Canada | 0.3 | 1.4 |
| United States | 0.1 | 1.1 |
| Japan | 0.5 | 1.3 |
| Republic of Korea | 1.7 | 4.2 |
| Indonesia | 1.1 | 3.1 |
| Malaysia | 2.0 | 9.2 |
| Philippines | 2.4 | 8.6 |
| Singapore | 3.1 | 8.6 |
| Thailand | 2.2 | 3.3 |
| China | 4.5 | 9.8 |
| Taiwan Province of China | 1.7 | 2.0 |
| European Union | 0.1 | -0.7 |
| Rest of world | 0.3 | -1.4 |
| APEC total | 0.5 | 1.8 |

Source: G. Murtough and others, op. cit.

Note: ^a All changes are from the base year 1988.

7. Conclusion

Significant advances have been made in changing the international trade system over the past year or so, including the conclusion of the Uruguay Round of GATT, the implementation of the North American Free Trade Area (NAFTA) and the emergence of APEC as a major forum for issues affecting Asia, the Pacific, and the Americas. It is likely that international agricultural trade will be entering a period when the impact of liberalization and increased competition will be tested as a result of the 1993 Agreement on Agriculture. For the first time in the history of GATT, trade in agricultural products will be subject to the process of liberalization. There is also the prospect of further trade liberalization through AFTA and APEC.

However, the analysis in this paper makes it apparent that a consequence of liberalization will be reduced agricultural sectors for a number of Asian and Pacific countries. A further consequence will be increased agricultural imports for those countries with a smaller agricultural sector. Liberalization is expected to intensify import pressures that will arise from changing consumption patterns for those non-traditional foods that have limited production possibilities in many Asian and Pacific countries. Over the next few years, the conflict between the principle of liberalizing international agricultural trade and the principle of national food self-sufficiency will be subject to the influence of economic and political forces.

Australia and New Zealand have been and will continue to be uniquely positioned in terms of their geography and factors of agricultural production for meeting Asian and Pacific consumers' demand for certain important agricultural products which are scarce in most domestic markets. In order to reach the potential for full benefits, pressure will still be needed in order to:

- (a) Improve access to the markets of the Asian and Pacific region by monitoring tariff and non-tariff barriers to trade and by developing links with key trade groupings in the region (including AFTA);
- (b) Promote increased competitiveness and improved marketing of agricultural and food sectors;
- (c) Continue to use microeconomic reforms to remove structural and cost impediments to investment in the agricultural sectors;
- (d) Encourage research and development in food processing and marketing.

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