

PACIFIC ECONOMIC PAPER NO. 305

JULY 2000

Some Key Issues for the East Asian Food Sector

Masayoshi Honma
Seikei University

Ray Trewin
The Australian National University

Yiping Huang
The Australian National University

Malcolm Bosworth
The Australian National University

Leanne Holmes
Productivity Commission

Randy Stringer
The University of Adelaide

Yoshihisa Godo
Meiji Gakuin University

A U S T R A L I A – J A P A N R E S E A R C H C E N T R E

© Australia–Japan Research Centre 2000

This work is copyright. Apart from those uses which may be permitted under the *Copyright Act 1968* as amended, no part may be reproduced by any process without written permission.

Pacific Economic Papers are published under the direction of the Research Committee of the Australia–Japan Research Centre. Current members are:

Prof. Stuart Harris (Chair) The Australian National University	Prof. Christopher Findlay The Australian National University	Prof. John Nevile The University of New South Wales
Prof. Kevin Davis The University of Melbourne	Prof. Jim Fox The Australian National University	Prof. Warwick McKibbin The Australian National University
Prof. Peter Drysdale The Australian National University	Prof. Ross Garnaut The Australian National University	Prof. Alan Rix The University of Queensland
Prof. Ron Duncan The Australian National University	Prof. Keith Hancock Australian Industrial Relations Commission	Mr Ben Smith The Australian National University
	Prof. Jocelyn Horne Macquarie University	

Papers submitted for publication are subject to double-blind external review by two referees.

The Australia–Japan Research Centre is part of the Asia Pacific School of Economics and Management, The Australian National University, Canberra.

ISSN 0 728 8409

ISBN 0 86413 255 7

Australia–Japan Research Centre
Asia Pacific School of Economics and Management
The Australian National University
Canberra ACT 0200

Telephone: (61 2) 6249 3780

Facsimile: (61 2) 6249 0767

Email: ajrc@anu.edu.au

URL: <http://ajrcnet.anu.edu.au>

CONTENTS

Preface

- 1 Japan's Agricultural Policy and WTO Negotiations**
Masayoshi Homna

- 2 East Asian Approaches to Food Security and Some Implications for the Next WTO Round**
Ray Trewin and Yiping Huang

- 3 Assessing the Costs and Benefits of Japan's SPS Measures**
Malcolm Bosworth and Leanne Holmes

- 4 Constraints on Structural Adjustment and Trade: The Role of Land Institutions and Regulations in East Asia**
Randy Stringer

- 5 Problems and Policies of Japan's Farmland Regulations and Taxation**
Yoshihisa Godo

PREFACE

This collection of five papers constitutes the second of two volumes on Japanese agricultural policy.

The first paper, by Masayoshi Honma, looks at agricultural policy reform in Japan from a political economy perspective, especially in respect of the implementation of the Uruguay Round Agreement and the next round of negotiations.

Ray Trewin then picks up the implications of East Asian approaches to food security for the next WTO round, mainly contrasting Japan's self-sufficiency approach with China's more open trade and investment policies. Regional arrangements to address food security are promoted in the paper.

A paper by Malcolm Bosworth and Leanne Holmes develops and applies a framework for assessing the costs and benefits of Japan's sanitary and phytosanity (SPS) measures, especially in respect of the WTO SPS agreement. The implication for Japan's SPS policies are drawn out in the paper.

Randy Stringer looks at the constraining role of land institutions and regulations, which are similar in East Asia, on structural adjustment, especially in agriculture, and the costs and benefits of such institutions and regulations.

The final paper, by Yoshihisa Godo, explains, for the first time in English, the reasons behind the small size of Japanese farming that has constrained productivity, and the distortions in land use and farm output caused by farmland use regulations and taxation. Desirable directions for Japanese agricultural policy reform are also discussed in the paper.

It is expected that this collection of papers will assist Australian and Japanese agencies and businesses, and those from other countries, to develop strategies for improving Japanese agricultural policies during the upcoming WTO round.

Peter Drysdale
Executive Director, AJRC

Japan's Agricultural Policy and WTO Negotiations

Masayoshi Honma
Seikei University

CONTENTS

<i>List of tables</i>	vi
Introduction	1.1
The political economy of agricultural protectionism	1.1
The Uruguay Round agreement and current trade barriers	1.2
Japan's proposals for the new WTO round	1.7
Conclusion	1.14
<i>Notes</i>	1.15
<i>References</i>	1.16

TABLES

Table 1.1	Weighted averages of nominal protection rates for agriculture, per cent	1.3
Table 1.2	Tariff peaks by agricultural product groups (EC, Japan and the US)	1.5
Table 1.3	Average tariff rates applied to agricultural imports, selected countries.	1.6
Table 1.4	The levels of Aggregate Measurement of Support (AMS) for selected countries.	1.7
Table 1.5	Comparison of commitments of agricultural importers and exporters	1.13

JAPAN'S AGRICULTURAL POLICY AND WTO NEGOTIATIONS

Introduction

Although the Uruguay Round was very successful in negotiating the Agreement on Agriculture and bringing agriculture into the World Trade Organisation (WTO), many barriers and distortions still exist in agricultural trade.

While agriculture's share of both GDP and the labour force diminishes as economies develop, the sector becomes more powerful in achieving protection. This paper discusses how the political economy of agriculture has influenced Japan's agricultural policies. It looks at how Japan has implemented the Agriculture Agreement and discusses its proposals for the second stage of multilateral agricultural reform, which started in March this year. Finally, it examines the future for Japanese agriculture in a more open trading system.

The political economy of agricultural protectionism

In 1997 Japan had 3.34 million farm households, with 3.15 million workers engaged mainly in agricultural activities. Agricultural production created farm-gate sales of 11 trillion yen and value-added of 6 trillion yen. Agriculture's importance is declining: the sector contributed just 1.2 per cent of GDP and employed only 4.8 per cent of the labour force in 1997. The number of workers engaged mainly in agriculture is less than the number of farm households because Japan has many small family farms that do not have full-time farm workers.¹ Full-time farm households in which there are no workers engaged in other employment account for only 13 per cent of total farm households. The average annual income of a farm household was 8.8 million yen in 1997, 23 per cent more than that of an average industrial worker's household, but on average only 14 per cent of income comes from farming.

Japan has no comparative advantage in agriculture with a sector dominated by small-scale, land-intensive operations. But more than 3 million households are still farming because they receive high support prices and are protected from import competition. Farmers also enjoy preferential income tax, asset tax and inheritance tax treatment.

Although agriculture seems to be furnished with competitive conditions, with many producers who supply and many consumers who demand agricultural products, Japanese farmers are politically powerful and have been able to achieve agricultural protection regardless of the inefficiency this creates. In industrialised countries, agricultural protection tends to increase as the sector's contribution to the economy decreases. As incomes rise, consumers become more tolerant of agricultural protection and although farmers are fewer, their political power grows as the number of 'free riders' in lobbying decreases. Once in place, it is difficult to break up the political equilibrium among farmers, consumers, taxpayers and politicians.

Table 1.1 shows the nominal rates of price support for 14 countries from 1955 to 1990. Agricultural protection in Japan is extremely high, as it is in Switzerland and Korea. In 1955 protection was about a half that of the European Community, but the use of price supports increased rapidly in the high-growth era up until 1970. In Japan, as in Korea and Taiwan, high economic growth widened the gap between labour productivity in agriculture and in other sectors, and price support was used to lessen inequality and provide stability.

In Europe the difference in labour productivity between agriculture and other sectors has not been as significant, rather it has been the declining share of agriculture and falling agricultural incomes that have been behind agricultural protection. These factors have also contributed to rising protection in Japan in recent years.

Both food importing and food exporting countries have used various measures to protect agriculture to the point where the sector is now considered to be in 'disarray' (Johnson 1973, 1991) with the cost of agricultural protection becoming unbearable, especially for food exporting countries. The high level of protection explains why foreign producers have become a strong countervailing force against domestic demand for agricultural protection and why agriculture was one of the most important areas in the Uruguay Round negotiations.

The Uruguay Round agreement and current trade barriers

The Agreement on Agriculture was successful in establishing completely new rules and commitments in three areas: market access, domestic support and export subsidies. Because Japan does not subsidise agricultural exports and agreed not to introduce subsidies, only the first two areas are relevant.

Table 1.1 Weighted averages of nominal protection rates for agriculture, per cent

	1955	1960	1965	1970	1975	1980	1985	1990
<i>East Asia</i>								
Japan	18	41	69	74	76	85	108	116
Korea	-46	-15	-4	29	30	117	110	151
Taiwan	-17	-3	-1	2	20	52	31	55
<i>EC</i>								
France	33	26	30	47	29	30	37	54
West Germany	35	48	55	50	39	44	40	46
Italy	47	50	66	69	38	57	72	103
Netherlands	14	21	35	41	32	27	38	26
United Kingdom	40	37	20	27	6	35	39	44
Denmark	5	3	5	17	19	25	34	44
EC average	35	37	45	52	29	38	43	54
<i>Other European</i>								
Sweden	34	44	50	65	43	59	65	79
Switzerland	60	64	73	96	96	126	181	218
Australia	5	7	5	7	-5	-2	-7	-4
Canada	0	4	2	-5	-4	2	0	4
United States	2	1	9	11	4	0	11	3

Note: Figures are the averages of nominal rates of protection (NRP), $NRP = (\text{domestic price} - \text{border price}) / \text{border price}$, for 12 commodities (rice, wheat, barley, rye, maize, oats, sugar, beef, pork, chicken, eggs and milk) weighted by the production value at the border price.

Source: Honma (1994).

Market access

Japan converted non-tariff barriers to tariff equivalents (TEs) for 28 commodities, including wheat, barley, milk products, starches, legumes, peanuts, konnyaku roots, cocoons, silk and pork. The TEs apply to imports beyond the access quantities committed, which are equivalent to the previous import prices and are based on the difference between domestic wholesale prices and import prices in the 1986–88 period.

Rice, the most politically sensitive commodity for Japan, was initially exempted from tariffication in return for greater access for imports, namely 4 per cent of domestic rice consumption in 1995, rising to 8 per cent in the final year of the implementation period in

2000. The minimum access commitment became a burden when, after three years of good harvests, the stock of domestic rice reached 3 million tons in October 1996 but 510,000 tons of rice had to be imported in 1997. In December 1998 the government decided to convert the quantitative import restrictions on rice to tariffs. In April 1999 the TE was set at 351.17 yen per kilogram, which was much higher than the mark up of 292 yen per kilogram that applied to the minimum access imports, and no privately imported rice was expected in 1999. The aim of tariffication was minimising rice imports rather than consistency with WTO disciplines.

Japan is not unique in imposing high tariffs on agricultural imports. Tariff peaks (tariff rates of 20 per cent or more in agriculture) can be observed in most industrialised countries (Table 1.2). In the European Union, Japan and the United States, tariffs are high for dairy products, cereals (although not in the United States), sugar and processed food. About one-quarter of imports in the EC and Japan and one-tenth of American imports attract tariffs above 20 per cent.

In examining levels of protection, it is necessary to also look at the level of tariff rate quotas (TRQs) applied when non-tariff barriers such as import quotas are converted to tariffs. Lower tariffs apply to a imports within quotas calculated from the base period (1986–88) average, while secondary tariffs are set as TEs at very high levels. If TEs are prohibitively high and there are no imports beyond the TRQ, there are no changes in import levels. Table 1.3 shows that Japan, Canada, Norway and Korea have applied extremely high secondary tariffs to newly tariffied products, while Norway has high tariffs even within the TRQs. These high secondary tariffs mean that market access for these commodities has changed little.

In Japan state trading enterprises have suppressed private imports. Rice, wheat and barley imports are controlled by the Food Agency, and skim milk, butter and raw silk imports are controlled by the Agriculture and Livestock Industry Corporation (ALIC). Although under tariffication anyone can import if the TE is paid, little has been privately imported. The state trading enterprise can expand imports if demand increases and charges a marked-up price that is less than the TE, so private users of these commodities buy from the state trading enterprises at a lower cost. The import quantities of wheat and barley were increased after tariffication in 1995, but these products continued to be mainly imported by the Food Agency.

Domestic support

The Agreement on Agriculture sets rules for reducing domestic agricultural support policies. Domestic support policies were divided into three boxes – amber, blue and green – depending

Table 1.2 Tariff peaks by agricultural product groups (EC, Japan and the US)

Product group	Number of tariff lines within a tariff range			No. of peaks	Share in total %	
	Total	20-29 %	30-99 %			>100 %
<i>European Community (EC)</i>						
Meat, live animals (1-2)	351	68	79	14	161	46
Fish and crustaceans (3)	373	45	0	0	45	12
Dairy products (4)197	21	77	9	107	54	
Fruit and vegetables (7-8)	407	10	5	1	16	4
Cereals, flours etc. (10-11)	174	29	75	0	104	60
Veg. oils, fats, oilseeds (12, 15)	211	0	8	2	10	5
Canned & prep. meat, fish (16)	10,517	8	0	25	24	
Sugar, cocoa & prep. (17, 18)	75	34	6	0	40	53
Prepared fruit, vegetables (20)	310	70	39	1	110	35
Other food ind. products (19, 21)	90	27	8	0	35	39
Beverages & tobacco (22, 24)	2029	15	2	26	13	
Other agr. products (5-6, 13-14, 23)	231	4	14	4	22	10
All agr., fish. products (1-24)	2,726	343	334	33	701	26
<i>Japan</i>						
Meat, live animals (1-2)	136	3	19	7	29	21
Fish and crustaceans (3)	189	0	0	0	0	0
Dairy products (4)	146	45	57	22	122	84
Fruit and vegetables (7-8)	209	1	2	7	10	5
Cereals, flours etc. (10-11)	132	37	24	10	71	54
Veg. oils, fats, oilseeds (12, 15)	161	1	1	3	5	3
Canned & prep. meat, fish (16)	101	21	3	3	27	27
Sugar, cocoa & prep. (17, 18)	80	26	19	6	51	64
Prepared fruit, vegetables (20)	231	52	5	2	59	26
Other food ind. products (19, 21)	232	113	2	15	130	56
Beverages & tobacco (22, 24)	65	8	0	0	8	12
Other agr. prod (5-6, 13-14, 23)	65	0	0	0	0	0
All agr., fish. products (1-24)	1,890	307	132	75	514	27
<i>United States</i>						
Meat, live animals (1-2)	116	6	0	0	6	5
Fish and crustaceans (3)	114	0	0	0	0	0
Dairy products (4)	251	29	58	9	96	38
Fruit and vegetables (7-8)	269	13	0	0	13	5
Cereals, flours etc. (10-11)	59	0	0	0	0	0
Veg.oils, fats, oilseeds (12, 15)	124	0	2	2	4	3
Canned & prep. meat, fish (16)	90	1	1	0	2	2
Sugar, cocoa & prep. (17, 18)	144	6	13	2	21	15
Prepared fruit, vegetables (20)	169	3	2	3	8	5
Other food ind. products (19, 21)	156	11	18	2	31	20
Beverages & tobacco (22, 24)	126	1	3	8	12	10
Other agr. products (5-6, 13-14, 23)	161	0	2	0	2	1
All agr., fish. products (1-24)	1,779	70	99	26	195	11

Notes: Tariff peaks are defined as tariff rates of 20 per cent or more; all are MFN tariffs; SITC numbers are within the parentheses.

Source: FAO based on data from UNCTAD/WTO (1997) *The post-UR tariff environment for developing countries*, TD/B/COM.1/14, Tables 1-3.

Table 1.3 Average tariff rates applied to agricultural imports, selected countries.

products	All agricultural products	Newly tariffed products		All
		Within TRQ	Secondary	
Japan	12	20	274	5
United States	6	10	29	4
European Union	20	8	45	7
Canada	5	8	203	5
Australia	3	7	27	10
Switzerland	51	36	81	9
Norway	124	216	239	26
Korea	62	21	366	18
Thailand	35	31	91	29

Source: OECD, Review of Tariffs Synthesis Report, 1999.

on the effects on production and trade. Non-trade distorting policies have been put into the green box and have been exempted from reduction. Further exemptions fall into the blue box, including the use by the United States and the European Union of direct payments based on fixed area and yield. All other trade-distorting support policies were put in the amber box. Industrialised countries have committed to reduce the total value of these policies (as measured by the Aggregate Measurement of Support) by 20 per cent during the implementation period (1995–2000). Table 1.4 shows selected countries' AMS levels in the base period (1986–88), current values and commitments for 2000. Price supports (calculated as total production multiplied by the difference between domestic and international prices for all commodities) make up most of the value of the AMS. Other government expenditures that stimulate domestic production and therefore have effects on trade make up the remainder.

All the countries in the table have bettered the committed reduction of 20 per cent, but the United States, Australia and Canada have achieved the largest reductions, with falls of 74, 78 and 86 per cent, respectively. Japan, the EU and Korea achieved much lesser reductions of 36, 37 and 31 per cent, respectively. Exporting countries such as the United States, Australia and Canada are therefore likely to demand that other countries reduce the AMS by much more.

Table 1.4 The levels of Aggregate Measurement of Support (AMS) for selected countries.

	AMS in base period	Committed level of AMS in 2000	Current AMS	% of price support
Japan (billion yen)	4,966	3,973	3,171	94 %
United States (million US\$)	23,879	19,103	6,238	93 %
European Union (million ECU)	80,975	67,159	51,009	96 %
Australia (million A\$)	590	472	132	0 %
Canada (million C\$)	5,376	4,301	777	73 %
Korea (billion won)	2,260	1,798	1,563	100 %

Note: Current AMS are 1977 figures for Japan, the United States and Australia, 1996 figures for the European Union, 1995 figures for Canada and 1998 figures for Korea.

Source: MAFF, 'WTO nogyo koushou no kadai to ronten' (Issues and Points of WTO Negotiations on Agriculture), May 2000.

Rising domestic reform of agricultural policies has contributed to the success in reducing the AMS, but a number of questions remain. Do the policies categorised in the green box really have no effects of production and trade? Is it necessary to make exemptions for the blue box policies? And does reduction at an aggregate level effectively reduce barriers to trade? Some countries believe that the AMS should be reduced on a product-specific basis if the presently high protection of sensitive products is to be brought down,² and if transparency and predictability are to be achieved in commodity markets.

Japan's proposals for the new WTO round

Although the Ministerial Conference in Seattle last December failed to launch a new WTO round, agricultural negotiations have a built-in agenda. Negotiations on agricultural reform started in March 2000 and each country is to submit proposals for reforms by December 2000. Most countries had already submitted proposals for the Seattle conference and the submissions are likely to be similar. Therefore, this paper examines Japan's 1999 submission, compares this with those of other countries and discusses the possibility of Japan's proposals being accepted in the forthcoming negotiations.

Japan submitted its proposal on agricultural negotiations to the WTO in June 1999 (MAFF 1999a) and later presented a supplementary paper (MAFF 1999b). Japan's proposal states that the following three points should be included in the rules and disciplines of the forthcoming agricultural negotiations: the importance of the multifunctionality of agriculture, the importance of food security, and the need for impartiality in importing and exporting.³

Multifunctionality of agriculture

Japan regards the multifunctionality of agriculture as an important aspect of 'non-trade concerns' that Article 20 of WTO Agreement of Agriculture provides can be taken into account in negotiations. Japan argues that some trade barriers are necessary to prevent the loss of multifunctional benefits that would occur if domestic production was to fall. However, Article 20 also provides that negotiations will be initiated with the recognition that 'the long-term objective of substantial progressive reductions in support and protection resulting in fundamental reform is an ongoing process'. Policy measures to support the multifunctionality of agriculture may therefore conflict with long-term objectives for agricultural liberalisation.

Japan believes agriculture adds value to society by: conserving land and helping to prevent floods, soil erosion and landslides; fostering water resources; preserving the natural environment by aiding the management of organic waste, the resolution and removal of polluted substances, air purification and the maintenance of bio-diversity and the preservation of wildlife habitats; preserving the scenic landscape; transmitting culture; providing rural amenities; maintaining and revitalising the rural community; and improving food security (MAFF 1999c).

Identifying the multifunctional benefits that agriculture provides is an important part of evaluating agricultural activities, but it is also important to consider the costs of the agricultural operations that provide these benefits. The Ministry of Agriculture, Forestry and Fisheries (MAFF) used a substitutive cost method to estimate the value of paddy fields and upland fields at 4.6 trillion yen and 2.0 trillion yen, respectively (MAFF 1999d).⁴

A fundamental variable for assessing the multifunctionality of agriculture and for choosing agricultural policy measures is not the total value of the benefits provided but the marginal loss (gain) as agricultural production shrinks (expands). In other words, the social demand curves for these functions and how they relate to agricultural production are needed

to find the optimal level of domestic production that maximises the social net benefit of these externalities. For example, we need to know how much social value has been lost by the diversion programs for paddy fields, how the minimum access arrangements for rice have damaged the environment, and so on. While such estimations are difficult, they are necessary if Japan wishes to place multifunctionality at the centre of its proposals for the WTO negotiations.

The negotiations will discuss levels of support and protection that affect trade and production. Japan's proposal states that multifunctionality can be examined under the following conditions: where functions are closely related to, and cannot be separated from, agricultural production; where functions play an important role in relation to the agricultural production activities that have generally been observed; and where the value of their function is commonly recognised by the people of the country concerned. A quantitative assessment of multifunctionality in terms of agricultural production is necessary because there are many levels of agricultural production and many combinations of products that can achieve a certain social value. In addition, farming does not necessarily aim to achieve multifunctional goals and may not be the best way of fulfilling social needs. For example, although paddy fields retain water and help prevent floods, the primary aim of water control is growing rice and methods of water control are not necessarily efficient in preventing floods. Paddy fields provide a habitat for a variety of flora and fauna but at the same time the chemicals and pesticides used in agricultural activities put these at risk. These complex and ambiguous effects make it difficult to make quantitative assessments and gather scientific evidence of multifunctionality.

Japan's policies are likely to be constrained by the views of other countries. Agricultural exporters may request that Japan give quantitative evidence of the relationship between production and the value of externalities, or that it seek alternative farming methods to maintain multifunctionality. It is unlikely that agricultural exporters will believe that lost export opportunities are a worthwhile sacrifice to meet Japan's domestic goals. Food exporters could also employ a multifunctionality argument by insisting that because they produce more than they eat, they need to export to maintain the multifunctionality of agriculture. Japan would find it hard to deny such an argument.

Furthermore, Japan will have to choose policy measures that are consistent with WTO disciplines. The goals of multifunctionality and food security do not seem to provide a strong basis for the coexistence internationally of various types of agriculture. Variety in production

is best achieved through the dynamics of competition and comparative advantage. It would be more appropriate to make multifunctionality a green or blue box policy of direct support, as Switzerland mentions in its proposal of 20 July 1999.⁵

Food security

Japan considers food security to be one of agriculture's multifunctional benefits, but this is misleading as food security is not an externality created through agricultural activity and therefore it is best to deal with this goal separately. The Food and Agriculture Organisation defines food security as a situation in which all households have both physical and economic access to adequate food for all members and where households are not at risk of losing such access. Countries can achieve food security by following a policy of food self-sufficiency or one of food self-reliance. Food self-sufficiency means meeting food needs as far as possible from domestic supplies and minimising food imports. With a policy of food self-reliance, a level of domestic production is maintained but international trade is also relied on to meet the food needs of the population. The appropriate strategy to follow will depend on the perception of the benefits and risks of relying on international trade.

Food security is an important issue for countries with low food self-sufficiency ratios. Japan produces 40 per cent of its calorie requirements – the lowest ratio among the industrialised countries – and this is of concern to many. Food security is one of the basic roles that the government should play. MAFF has set a target of 45 per cent for the food self-sufficiency ratio and is encouraging public effort to meet this goal by 2010.

Japan states in its WTO proposal that it will rely on domestic production, food stockpiles and imports to achieve food security. However, it says an excessive dependence on imports should be avoided for the following reasons: world food supplies may become unstable in the short term and may become tighter in the medium to long term; agricultural trade has such unstable features because relatively low portions of output are currently being exported and the major agricultural products are only being exported by some specific countries; and large purchases by an economically dominant country at a time of food shortage may have a negative impact on the international market.⁶ Stockpiling is seen as only a short-term solution to food shortages because of losses in quality and the cost of storing food.

Policy measures need to address the risks for food security at minimum social cost.⁷ The predictions for world market conditions depend on the assumptions and forecasts of

exogenous variables. It should also be realised that volatility is increased by interventions to protect domestic markets. If domestic markets are integrated, poor or rich harvests in some areas can be easily absorbed into the world market, providing a better way of achieving food security than restrictions on trade aimed at boosting domestic production.

The Japanese government could draw up a blueprint for action similar to a national security plan to address unpredictable emergencies that threaten food security. MAFF estimated that in 2010 Japan could provide 1,890 to 2,030 calories of food a day for each person by solely relying on domestic resources, which is similar to the calorie intake of the early 1950s (although consumption differed from today's diet).⁸ However, there is no emergency plan for shifting operations to get food supplies to the public. An emergency system would be less costly to consumers and taxpayers than trying to increase the food self-sufficiency ratio at time when world supplies are plentiful.

Japan is not alone in emphasising the importance of food security. Although many countries argue that food security should be considered in the forthcoming negotiations, their stances are a little different from Japan's. A communication of 15 October 1999 from Cuba, the Dominican Republic, Egypt, El Salvador, Honduras, Sri Lanka, Uganda and Zimbabwe saw food security as being a problem of small-scale farming: 'food security is certainly being put in jeopardy as it leaves small farmers which have been pushed out without the necessary financial resources to procure the food they need for their subsistence, even though food may be available on the world markets'. And although not directly referring to food security, a communication from Indonesia, Malaysia, Philippines and Thailand on 23 September 1999 made a similar statement: 'The agricultural sector in developing countries is characterised by the predominance of small farm holdings, where farming provides a major, if not the sole, source of livelihood for a large portion of the population'.

In developing countries, food security is more a problem of a lack of income than production. If gains from trade raise incomes, especially those of farmers, food security can be achieved through a balanced combination of domestic production and international trade.

If industrialised countries such as Japan wish to use protection to boost production and improve food security, this will be opposed by other countries. In addition, Japan's current diet can not be maintained without imports. Food security is best achieved by diversifying import sources and building international cooperation for securing trade and development.

Strengthening export rules

The third point of Japan's proposal is the need to address under WTO rules the imbalance in rights and obligations between exporting and importing countries. Japan believes the Agricultural Agreement is much stricter on importers than exporters. For example, only a prior consultation obligation has been established concerning export prohibitions and restrictions (Article 12) and no rules have been set on reducing export taxes or comprehensively binding customs restrictions. On the other hand, all quantitative restrictions have been prohibited (Article 4-2), except for those given special treatment under Annex 5 and the general rules of the General Agreement on Tariffs and Trade. Japan states:

Given the existing trade rules, which allow an exporting country to take restrictions or prohibitions, importing countries have legitimate rights to take appropriate border measures for food security in their own country. (Paragraph 31 in Communication from Japan, 28 June 1999)

Table 1.5 describes the commitments of agricultural importers and exporters under the current Agreement on Agriculture.

The proposals of exporting countries such as the United States and the European Union mention the need for greater transparency in export behaviour, although they do not directly call for the strengthening of export rules. In the Cairns Group Vision Statement, Australia called for the disciplining of export restrictions. It said: 'Export restrictions must not be allowed to disrupt the supply of food to world markets, in particular to net-food importing countries'.⁹ The Cairns Group insists all trade barriers should be targeted for liberalisation, putting agricultural trade on the same basis as trade in other goods. Tighter disciplines on export restrictions and taxes would be part of this approach.

Japan's call for impartial rules for importing and exporting countries is consistent with the objectives of the Agreement on Agriculture, and if export rules were strengthened this would help alleviate Japan's concerns about food security. However, Japan may have to accept that multifunctionality could also apply to exporting countries. In reality Japan's aims do not seem to be about achieving freer trade. By asserting that because of the impartiality of the current rules, importers should have the right to impose border measures, its proposal does little to eliminate barriers on either side.

Table 1.5 Comparison of commitments of agricultural importers and exporters

	Importer	Exporter
I. Customs		
(1) Concessions	Import customs for all agricultural products.	Export taxes are not in the concession schedule.
(2) Tariff reduction rate	Promise to reduce by 36% on average tariffs on all agricultural products (and by a minimum of 15% for individual products).	No reduction obligation.
(3) Safeguard measures	Customs can be raised by no more than a third of the usual level to alleviate drastic change at a time of a large increase in imports for a tariffed product (special safeguard).	No prohibitions (since export taxes are not listed in the schedule, taxes can be freely set or raised).
II. Export/import restrictions		
(1) Numerical restrictions	In principle implement tariffication of non-tariff measures such as restrictions on import volumes.	Export restrictions/prohibitions can be established or continued, on the condition that they consider the impact on the food security of importers and that the establishment of export prohibitions/restrictions is notified in advance or importers are consulted with if required.
(2) Provision of access opportunity	Set minimum access levels for products that make up less than 5% of domestic consumption in the standard period (1986–88). Reduction in 1st year (1995)=3% to 5% by 6th year (2000).	No provisions.
III. Export subsidies		
		Export subsidies allowed on agricultural products or product groups in the standard period. Should reduce by 36% in cost and 21% in volume. Flexibility is allowed, for example rollover to the following year.

Source: MAFF, 'Export regulations in the existing agreement (Reference No. 4)', June 1999.

Conclusion

If Japanese agriculture is to be viable under a more open trading system, productivity needs to improve, particularly relative to the European Union countries. The expansion of the scale of farm operations is crucial. Farmers have held onto land with expectations of huge capital gains when the opportunity arises to convert it to non-agricultural uses. Land leasing provides an alternative way to expand the size of operations and therefore deregulation of the farmland rental market is essential.

Even if the size of farm operations did increase, it does not necessarily mean that Japanese agriculture will become internationally competitive. Japan may never be able to compete with countries such as the United States and Australia in wheat or feed grain production. For Japanese agriculture to survive in an open trading system, production needs to be based on comparative advantage and resources should shift to sectors such as horticulture and livestock that are intensive in technology and human capital. Developments in Japanese agriculture include the entry of non-agricultural companies in horticulture. For example, Omuron Corporation, a high-technology industrial automation company, produces tomatoes in a huge computer-controlled glasshouse. Farm management also needs to be diversified, encouraging other types of management such as joint-stock companies.

Japan calls the 21st century an era of 'diversity and coexistence' (MAFF 1999b) but appears to be trying to achieve this aim through protection. While farming does create multifunctional benefits, these benefits should not be used as an excuse for protection. Multifunctionality goals should be achieved through appropriate domestic policies and not hold up further liberalisation in agricultural trade. The new Basic Law on Food, Agriculture and Rural Areas contains areas for domestic reform and deregulation and these are urgent to achieve the diversity and coexistence of agriculture.

The commitments in the Agreement on Agriculture for improving market access and dismantling domestic support and export subsidies provide for substantial progressive reductions in support and protection, and upcoming negotiations are aimed at continuing this process. Although most countries have fully implemented their commitments under the Agricultural Agreement, obstacles to agricultural trade still exist and the volume of trade has not increased substantially. Tariffication was introduced to improve market access but tariff equivalents have been prohibitively high for many commodities, limiting imports in a similar way to the previous import quotas. The commitments on reducing domestic support have not

been enough to correct the distortions. Some items in the green box are still tied to production. Some countries still subsidise exports, and there are no disciplines on export credits, which play the same role as export subsidies.

Japan depends a great deal on imports for its food needs and has benefited much from international trade. In negotiations for further reductions in support and protection, what role should it take? Non-trade concerns will be important. Indeed, Japan's proposal on multifunctionality is supported by the European Union, Switzerland, Norway and Korea, and the importance of food security is recognised by Switzerland, Korea, India, Bangladesh and Venezuela. Korea has also lobbied to strengthen export rules.¹⁰ But Japan should not be using these non-trade concerns as an excuse to maintain border measures to protect farmers.

A compromise is needed between trade and non-trade concerns. Subsidies for agricultural activities may provide a better way of meeting multifunctionality goals. However, if subsidies increase production, they will come within the amber box and will impose costs domestically in terms of losses in benefits from trade. Subsidies that are targeted to the particular agricultural activities that create the externalities, similar to the direct payments that Japan introduced for disadvantaged areas, are more suitable policies than the widespread protection of farming.

Notes

- 1 Japan's Agricultural Census defines a farm household as one that operates on 10 ares (1 are = 1/100 hectare) or more of farmland, or annual sales of agricultural products of 150,000 yen or more.
- 2 See, for example, the proposal prepared for the WTO 1999 Ministerial Conference by Cuba, the Dominican Republic, Egypt, El Salvador, Honduras, Sri Lanka, Uganda and Zimbabwe, although it insists that for developing countries the aggregate AMS should be applied.
- 3 Japan's proposal also mentions two other points: the need for special consideration for developing countries and its response to new challenges such as GMOs (genetically modified organisms).
- 4 For a review of studies in this area see Demura and Yoshida (1999). There are other estimates of agricultural externalities using different methods including travel cost, contingent valuation and hedonic methods. There are criticisms of the methods, ways of calculation and data used to evaluate the value of multifunctionality. See, for example, ABARE (1999) and Trewin (2000).

- 5 Although not mentioning the blue box, Switzerland's proposal says, 'solutions should be found ... in particular by extending the measures allowed under Annex 2 to the Agreement on Agriculture' (the green box).
- 6 Paragraph 18 in MAFF (1999a).
- 7 For example, Hayami (1988) classified possible food crises and proposed appropriate policy measures.
- 8 See MAFF's Web site at <<http://www.kanbou.maff.go.jp/ampo/>>.
- 9 Communication from Australia of 6 July 1999.
- 10 Information issued by MAFF as of September 1999.

References

- ABARE (Australian Bureau of Agricultural and Resource Economics) (1999) 'Multifunctionality: a pretext for protection?' ABARE Current Issues, 99.3, August 1999.
- Demura, K. and K. Yoshida (eds) (1999) *Towards the Creation of Rural Amenities* (in Japanese), Taimeido, Tokyo.
- Hayami, Y. (1988) *Japanese Agriculture under Siege*, Macmillan, London.
- Honma, M. (1994) *The Political Economy of Agricultural Problems*, Publishing Bureau of the Japan Economic Journal, Tokyo.
- Johnson, D. Gale (1973) *World Agriculture in Disarray*, St Martin's Press, New York, and Second Edition, 1991.
- MAFF (Ministry of Agriculture, Forestry and Fisheries) (1999a) 'Preparations for the 1999 Ministerial Conference, negotiations on agriculture, communication from Japan', 28 June.
- (1999b) 'Toward the establishment of the trade rules for the 21st century that contribute to the era of diversity and coexistence', November.
- (1999c) 'Multifunctionality in Japan' (Reference No.2), June.
- (1999d) 'Environmental externalities of Japan's paddy fields farming, and environmental externalities provided by upland fields', see <<http://www.maff.go.jp/soshiki/kanbou/environment/>>.
- Trewin, R. (2000) 'Issues in Japanese agricultural policy,' in *A Way Forward for Japanese Agriculture?*, *Pacific Economic Papers* No. 300 (February), Australia-Japan Research Centre, Australian National University, Canberra.

East Asian Approaches to Food Security and Some Implications for the Next WTO Round

Ray Trewin
The Australian National University

Yiping Huang
The Australian National University

CONTENTS

<i>List of tables</i>	iv
Introduction	2.5
Explaining different food security approaches	2.6
Self-sufficiency approaches to food security	2.11
Other approaches to food security	2.13
The APEC food system	2.15
Modelling food security alternatives	2.16
The political economy of agricultural policy	2.21
Conclusion	2.24
<i>Notes</i>	2.26
<i>References</i>	2.26

TABLES

Table 2.1	Population and arable land of selected East Asian economies	2.6
Table 2.2	GDP per capita and agriculture's share of GDP of selected East Asian economies.....	2.7
Table 2.3	Production, consumption and trade in China and Japan of key products (1989-97) ('000mt)	2.9
Table 2.4	Import tariffs and export taxes, selected countries/regions (%) rice	2.17

EAST ASIAN APPROACHES TO FOOD SECURITY AND SOME IMPLICATIONS FOR THE NEXT WTO ROUND

Introduction

East Asia is made up of a diverse group of countries of various sizes and at different stages of development. However, all nations are densely populated, and therefore food security has long been a policy priority in East Asia.

What is meant by food security? The Food and Agricultural Organisation's definition is 'adequate and stable supplies of appropriate food to all', which implies that prices are reasonable¹ (FAO 1996). In Japan, food security is taken mainly to mean food self-sufficiency, especially in staple foods such as rice. In contrast, China addresses food security with a more open trade and investment approach. It imports some raw commodities and pays for these with exports, including exports of processed foods derived from these commodities, building on its comparative advantage in labour-intensive activities. Whether a country should address its food security needs through attempting to be self-sufficient in food, by trading based on comparative advantage, or through some middle position will depend on a number of factors and is a question that economic modelling can help answer. East Asian approaches to food security significantly impact on their own economies and also have implications for world markets.

This paper examines the importance of agriculture in East Asia. It looks at production, consumption and trade trends as a guide to the determinants and implications of food security policies. The focus is on the contrasting approaches of China and Japan – two large economies representative of different stages of development and different political systems. A general equilibrium global trade model is used to quantify the implications of alternative approaches to food security. The paper examines intermediate approaches to food security – for instance the Asia Pacific Economic Cooperation (APEC) forum's recent endorsement of a comprehensive and balanced policy package that is designed to promote a regional approach to greater food security (PECC 1999). Regional arrangements are discussed in light of the upcoming World Trade Organisation (WTO) negotiations on agricultural trade.

Explaining different food security approaches

A number of different factors influence the approach countries are likely to take to food security. Basic resource endowments are a key determinant of whether an economy can efficiently follow a food self-sufficiency approach. The ratio of arable land per head of population varies considerably in East Asia. Singapore, Hong Kong and Brunei clearly can not rely on domestic production to feed their people and must import food (Table 2.1). Japan's arable land has decreased markedly. In China, arable land is approximately 30 times that of Japan and has increased slightly, but its population is nearly 10 times higher than Japan's, and has been rising faster. Thailand's arable land per head of population is around three times that of China.

Agriculture in East Asia has been declining in importance as economies develop (Table 2.2). Taking Japan and China as examples, per capita GDP is about 40 times higher in Japan than in China, but agriculture's share of GDP is 10 times higher in China, although this has been declining rapidly as the economy grows and manufacturing and services sectors develop.

Table 2.1 Population and arable land of selected East Asian economies

	Population (millions)		Arable land (million hectares)	
	1990	1997	1990	1996
Brunei	0.26	0.31	0.00	0.00
Cambodia	8.65	10.48	3.70	3.72
China	1,135.20	1,227.20	123.68	124.16
Hong Kong	5.70	6.50	0.01	0.01
Indonesia	178.23	200.39	20.25	17.94
Japan	123.54	126.09	4.12	3.94
Korea	42.87	45.99	1.70	1.70
Laos	4.03	4.85	0.81	0.80
Macau	0.37	0.45	na	na
Malaysia	18.20	21.67	1.70	1.82
Philippines	62.60	73.53	4.83	5.22
Singapore	2.71	3.10	0.00	0.00
Taiwan	na	na	na	na
Thailand	55.60	60.60	17.49	17.09
Vietnam	66.23	76.71	5.34	5.51

Note: na = not available.

Source: United Nations, World Development Indicators

Table 2.2 GDP per capita and agriculture's share of GDP of selected East Asian economies

	GDP per capita (US\$)		Agriculture's share of GDP	
	1990	1998	1990	1997
Brunei	14,000	15,414	2.4	na
Cambodia	167	251	55.7	51.1
China	332	773	27.1	18.7
Hong Kong	13,130	24,829	0.3	na
Indonesia	638	461	19.4	16.0
Japan	24,053	30,046	2.5	2.0
Korea	5,917	6,908	8.7	5.7
Laos	206	241	61.2	52.1
Macau	11,178	15,898	na	na
Malaysia	2,409	3,358	18.7	12.1
Philippines	721	866	21.9	18.7
Singapore	12,401	21,807	0.3	0.1
Taiwan	7,851	11,938	na	na
Thailand	1,528	1,819	12.5	11.2
Vietnam	na	348	37.5	26.2

Note: na = not available.

Source: United Nations, World Development Indicators.

Exchange rates and other macroeconomic variables also influence the decision to import food rather than produce domestically; for instance, Japan's appreciating currency has given it greater purchasing power. These variables have been estimated to have a larger impact on the agricultural sector than direct agricultural policies (Schiff and Valdes 1998).

Again, looking at Japan and China, we can see how agricultural production changes as countries develop. Per capita consumption of rice in China is much greater than in Japan, where consumption has shifted to meat and dairy products (Table 2.3).² China produces more rice, but Japan produces more rice per hectare of arable land. It would be expected that because Japanese rice consumption has dropped, rice production would have also declined. However, higher incomes have given Japan the ability to assist rice production. Self-sufficiency ratios can be determined from the ratio of domestic consumption to production and are also reflected in the net trade situation. For both countries, rice trade is relatively small although China is a more consistent exporter and Japan has on occasions had high imports. Japan's imports reflect the importance of rice in Japan and its ability to pay for imports (an

indication that real food security is dependent on income). Imports may also reflect Japanese commitments in the Uruguay Round.

Per capita consumption of wheat has been increasing in both countries, but to a greater extent in China, while production is larger in China, both in absolute terms and relative to its arable land. Wheat production has been increasing in China, but decreasing in Japan. Both countries are significant importers, particularly Japan.

Meat consumption per capita is about the same in both countries and has been increasing.³ Production is larger in China, although not relative to its arable land, and has been increasing, while meat production in Japan has been decreasing. Japan imports a significant and increasing amount of its meat. China is predominantly an exporter of meat, although exports are small relative to its production and consumption.

Japan's per capita consumption of dairy products is about 10 times higher than China's but seems to be tapering off, while China's consumption is now increasing rapidly. Production has followed a similar pattern. Both countries have increased imports of dairy products.

The consumption of sweeteners is highly correlated with the consumption of processed foods. Per capita consumption of sweeteners is much higher in Japan than in China, but Japan's consumption has fallen slightly while China's has risen rapidly with development. Japan produces more of these products relative to its area of arable land, but production has fallen. Japan's trade has been fairly steady. China's production of sweeteners has been rising rapidly. Imports are now starting to dominate exports, but trade has been variable because of large variations in production and stocks.

Per capita consumption of fish is much larger in Japan than China, but fish consumption has been increasing rapidly in China, as has production, whereas Japan's production has fallen rapidly. Both countries are net importers, although China's exports have increased.

The production of poultry and eggs requires little land and is often dominated by large factory-like operations, so it can be expected that Japanese production would not be at much of a disadvantage relative to other countries. This is reflected in low protection and prices close to world prices. Japanese poultry production has fallen and imports have risen, reflecting Japanese investment in countries such as China and Thailand. Consumption of poultry and eggs has increased in Japan, while both consumption and production have risen in China.

As economic development advances, the consumption and production of processed foods usually increases and agriculture achieves a more complex and integrated relationship with

Table 2.3 Production, consumption and trade in China and Japan of key products (1989-97) ('000mt)

Product	Year	Produce	China			Japan			
			Import	Export	Consume	Produce	Import	Export	Consume
Rice	1989	121,701	1,203	409	105,807	8,627	18	-	7,982
	1990	127,790	66	431	108,186	8,754	19	-	7,968
	1991	123,831	151	869	110,553	8,007	19	-	7,983
	1992	125,567	117	1,085	111,823	8,815	21	-	7,990
	1993	119,919	105	1,525	111,720	6,532	102	-	7,952
	1994	118,747	516	1,561	110,028	9,989	2,186	-	7,630
	1995	124,952	1,642	260	111,653	8,961	27	11	7,838
	1996	131,448	779	368	113,918	8,624	396	-	7,793
Wheat	1997	135,273	375	1,032	114,744	8,358	523	33	7,749
	1989	90,810	15,989	100	91,840	984	5,669	410	5,381
	1990	98,232	13,536	105	93,708	952	5,558	434	5,468
	1991	95,954	13,478	156	95,536	759	5,781	419	5,486
	1992	101,591	11,688	290	96,750	759	6,071	412	5,449
	1993	106,395	7,423	520	98,831	638	5,915	450	5,593
	1994	99,301	8,417	527	97,447	565	6,474	426	5,907
	1995	102,211	12,751	521	97,375	444	6,107	441	5,847
Meat	1996	110,569	9,352	972	103,830	478	6,081	407	5,921
	1997	123,290	3,035	899	106,975	573	6,476	307	5,871
	1989	27,800	117	579	27,319	3,571	1,262	10	4,680
	1990	30,073	131	745	29,438	3,503	1,293	12	4,691
	1991	33,055	166	971	32,228	3,422	1,411	14	4,752
	1992	35,970	160	641	35,473	3,399	1,621	12	4,926
	1993	40,133	182	787	39,506	3,361	1,718	10	4,978
	1994	44,315	233	915	43,606	3,259	1,897	7	5,043
Sweeteners	1995	47,853	368	1,154	47,062	3,202	2,505	7	5,578
	1996	47,967	426	1,138	47,240	3,101	2,673	7	5,618
	1997	53,308	335	825	52,829	3,105	2,321	6	5,317
	1989	7,081	1,634	611	8,413	2,288	2,166	13	4,354
	1990	8,129	1,198	757	9,150	2,214	1,988	14	4,212
	1991	9,827	1,128	516	9,851	2,245	2,099	16	4,220
	1992	9,713	1,225	1,999	8,840	2,102	2,087	14	4,076
	1993	7,770	609	2,207	6,779	2,135	1,965	13	4,007
Milk	1994	7,164	1,707	1,225	7,562	2,080	1,917	13	4,081
	1995	8,001	3,169	717	8,741	2,170	2,031	12	4,052
	1996	8,476	1,467	910	9,803	1,956	1,912	18	3,970
	1997	9,053	1,063	567	10,293	2,133	1,948	25	3,966
	1989	6,581	772	38	6,145	8,059	2,223	4	8,070
	1990	7,035	875	29	6,681	8,189	2,002	1	8,076
	1991	7,602	983	31	7,276	8,259	2,447	1	8,309
	1992	8,071	883	49	7,582	8,576	2,307	1	8,335
1993	8,150	938	76	7,633	8,626	2,108	1	8,405	
1994	8,681	1,211	72	8,427	8,389	2,249	6	8,505	
1995	9,457	1,079	146	9,008	8,382	2,520	12	8,567	
1996	10,191	932	78	9,584	8,657	2,198	11	8,582	
1997	10,757	1,048	150	10,179	8,645	2,213	13	8,545	

Table 2.3 (Continued)

Product	Year	Produce	China			Produce	Japan		
			Import	Export	Consume		Import	Export	Consume
Fish	1989	13,536	4,845	920	12,299	11,058	3,482	1,504	8,876
	1990	14,542	3,746	1,043	13,024	10,251	3,983	1,054	8,798
	1991	15,464	5,627	1,046	14,127	9,197	4,582	906	8,306
	1992	17,663	5,808	1,301	16,393	8,348	4,923	587	8,281
	1993	20,983	5,417	1,512	19,587	7,972	5,014	544	8,487
	1994	24,962	6,549	1,720	23,352	7,273	5,552	373	8,907
	1995	29,515	6,539	1,857	27,514	6,629	6,586	291	8,901
	1996	32,866	7,060	1,957	30,604	6,629	6,586	291	8,901
	1997	32,866	7,060	1,957	30,604	6,629	6,586	291	8,901
Poultry	1989	3285	49	46	3284	1423	296	6	1679
	1990	3635	68	51	3650	1391	315	7	1665
	1991	4380	86	63	4403	1357	383	9	1697
	1992	5031	78	103	5004	1365	437	8	1759
	1993	6321	100	120	6299	1318	436	6	1714
	1994	7104	137	199	7037	1256	504	3	1723
	1995	8610	264	306	8566	1267	629	3	1857
	1996	9004	319	389	8931	1270	657	3	1888
	1997	10796	216	387	10661	1280	623	3	1865
Eggs	1989	7413	3	45	6689	2421	28	0	2316
	1990	8172	3	42	7385	2419	29	0	2317
	1991	9458	2	42	8555	2498	42	0	2409
	1992	10459	5	44	9466	2571	29	0	2469
	1993	12070	2	32	10918	2598	32	0	2500
	1994	15077	2	35	13680	2569	35	0	2478
	1995	17083	2	29	15497	2551	40	0	2466
	1996	19886	1	41	18076	2573	42	0	2491
	1997	21640	1	83	19583	2567	41	0	2483

Source: Food and Agriculture Organisation.

manufacturing and services sectors (Holt and Pryor 1999). Inputs become more diverse, away from labour and into capital-intensive technologies and the like. And although agriculture's share of GDP declines, agribusiness remains a significant component of the economy.

Forecasts from international agencies such as the FAO, the Organisation for Economic Cooperation and Development, the International Food Policy Research Institute and the World Bank support many of these trends. There is expected to be a continuing but slowing growth in food production worldwide, a growth in overall food consumption, especially of livestock products, and increasing trade, but no significant increase in real prices.

Analysis of investment trends would also help shed light on food security approaches, but detailed information is not readily available. Generally though, as economies develop, investment in agrifood grows. Worldwide, this investment has been increasing more rapidly than agrifood trade (Henneberry 1995).

The efficiency of industries affects the type of food produced and therefore the approach to food security. Compared with China, Japan has a comparative disadvantage in land- and labour-intensive production, but it may have some comparative advantage in food production that is capital- and technology-intensive. Export data show that China may have some comparative advantage in labour-intensive activities such as meat production. The impact of policies on costs and prices of agricultural products is also important to the type of food produced and consumed.

Self-sufficiency approaches to food security

The criteria for assessing the achievement of food security objectives usually include economic efficiency (the economic benefits versus costs), effectiveness and equity. Policies vary depending on the number of commodities covered and whether food self-sufficiency is to be met all the time or just for a period of time. Each approach will entail particular benefits and costs.

Food security is particularly important in East Asia and self-sufficiency policies, which restrict imports through tariff protection or price supports for domestic production, have been put in place to improve food security. Japan and Korea aim for complete self-sufficiency in staple products such as rice and as high a level of self-sufficiency as possible in other key products. Japan uses price supports, trade constraints, state trading enterprises⁴ and input and infrastructure subsidies to achieve this aim (Trewin 2000). The failure of the Great Leap Forward to provide food security to the Chinese people illustrated the dangers of an extreme self-sufficiency approach and China instead aims for near self-sufficiency in grains overall – exporting some to import others. China also uses trade constraints and state agricultural trading companies to control imports and encourage domestic production. Indonesia and Vietnam concentrate on rice self-sufficiency and aspire for self-sufficiency in some other commodities. Indonesia has recently introduced a more flexible approach of trend self-sufficiency in rice in which imports in some years are balanced by exports in other years. Malaysia and Taiwan appear recently to have opened up trade in raw materials in an attempt to improve the overall competitiveness of the food sector.

Trend self-sufficiency and approaches that are restricted to a few commodities recognise to a limited degree the gains to be made from trade but are still unlikely to be the most efficient ways of achieving food security. Self-sufficiency is only an efficient approach to food security if a country has a comparative advantage in food production. Although any country can achieve self-sufficiency if prices are set high enough so that domestic production will satisfy domestic consumption, this approach comes at a huge cost. Economic costs are less visible but just as real with the use of production incentives. While moving toward directly supporting incomes can also artificially maintain resources in agriculture and result in an inefficient allocation of resources and high costs to taxpayers, this policy has less of an impact internationally than price supports and production incentives.

Self-sufficiency policies often have other objectives, for example assisting poor farmers and consumers. Japan's new Basic Law on Food, Agricultural and Rural Areas, for example, incorporates the objectives of food self-sufficiency and raising farmers' incomes (AJRC 2000). However, as most farmers have relatively high incomes, much of which comes from other activities, it seems there are other important political economy reasons behind support policies. When policies to achieve self-sufficiency in food include other political goals, food security can be reduced. According to Duncan (2000), major food security problems are the result of bad policymaking or can be corrected through institutional changes.

There are also questions about the effectiveness of such an approach. Relying solely on domestic production introduces greater risks that production will be disrupted by the weather, as happened with Japanese rice production several years ago. In some countries, such as Japan and Korea, food self-sufficiency is dependent on the availability of imported energy inputs – meaning that self-sufficiency is only as secure as the supplies of these inputs. North Korea's recent food shortages were partly a consequence of a shortage of fertilisers. Moreover, self-sufficiency in a particular staple food such as rice at the expense of other commodities can lead to nutritional problems. Self-sufficiency becomes less relevant as development progresses and consumption becomes more sophisticated, moving away from domestic staples. Often a policy of self-sufficiency in raw commodities constrains the development of a domestic processed foods industry because raw material costs are high and less resources have been dedicated to this sector. While China is not self-sufficient in raw commodities, it is in food, and is a net exporter of labour-intensive processed foods.

A self-sufficiency approach can negatively impact on equity. In most developing countries, poor farmers tend to be taxed relative to manufacturers through industry policies

or as a result of macroeconomic policies that lead to an overvalued exchange rate. In industrialised countries such as Japan, urban consumers tend to pay through higher prices for the assistance that goes to inefficient agricultural activities. Agricultural arrangements also impact on equity in other countries as they penalise efficient agricultural exporters, including developing countries.

Has the East Asian economic crisis made a self-sufficiency approach more attractive? It has been claimed that the food shortages in Indonesia in 1998 following a drought and the economic crisis proves that Indonesia, and other East Asian countries, should have been following a food self-sufficiency policy. But the food shortages would have been more severe if Indonesia had concentrated on producing rice rather than higher income earning exports that it produces efficiently, such as palm oil. In key sectors such as rice, Indonesia's stabilisation policies and agricultural institutions had led to a situation where farmers, one of the poorest groups in society, were being paid below world prices. There was therefore less incentive to produce (although this was compensated to some extent by subsidised inputs such as fertilisers and credit) and all consumers, rich or poor, were gaining from low prices. Budgetary and other pressures brought on by the crisis led to policy changes giving farmers close to world prices and directly targeting poor consumers with subsidised rice.

Other approaches to food security

Food security can be approached in other ways, both in conjunction with or separate from a self-sufficiency approach. Stocks of food often form an important component of food security. In Japan, state trading enterprises control imports of some commodities to maintain high domestic prices. Food is stockpiled or sold, with the government taking the revenue from the difference in international and domestic prices. In China state reserves of grain act to increase food security. In recent years falling stocks have caused concern (see for example, Brown 1995). Falling stock levels may reflect:

- rational responses to higher prices and holding costs;
- the introduction of 'just-in-time' inventory practices;
- short-term weather conditions;
- improved wastage rates;
- more responsive supplies;
- better location of stocks;

- a change in public/private and reserve/circulating stock mixes;
- an improvement in other stabilising policies; or
- a fall in protection that had been restricting efficient market processes.

These potential causes need to be canvassed to avoid low stocks being used to justify assistance to increase production and stocks, as this would have a detrimental effect on world prices, efficient investment and production in the longer term. The effectiveness of some large public stockholding schemes has been questioned, as it is thought they crowd out smaller private operators. Analysis of the equity of such schemes shows that farmers often lose from the distortions of market quantities and prices such schemes introduce. Finally, it is interesting to note that in other sectors, 'just-in-time' inventory management reflects the willingness to trade off costs (e.g. higher risks) with benefits (e.g. lower storage costs). Such trade-offs could apply to stockholding for food security purposes. Stockholding needs to be fully analysed to ascertain whether it has become a more efficient and attractive option (Anderson 1998).

Open trade and investment policies increase food security. Long-term contracts with food exporters or direct overseas investment in food can help secure supplies through creating market dependencies. Such approaches incorporate efficiency gains associated with specialisation and trade, and therefore also boost income. As incomes rise, population drops and food security increases. Strong trade and other economic relationships help reduce the chance of conflict and also the need for an expensive self-sufficiency approach to food security. Food trade has grown substantially over the years but the potential is significantly larger if trade and investment open up further. Most of the substantial gains from trade reform go to the most protected economies, such as Japan, which is currently facing a depressed economy and severe budgetary problems. Some developing economies also gain from being able to export at higher prices (DFAT/ABARE 1996).

Trade and investment policies appear to be more efficient ways of approaching food security – but what about effectiveness and equity? Some countries such as Japan and China worry that relying on trade exposes them to the risk of trade embargoes, which they have experienced in the past. It is somewhat ironic, however, that limiting trade and investment opportunities increases the effectiveness of an embargo. The risk of an embargo on food is fairly small. Such embargoes have been used by a very small number of countries – nowadays trade conflicts are more likely to lead to constraints on imports rather than exports, or other

more effective forms of protest, such as the downgrading of diplomatic relations (Yang 2000). It is difficult to make an embargo effective, as evidenced by many recent experiences. Diversifying sources of food through a broad trade and investment approach further lessens the likelihood of a successful embargo. Countries could choose to enjoy the benefits of open trade and investment most of the time and self-sufficiency could remain an option that could be drawn on if necessary, at a short-term cost. Consumption can also be changed in the event of an embargo, for example by switching to grains and running down 'stored grain' livestock numbers.

Some groups have been concerned that the poor will be made worse off if trade and investment opens up. Food production in developing countries is usually either production of staple foods by poor farmers or large-scale cash crop production for export. Thus any equity aspects of trade and investment would generally concern large owners. Trade and investment are not discriminating and if constraints to trade and investment are relied on for achieving equity it points to shortcomings in domestic redistributive policies, which are better ways of addressing equity.

There are also mixed approaches to improving food security. For example, rather than using trade constraints, self-sufficiency can be advanced more efficiently through better research and agricultural extension, better infrastructure and reforms that allow market-driven diversification. The best approach to food security is to allow openness in consumption, production, stockholding, trade and investment, therefore allowing comparative advantage to apply and maximising incomes so that countries can afford to trade in food and other products – importing what they can not produce efficiently and exporting what they produce best.

The APEC food system

A balanced and comprehensive package of measures concerning food security was put forward by the Pacific Economic Cooperation Council (PECC) to a recent APEC meeting (PECC 1999). The package includes measures to improve rural infrastructure; achieve technology transfer and food safety; improve food security through the removal of export taxes, other export constraints and export subsidies; and increase trade and investment liberalisation. Rural infrastructure development can improve the distribution of food and related products as well as boost incomes through encouraging the development of other rural activities, including the

high-growth processed foods sector. The removal of export taxes is important to balance the removal of import tariffs by food importers such as Japan and to encourage increased production by efficient exporters. The same rationale should apply to other arrangements that discourage exports, such as the practices of some state trading enterprises. Export subsidies should be removed as they lower world prices and discourage efficient exporters from producing. The trade liberalisation agenda has been broadened through this package to cover any trade policy of concern to an APEC economy. Analysis has shown that there are large gains to be made from trade liberalisation within APEC, as many members have complementary comparative advantages (Yang et al. 1999). Goto (1999) shows that the gains from regionalisation are larger for agriculture than manufacturing because of the greater protection and smaller product differentiation in agriculture. With Japanese rice, however, product differentiation is large enough to suggest that production would continue following liberalisation. An efficient food system better addresses food security by lowering transaction costs and improving the ability of countries to adjust to changing situations.

Food security can be at two levels so we need to ask whether the world is producing enough food for everyone's needs and whether this food is readily available to all? The failure to achieve food security for all individuals has been of concern but is really a problem of insufficient income, not insufficient food. Food security at the individual level will be enhanced by greater trade and investment, research and development, infrastructure, market information, and so on, as these create higher incomes. Self-sufficiency does not guarantee that individuals will be able to afford food. For some developing countries, food aid is an added issue: if it crowds out the development of more sustainable domestic or traded supplies of food then it may be causing more harm than good.

Modelling food security alternatives

A general equilibrium global trade model, the Global Trade Analysis Project (GTAP) model, can help quantify the implications of trade liberalisation.

North America, China and Japan are examined in the model, which takes values for some of the key variables from the associated database. These variables include imports and exports, import tariffs and export taxes, export subsidies, taxes on factors of production, and anti-dumping duties. Selected rice import tariffs and export taxes are shown in Table 2.4, which illustrates that tariffs are very high in Japan, moderately high in China, and low in North America (including those between the United States and Canada). China taxes rice

Table 2.4 Import tariffs and export taxes, selected countries/regions (%) rice

Country (from/to)	Japan	China	North America	Total
<i>Import tariffs(-)/subsidies(+)</i>				
Japan		25.0	2.6	-37.1
China	-502.4		-4.4	-15.8
North America	-503.1	-25.0	-4.5	-39.6
Total	-503.0	33.7	-3.4	-35.2
<i>Export taxes(+)/subsidies(-)</i>				
Japan		-500.0	-502.9	-503.0
China	26.0	-100.0	-47.6	17.2
North America	-9.1	0.0	-0.6	-4.7
Total	-2.5	7.2	-2.5	-12.6

Source: GTAP database.

exports to Japan and subsidises exports to North America and within China (to Hong Kong). Japan subsidises rice exports to China and North America as does North America to Japan.

The data highlight a potential limitation with the GTAP database and model. It appears from the GTAP database that Japan has no import tariffs on rice from regions other than China and North America, which does not fit with Japan's tariff schedules. This may be because taxes are estimated not only from protection data but also from actual trade flows. If an import tax is prohibitive and there are no trade flows, an import tax derived from (zero) tax revenues divided by (zero) import values is indeterminate but is set to zero. Altering the GTAP database to reflect these high taxes, for example by substituting bound rates for derived rates, will not overcome the problem because the Constant Elasticity of Substitution (CES) functional form used for choosing the source of imports will require massive changes in prices to increase rice imports from a low base. Another problem could occur with export taxes. If the database determines export taxes from the difference between export prices and domestic prices, it will not be able to differentiate between exports of premium products and aid rice, and between the application of an export tax and a subsidy. It has to be hoped that the flows and taxes that are in the database are representative of what would happen in reality. This will be more likely if the simulations are more general rather than too specific, for example if they analyse tariff cuts and their impacts across a broad range of countries rather than for specific countries.

To examine the impact of individual factors, two simple simulations were run, presuming a one-third reduction in Japanese import tariffs and in export taxes imposed on rice imported by Japan (the imports came from China and North America in the mid 1990s, which was before Australian rice gained access).

With support for Japanese rice production worth US\$30 billion and supported prices five times higher than import prices, it would be expected that a one-third cut in support would have large economic consequences unless imported rice did not substitute for Japanese rice. However, changes to prices and welfare were small. This reflects the model's limitations and the limited nature of the simulations – which points to more sectors and countries needing to be involved in liberalisation for large overall gains. Although the impacts were small, there were a number of differences and similarities in the simulations. Despite the smaller absolute (as distinct from relative) cutback in export taxes than in import tariffs, the fall in export taxes leads to a larger change in world prices and a smaller rise in economic welfare. These effects are much more marked in simulations of import tariff and export tax cuts for a large number of countries. A cut in rice import tariffs for all countries results in a 25-fold increase in economic welfare, compared with a lesser gain when import tariffs are cut just by Japan. These gains would be even larger if the dynamic effects of trade and investment liberalisation were taken into account.

Japan has suggested that trade-offs may exist between cuts in its import tariffs and cuts in the export taxes of other countries. However, if Japan hoped that mutual liberalisation would improve price stability and ease the adjustment of domestic industries, this is unlikely. Both shocks imply greater access to the Japanese market and would put pressure on high-cost domestic industries to adjust. Lower world prices, which are likely to follow a decline in export taxes, would make this adjustment harder. Perhaps the true objective of the suggested trade-off is one of drawing an equivalence between achieving self-sufficiency through tariffs, and food exporters gaining food security through imposing export taxes and, possibly, export embargoes.

Theory suggests that if Japan lowers import tariffs on rice, imports will increase significantly, production will decrease (wheat and other grain production will increase), consumption will rise, and there will be other changes in world supplies and prices, and so on. The effect on supply will depend on the shocks and various elasticities – North American and Chinese rice production and exports should increase, for example. The Japanese

government loses revenue from import tariffs, producers lose surplus, consumers gain surplus and there is a net gain from a reduction in the deadweight loss.

Lowering export taxes on rice from China to Japan, for example, leads to an increase in Chinese production, a decrease in Chinese consumption, greater exports from China to Japan, changes in world supplies, lower world prices, and so on. The Chinese government loses export tax receipts, Chinese consumers lose surplus, producers gain surplus and there is a small net gain from a reduction in the deadweight loss. Japanese imports increase unless constraints increase and consumers gain from lower prices, but Japanese production falls, as does North American production and exports.

A possible explanation for the differences in price and welfare impacts between the two shocks is that with just a Chinese export tax cut, Japan maintains import protection and this results in a larger impact on world prices and less change in welfare. Export taxes are often imposed to take advantage of market power – supply is constrained to boost prices – so it is not surprising that a reversal of this process can result in relatively high price increases. The deterioration in Chinese terms of trade under the export tax cut provides another explanation.

More general simulations using the GTAP model have been undertaken by Yang et al. (1999) to look at who gains and loses from unilateral and concerted trade liberalisation. They focused on Australasia, Japan, ASEAN and North America to ask whether terms of trade losses from broad⁵ unilateral liberalisation can be offset through broad concerted liberalisation. The answer depended on the size of the country, the type of protection, geography and the composition of trade. Sensitivity to various parameters such as elasticities was also analysed. The modelling suggested that gains will not be large when there is simultaneous liberalisation by countries which have low trade complementarities, regardless of size. For example, Australia is better off from concerted liberalisation with Asian developing economies than with North America. A regional trade arrangement between Japan and Korea, or one excluding agriculture, would have far less benefits than broader arrangements. The benefits are in the ability to specialise and trade. Unilateral liberalisation will lead to efficiency gains and larger dynamic gains from a more competitive economy. However, concerted liberalisation will not only address the possibly counterbalancing terms of trade effects but also reduce resistance by lowering adjustment costs through stronger and broader export demand. Japan heavily protects the agricultural sector with the use of high tariffs and import quotas. As there are no export subsidies, Japan's allocative efficiency improves whenever trade expands as the result of liberalisation. Some of ASEAN's large allocative

efficiency gains are due to the increased imports of agricultural commodities and others come from increased consumption of such goods, especially livestock products, and increased production by food processing industries. Japan's welfare gains would be around US\$53.6 billion per annum if it undertook unilateral trade liberalisation and US\$98.7 billion per annum from concerted trade liberalisation, the majority of which comes from allocative effects. These estimates show that gains are larger if liberalisation is broader – in terms of countries, sectors and arrangements.

The strategy of food self-sufficiency was analysed for China by Yang and Huang (1997) using a projections version of the GTAP model. The simulations assume China follows other East Asian economies, contrary to the requirements for its WTO membership, and increases agricultural protection through import tariffs to levels that will maintain 1992 levels of self-sufficiency in staples such as rice and wheat. The economic costs would be high, especially when economic growth is rapid. The cost to the Chinese economy would be around US\$500 million per annum. These costs would be more than US\$8 billion if the policy was to be extended to other foods. The world economy also loses under this scenario. The costs to the Chinese government would be even higher if output subsidies rather than border protection are relied on to achieve self-sufficiency. The best way for China to increase production would be to raise efficiency through greater investment and research.

Yang (2000) considered the medium-term impact on China of food embargoes by the United States and its Western allies with the presumption that self-sufficiency falls in the future as trade increases and China's comparative advantage in agriculture lessens. The simulations show that the embargoes would have a limited impact on food consumption but large impacts on the economic welfare of China and the United States. A Western food embargo against China causes economic welfare to fall by around US\$8.6 billion in China and US\$3.5 billion in the United States.

Self-sufficiency, enforced or otherwise, involves large economic costs when comparative advantage in agricultural production is lost. Article XI.2(a) of the WTO Agricultural Agreement allows exporters to impose quantitative export restrictions so long as importers are consulted and the WTO is notified of the nature and duration of the restrictions. More stringent conditions could be imposed in new negotiations, for example giving the first right of refusal to long-term customers (Anderson 2000). However, Australian agreements with Japan in this respect do not appear to have lessened the desire for self-sufficiency, suggesting this policy might also reflect political economy goals. Japanese policies that restrict rice production are another reflection of this aspect.

The political economy of agricultural policy

Approaches to food security in East Asian countries are fundamentally determined by political economy factors, but these are difficult to quantify.

Institutions are clearly important. In Japan strong relationships exist between the Liberal Democratic Party and farmers, powerful agricultural cooperatives and bureaucracies, although consumer organisations are strengthening (Amyx 2000). China has few of these institutions and associated relationships, and appears willing to change what institutions it does have (e.g. by moving from institutionally set prices to prices determined within the household responsibility system). This is because different issues dominate the political economy of these two countries. In developing countries the most important concerns are to achieve economic development through agricultural growth, to reduce hunger and poverty and to enhance food security. Industrialised countries are more concerned about managing an often stagnating sector and preserving rural incomes and communities. The need to reduce budgetary expenditures through introducing market forces is also a goal, but this can conflict with the other objectives.

Anderson and Hayami (1986) apply a political economy framework pioneered by Krueger (1974) to explain the rise of agricultural protection in East Asia. As East Asian economies have developed, both the share of agriculture in GDP and the proportion of farmers in the population have declined. Farmers become politically stronger and active in lobbying because collective action becomes easier and marginal returns from protection increase. As incomes rise, consumer opposition to protection falls because the marginal cost of these policies decreases.

While this framework can help explain how a minority group can influence agricultural policymaking, it may not be an accurate description of why agricultural protection in East Asia was originally put in place. When agricultural protection was introduced in Japan, Korea and Taiwan in the middle of last century, all had authoritarian governments, so the influence of interest groups would not have been strong. The world trading system was less open than it is today, and the supply of rice, which is the main staple food for Asian countries, was relatively limited. These densely populated countries needed to achieve food security and therefore at the time self-sufficiency seemed the most effective approach to achieve this goal. The trading system has since opened up considerably, proving these short-term views wrong.

China is in a similar political situation today. It does not have a democratic political system and key policy decisions, including those on food security, are made at the top –

although other voices are gaining influence. The recently signed Sino-American agreement over China's WTO membership provides an example of how political leaders overrode the strong opposition of the telecommunications, agricultural and financial sectors.

Another argument against a political economy explanation for East Asian policymaking is the narrow focus of protection. If protection reflected the political weight of farmers, why are only staple crops – mostly rice but also wheat – protected? Surely if protection was driven by the electioneering of local officials, it would be expected that all commodities would be protected. In Indonesia, for instance, rice is highly protected but this does not assist farmers in the eastern parts of the country.

While this analysis strongly suggests that food security was the main reason why protection was introduced, it does not imply that political economy issues are unimportant. Political lobbying explains why agricultural trade liberalisation in Japan has been so difficult. Even in China today, agricultural policy has become a critical political game and interest groups are expected to have an increasing influence on agricultural policymaking in the future. Demands for agricultural protection have come from a number of sources. Protection is favoured by most agricultural scientists and economists, partly because past policies discriminated against farmers. A more powerful force for agricultural protection is the agricultural bureaucracy, which controls the monopolies on agricultural trade and domestic distribution. The Ministry of Agriculture stands to gain influence and increased resources if food self-sufficiency targets are retained. Its stance filters down to agricultural scientists and economists who obtain much of their research and funding from the Ministry.

The lack of involvement of Chinese farmers in lobbying for protection may be explained by the large size of the farming population and underdeveloped communication and transportation networks that hinder their organisation as a group. A more fundamental reason is that farmers are banned from forming non-official organisations.

In Japan agricultural cooperatives and bureaucracies have a close association with the leading party, the LDP, and have been able to influence farmers' voting. Amyx (2000) points out that Japanese agricultural policies have played a central role in the redistribution of incomes across society and thus in supporting established political and social structures over many years. However, the political economy of agricultural protection is changing. Other bureaucracies involved in trade negotiations are pressuring for agricultural reform and the public's tolerance of redistribution policies is waning, with increasing realisation of the failures and costs of agricultural policies. A new electoral system has been introduced and may result in the erosion of the LDP's power (although no political party yet represents non-

farming interests, whereas the links between the LDP and farmers, cooperatives and bureaucracies remain strong).

In China, Japan and many other East Asian countries, the two objectives of food security and raising rural incomes have driven agricultural protection. In fact, agricultural protection has rarely been able to achieve these objectives and may even have worked against them. All past experiences and empirical analyses have demonstrated the immense welfare and efficiency costs of a self-sufficiency approach, which can even increase food insecurity. China adopted a policy of self-sufficiency during the Great Leap Forward, but could not feed its people. At the beginning of the 1960s, the famine would have been even more severe if China had not been able to import grain from Australia and other countries. The famine in North Korea in the mid-1990s provides a more recent example.

Many officials and economists in East Asia have the mistaken belief that liberalisation will create high instability in the domestic market (Huang 1998). The popular view that protection is required to support rural incomes is also a myth, at least in East Asia. In Japan farmers now receive at least 75 per cent of their income from non-agricultural activities (Hayami 1988). In China this proportion is about 50 per cent on average but is much higher for farmers in the coastal provinces (Yang and Huang 1998). Moreover, agricultural support tends to be capitalised into land values, raising costs. Not all farmers produce protected crops and many, in fact, suffer significant losses because food prices have risen and resources for non-agricultural activities have fallen. In a general equilibrium analysis, Yang and Huang (1998) find that an increase in agricultural protection in China would mainly benefit grain farmers in the interior provinces. The impact on farmers in the western provinces is uncertain and depends on the size of losses (from higher retail food prices) and benefits (from higher prices for their products). Farmers in the eastern provinces would definitely lose because agriculture only accounts for a small proportion of their income. Clearly, the situation is the same in Japan. When Chinese and Japanese bureaucracies (and cooperatives) use farmers as the leverage to influence policymaking, they are not representing farmers' true interests.

Agricultural trade liberalisation is a tough policy agenda, as illustrated by the difficult negotiations during the Uruguay Round of the GATT and the recent breakdown of talks over the next round of agricultural trade negotiations. There are at least three strategies that can be adopted to encourage agricultural policy reform in East Asia.

The first strategy is dialogue with East Asian governments. This will be most effective in countries where political leaders at the top still dominate policymaking, such as in China, but talks can give other governments leverage in persuading domestic groups to change. It

is critical to make it clear that self-sufficiency policies usually do not achieve their objectives, but bring heavy fiscal burdens, substantial inefficiency in resource allocation, a huge loss to consumers and create conflicts in international economic affairs (Hayami 1988).

The second strategy is educating the public – particularly consumers and farmers – about the costs of agricultural protection and benefits of trade liberalisation. Consumers may not be aware of the costs of agricultural protection because the proportion of their income spent on food has diminished as their incomes have risen. Also, many urban residents, particularly in recently industrialised economies, still have links with rural society and passionately support agricultural protection. It is important to make consumers aware that agricultural protection costs more than just high food prices. In Japan recent rural infrastructure scandals involving the MAFF have come to the public's attention. Agricultural protection also adversely impacts on manufacturing and service industries. In addition, as the cases of China and Japan show, many farmers do not benefit from agricultural protection and agricultural bureaucracies or cooperatives do not represent all farmers' interests. Farmers, therefore, should vote according to their true interests.

Participation in multilateral trade institutions such as the WTO and APEC is the third strategy to encourage policy reform. International trade negotiations provide governments with important leverage to counter domestic resistance to agricultural policy reform. In an increasingly globalised world, countries can not afford to be self-reliant. Open trade in agriculture should be embodied in the international trading system. This is also important for many developing economies – only with deep integration into the world market and rising exports will developing economies increase their foreign exchange earnings and be able to purchase food from international markets and, thus, achieve true food security.

Conclusion

In this paper, approaches to food security have been analysed, particularly comparing Japan's attempts to achieve food self-sufficiency with China's more open approach to trade and investment. Their different approaches reflect differing stages of development and different political systems. True self-sufficiency becomes less achievable and more expensive for a country with limited productive resources because consumption grows with development.

The paper shows that open trade and investment approaches that take advantage of diversity and complementarity are more efficient than trying to achieve food security through self-sufficiency, as this relies on increasing protection as development takes place (see also

AJRC 1999). Regional cooperation to support this approach could help reduce impediments to imports and exports and facilitate investment in food processing infrastructure and technology, where the majority of agricultural sector growth has been. An efficient food system can address food security through lowering transaction and adjustment costs for both exporters and importers. Food security can be achieved efficiently, effectively and equitably at a regional level rather than a country level, building on a variety of comparative advantages including weather patterns and other complementarities. The PECC package includes measures to improve production efficiency.

Over time, economies will need to substitute domestic inputs with more competitive imports to which value can be added. China has used its comparative advantage in labour to export processed food products. Japan could possibly use its comparative advantage to produce more technologically advanced products.

Open trade and investment approaches, like multilateral trade rounds, offer broader trade-offs and greater gains than a self-sufficiency approach. A regional approach to greater food security built around cooperation and interdependence could include negotiations to lower export taxes along with import tariffs (which would balance commitments by exporters and importers), and could consider a broad range of products, for example processed foods along with raw commodities. Reforms do not have to wait for the next multilateral trade round. Reforms agreed by APEC would lead to large gains in economic welfare because of the significant interregional trade, but these would be greater still if the European Union was also involved – as it would be in a WTO round. Most of the gains from reform go to the reforming economies.

Despite the clear benefits of reform of agricultural arrangements, change in Japan has been slow, reflecting strong political economy aspects which may stand in the way of regional negotiations. Japan and Australia have had an agreement on security of food supplies for some time but this has done little to change Japan's policy of food self-sufficiency. However, adjustment costs and the political difficulties of reform will increase as more and more assistance is required to support a food self-sufficiency approach. On the other hand, the decline in the number of full-time farmers and the failure of the current arrangements to attract new farmers may be positive forces for change. New technologies are driving globalisation and the need to integrate. Japanese businesses involved in agricultural-related industries and others that are disadvantaged in terms of higher input costs, retaliatory protection, and so on, are becoming a strong force for change. Japan's new Basic Law is more WTO consistent and market aware and could provide a foundation for change. Japan now

appears to be preparing to follow the European model of supporting farm incomes, and hence resources in production, on multifunctionality grounds (e.g. preserving the cultural value of the landscape) (see ABARE (1999) and Trewin (2000)). The extent of reform will depend on the law's interpretation and implementation. Political economy aspects will be important in determining which approaches are chosen.

In the meantime, it is important to open up dialogue with all East Asian governments and use public education programs and multilateral trade forums to educate about the costs of protection and the benefits of liberalisation in order to help reform progress.

Notes

- 1 'Reasonable' prices are relative: prices of some commodities in Japan are much higher than world prices but incomes are larger than world averages.
- 2 The last few years' fish figures from the FAO database on which this table is based are suspiciously the same.
- 3 Chinese livestock statistics should be treated with caution as they often reflect targets rather than reality.
- 4 The WTO rules, rights and obligations on rules and processes provided to ensure compliance are weak in respect of state trading enterprises.
- 5 The simulations consider cutbacks in import tariffs, export subsidies and taxes, production subsidies, anti-dumping duties, and so on.

References

- ABARE (Australian Bureau of Agricultural and Resource Economics) (1999) *Multi-functionality: A pretext for protection?*, ABARE Current Issues 99.3, August.
- AJRC (Australia–Japan Research Centre) (1999) *Japanese agriculture: Time for real change?*, AJRC Policy Brief, Australia–Japan Research Centre, Australian National University, Canberra, November.
- (2000) 'A Way Forward for Japanese Agriculture', *Pacific Economic Papers* 300, Australia–Japan Research Centre, Australian National University, Canberra.
- Amyx, J. (2000) 'The Political Economy of Japanese Agriculture', in 'A Way Forward for Japanese Agriculture', *Pacific Economic Papers* 300, Australia–Japan Research Centre, Australian National University, Canberra.
- Anderson, K. (1998) 'Domestic agricultural policy objectives and trade liberalisation: Synergies and trade-offs', paper presented at an OECD workshop on Emerging Trade Issues in Agriculture, Paris, OECD.

- (2000) 'Toward an APEC food system', report prepared for NZ MFAT, MAFAT and APEC Web sites.
- Anderson, K. and Y. Hayami (1986) *The Political Economy of Agricultural Protection: East Asia in international perspective*, Allen and Unwin, Sydney.
- Brown, L.R. (1995) *Who will feed China? Wake up call for a small planet*, World Watch Institute, Washington DC.
- DFAT/ABARE (Department of Foreign Affairs and Trade/Australian Bureau of Agricultural and Resource Economics) (1996) *Food security: An historical perspective*, Australian Government Publishing Service, Canberra.
- Duncan, R. (2000) 'Food security and the world food situation', *Agricultural Economics Handbook* (forthcoming).
- FAO (Food and Agriculture Organisation) (1996) 'Towards universal food security: draft of a policy statement and plan of action', at WFS 96/3, <<http://www.fao.org/wfs/policy/english/96-3rvle.htm>>.
- Goto, J. (1999) 'APEC and Japanese rice imports: The impact of regionalism on agricultural trade', Kobe University and Inter-American Development Bank (mimeo).
- Hayami, Y. (1988) *Japanese Agriculture Under Siege*, Macmillan, London.
- Henneberry, S.R. (ed.) (1995) 'Foreign Direct Investment and Processed Food Trade', papers presented at the conference of NCR-182 on Organisation and Performance of World Food Systems, Arlington, Virginia, March 9–10.
- Holt, T. and S. Pryor (1999) 'Agribusiness as an engine of growth in developing countries', USAID, Washington DC.
- Huang, Y. (1998) *Agricultural Reform in China: Getting institutions right*, Cambridge University Press, Cambridge.
- Krueger, A. (1974) 'The political economy of rent-seeking society', *American Economic Review*, Vol. 64, pp. 291–303.
- PECC (Pacific Economic Cooperation Council) (1999) 'A "Win-Win" Outcome in APEC Food Policy', Issues@PECC 4/1999, September, PECC, Singapore.
- Schiff, M. and A. Valdes (1998) 'Agriculture and the Macroeconomy', Policy Research Working Paper 1967, World Bank, Washington DC.
- Trewin, R. (2000) 'Issues in Japanese agricultural policy', in 'A Way Forward for Japanese Agriculture', *Pacific Economic Papers* 300, Australia–Japan Research Centre, Australian National University, Canberra.
- Yang, Y. (2000) 'Are food embargoes a real threat to China', *Pacific Economic Papers* 304, AJRC.
- Yang, Y and Y. Huang (1997) 'How should China feed itself?', *The World Economy*, Vol. 20, No. 7.
- (1998) 'Trade liberalisation and income distribution in China: A general equilibrium analysis', China Economy Paper 98/3, Australian National University, Canberra.
- Yang, Y., R. Duncan and D. Vines (1999) 'Who gains and who loses from unilateral and concerted trade liberalisation', National Centre for Development Studies, Australian National University, Canberra (mimeo).

Assessing the Costs and Benefits of Japan's SPS Measures

Malcolm Bosworth
The Australian National University

Leanne Holmes
Productivity Commission

CONTENTS

<i>List of figures and tables</i>	vi
Introduction.....	3.5
SPS measures and their use by Japan	3.6
The WTO and Japan's SPS policies	3.8
The economics of SPS restrictions	3.17
A framework for analysing the costs and benefits of SPS measures	3.18
Estimates of net economic effects	3.23
Implications for Japan's SPS policies	3.25
Conclusion	3.28
<i>Notes</i>	3.29
<i>References</i>	3.29

FIGURES

Figure 3.1	Frequency of use of SPS measures by Japan (per cent)	3.9
Figure 3.2a	SPS ban removed, no disease outbreak	3.19
Figure 3.2b	SPS ban removed, disease outbreak shifts supply	3.19
Box 3.1	Devising, challenging and defending SPS measures – the case of Australian salmon	3.16
Box 3.2	An example of assessing the likely economic impacts – the varietal testing requirements	3.28

TABLES

Table 3.1	Japan's SPS measures, 2000	3.7
Table 3.2	WTO SPS notifications, 1995 to 1999	3.11
Table 3.3	SPS notifications by selected economies, January 1995 to December 1999	3.11
Table 3.4	Japan's SPS notifications, by purpose, January 1995 to December 1999	3.12
Table 3.5	Japan's SPS notifications and international standards	3.13
Table 3.6	Formal SPS disputes	3.14

ASSESSING THE COSTS AND BENEFITS OF JAPAN'S SPS MEASURES

Introduction

As one of the world's largest importers of agricultural and fisheries products (FAO 2000), Japan wants to ensure that its people, plants and animals are protected from diseases or pests that can be carried by imports. Restrictions on the entry of certain imports, including complete bans in some cases, have been used to manage or control these risks. However, sanitary and phytosanitary (SPS) measures to protect food safety and plant and animal health can also assist domestic producers by restricting competition from imports. They can therefore impose the same kinds of efficiency costs on the Japanese economy as tariffs and other non-tariff measures.

The Agreement on Sanitary and Phytosanitary Measures came into force with the establishment of the World Trade Organisation (WTO) in 1995.² The Agreement provides some – albeit inadequate – disciplines on the use of SPS measures, aiming to ensure that they are only used legitimately where scientific evidence shows there is a need to protect health. Japan is one of only three WTO members to have had a formal complaint upheld against it since the SPS Agreement began in 1995.

While the SPS Agreement helps to promote transparency and ensure that policies are based on sound scientific analysis, it does not require that a fundamental condition for sound policy be met – namely that the policy's benefits more than outweigh its costs. In adopting SPS measures that meet the conditions set out in the Agreement, major food importers such as Japan could still be imposing considerable net costs on their economies. While policymakers may decide that such costs are justified to provide a desired level of health protection, informed policy decisions require an economic assessment of the costs and benefits.

This paper examines the available evidence on Japan's use of SPS measures and the influence of the multilateral SPS Agreement on Japan. It suggests that policymakers should move beyond the focus on purely scientific assessments to take account of the economic implications of SPS measures. A framework for analysing costs and benefits is outlined, along with some applications that help illustrate the types of information required. Finally, the paper provides a checklist that policymakers, including those in Japan, could use when assessing the economic costs and benefits of SPS measures.

SPS measures and their use by Japan

The tariffication of non-tariff barriers during the Uruguay Round intensified concerns that more subtle means such as SPS measures may increasingly be used to protect domestic producers. While such measures are not classic forms of protection, as they do not openly discriminate against imports, they can nevertheless be set or applied to favour domestic producers relative to foreign exporters. It was mainly for this reason that the SPS Agreement was negotiated in parallel with the Agricultural Agreement in the Uruguay Round.

Japan, a major food importer, has traditionally applied conventional import barriers to protect domestic farmers, including high tariffs, import quotas and prohibitions, such as on rice. While non-tariff barriers have been tariffied under the Agricultural Agreement – albeit at very high levels – Japan has retained its extensive quarantine regulations, including import embargoes, for health reasons. Although other trade restrictions have been lowered, there are fears that efforts to liberalise Japanese agriculture may be frustrated if existing SPS restrictions are made more stringent or new measures are introduced as barriers to protect against import competition.

The difficulties in assessing the impact of SPS measures have been well documented. But the mere existence or increased use or stringency of SPS measures in Japan or elsewhere does not necessarily equate to increased protection, as domestic prices may be no higher than world prices. Like any non-tariff barrier, applying the conventional price-impact method to measure the protection provided by SPS regulations requires the estimation of the difference between a commodity's domestic price and its world price. While conceptually sound, these price comparisons are time consuming and involve many difficulties, such as ensuring that highly substitutable products are measured. Nevertheless, this method has been successfully applied in a number of instances to quantify the protection provided by non-tariff measures, and it remains very useful (OECD 1997). An additional complication arises with SPS measures in that an unknown portion (and perhaps all or none) of this price wedge may be economically justified on the basis of protecting health.

While SPS measures and protection are not necessarily correlated, determining the frequency and product coverage of measures is a good starting point for assessing the likely magnitude of protection. However, like many other non-tariff barriers, comprehensive and timely data on SPS measures applied by countries, including Japan, are not readily available. Such measures are recorded in the inventory of non-tariff barriers used by the United Nations Conference on Trade and Development (UNCTAD) in the Trade Analysis and Information

System (TRAINS). Although not without deficiencies, this is the only such international database available. SPS measures are defined by UNCTAD as ‘technical measures’ and fall under either ‘technical regulations’ (code 8100)³ or ‘testing, inspection and quarantine requirements’ (code 8150).⁴

Japan’s SPS measures, as recorded in TRAINS, are summarised in Table 3.1. However, researchers have long been sceptical of the accuracy of the UNCTAD database, especially in recording barriers such as SPS measures, and concerns have been expressed about its

Table 3.1 Japan’s SPS measures, 2000

SITC	Products covered	Measures (code)	Start date	Frequency (%)
00	Live poultry	116	1998	5.6
01	Chicken & other poultry meat	121	1999	20.9
02	Dairy & other animal products			28.9
	Yoghurt	116	1981	
	butter, milk powder	116	1981	
	dairy spreads	108, 116	1981	
	other fats & oils	116	1981	
	eggs	108, 116	1981	
03	Fish & fish products			16.3
	fresh salmon, tuna & mackerel	108, 116	1981, 1992	
	fishpaste and flours, etc.	108, 116	1981, 1992	
	smoked pacific salmon	108, 116	1981, 1992	
	preserved salmon	108, 116	1981, 1992	
	dried cod etc.	108, 116	1981	
	crustaceans	116	1999	
	other	116	1981	
04	Cereals & preparations			11.5
	wheat & other cereals	116	1981	
05	Fruit & vegetables			10.2
	fruits e.g. melons	116	1981, 1999	
	nuts e.g. cashews	116	1999	
	vegetables e.g. sweet corn	116	1981	
06	Sugars – lactose, syrups and molasses	116	1981, 1999	8.8
07	Coffee	116	1999	6.2
08	Cereal husks, dog food & animal feed preparations	116	1981, 1999	11.3
09	Food preparations – certain mixtures & spreads	116, 108	1981	17.3

Notes: Code 108 = Authorisation for wildlife protection; Code 116 = Product characteristic requirements to protect human health; Code 121 = testing, inspection & quarantine requirements.

Source: UNCTAD TRAINS database, 2000.

declining reliability. While the database is probably sufficient to illustrate that Japan is a significant user of such measures, with over one-third of tariff lines affected in some way by such measures, there is no way of verifying its accuracy or comprehensiveness. According to TRAINS, most SPS measures have existed for some time, with few new ones being recorded. Moreover, the database suggests that Japan's use of SPS measures has not changed, but it is impossible to authenticate whether this is the case (Figure 3.1).

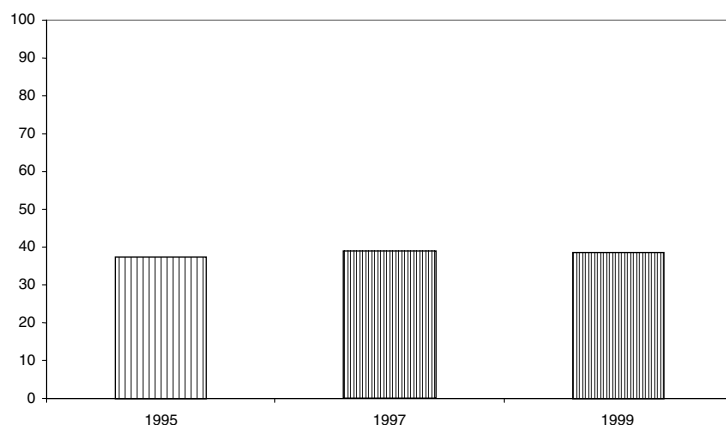
The most recent WTO Trade Policy Review of Japan (WTO 1998) identified an extensive list of plant import prohibitions. Each of the 16 categories of plant prohibitions listed cover several countries or regions (more than 30 in some cases) and many plants, fruits and vegetables. For example, restrictions to prevent the entry of codling moth – the subject of a dispute with the United States (discussed below) – cover the following fresh fruits: apricot, cherry, plum, pear, quince, peach, apple; and unshelled walnuts. Source countries or regions covered include: Afghanistan, Israel, Iraq, Iran, India, Cyprus, Jordan, Syria, China, Turkey, Pakistan, Myanmar, Lebanon, Europe, the former Soviet Union, Africa, the United States, Canada, Argentina, Uruguay, Colombia, Chile, Brazil, Peru, Bolivia, Australia and New Zealand. Japan's substantial use of such measures has been seen as a potential impediment to agricultural trade in earlier WTO reviews.⁵

Thus, while the existing databases on Japan's use of SPS measures may lack precision, there is considerable evidence to suggest that Japan is a substantial user of these arrangements.

The WTO and Japan's SPS policies

The SPS Agreement

The SPS Agreement is designed to address concerns about SPS measures being used as disguised trade barriers. Such concerns are by no means new. Multilateral disciplines covering SPS measures were in the original GATT articles and the 1979 Tokyo Round Agreement on Technical Barriers to Trade. However, these disciplines had little effectiveness in dealing with SPS disputes. No SPS measure was successfully challenged before a GATT dispute panel after the Tokyo Round and several prominent disagreements over SPS measures in the 1980s are still unresolved (Roberts 1998). With the commitment to a multilateral Agreement on Agriculture at the Uruguay Round, intended to discipline the use

Figure 3.1 Frequency of use of SPS measures by Japan (per cent)

Source: UNCTAD TRAINS database.

of non-tariff barriers in agricultural trade, concern heightened about the need to effectively deal with the use of SPS measures as trade barriers.

The SPS Agreement comprises 14 articles. In essence, it recognises the right of members to take trade-restricting measures to protect human, animal or plant health, provided those measures are based on scientific evidence. Article 3 (on harmonisation) states that members shall adopt international standards, if they exist, ‘unless they choose to adopt measures that result in a higher level of health or environmental protection’. Furthermore, different restrictions may apply to given products from different countries or regions, recognising that risks may vary with factors such as climate and the disease or pest status of the exporting country or region. The Agreement is therefore an exception to the fundamental most-favoured-nation principle of the WTO, which generally prohibits this type of discrimination in most other trade policy instruments.

The SPS Agreement enables members to choose more restrictive measures than international norms, but it does establish a presumption of WTO consistency for measures that do conform to international standards, guidelines and recommendations. It does not, however, make international norms binding on members. Where discrepancies exist between national and international measures, the onus of proof is squarely on other members, who have to establish a case that the national regulations are inconsistent with the SPS

Agreement – that is, that they are not justified on the basis of a scientific assessment of the risks involved. Thus, the Agreement encourages members to be fully engaged in the standard-setting activities of relevant international bodies.⁶

To some extent, however, sensitive quarantine issues are increasingly occurring in areas where no international norms yet exist and the scientific evidence is either lacking or inconclusive. A case in point is the use of Genetically Modified Organisms (GMOs) in food. With this in mind, the SPS Agreement allows members to provisionally adopt SPS measures on the basis of available information, provided they seek to more objectively assess the risks involved and to review the measures within a reasonable amount of time.

The SPS Agreement also encourages members to pursue bilateral or multilateral agreements to recognise the equivalence of SPS measures (Article 4). This is essentially where parties mutually recognise the equivalence of their environmental or health regulatory regimes. However, such bilateral harmonisation carries with it the serious risk that SPS arrangements may be used to discriminate against trade from other countries.

The transparency and dispute settlement provisions (Articles 7 and 11) aim to ensure that members' rights to adopt their own standards are not abused. Article 5 (assessment of risk and determination of the appropriate level of SPS protection) explains the core role that scientific assessment should play in determining whether measures are justified or challenges upheld.

Transparency

The transparency obligation requires members to notify changes to existing SPS measures or the introduction of new measures that deviate from international standards and are likely to affect international trade. This system provides a useful summary of trends in the use of SPS measures over time and across countries. Notifications have increased significantly since January 1995 (Table 3.2).

Japan accounts for a relatively small share of the total number of notifications. The United States, Mexico, Australia and the European Union account for more than one-third of all notifications over the past five years (Table 3.3).

As part of the notification process, members are required to indicate the purpose or objective of each measure. The vast majority of Japan's notified measures have the stated objective of protecting public health and/or ensuring food safety. Of the 49 measures notified

Table 3.2 WTO SPS notifications, 1995 to 1999.

Year	Total notifications each year
1995	197
1996	242
1997	296
1998	334
1999	430

Source: WTO (SPS Committee).

Table 3.3 SPS notifications by selected economies, January 1995 to December 1999

Economy	Notifications
United States	185
Mexico	150
Australia	108
European Union	74
South Korea	62
Canada	59
Japan	49
Thailand	17
Philippines	13
Singapore	7
Indonesia	6
Malaysia	6
Total WTO members	1499

Source: WTO (Document G/SPS/GEN/171).

from 1995 to 1999, 37 were to ensure food safety or protect public health, while 2 were for plant health protection and 10 for animal health protection (Table 3.4).

However, a simple count of the types of notifications does not necessarily provide a good indication of the relative prevalence or significance of certain measures. A straight count

Table 3.4 Japan's SPS notifications, by purpose, January 1995 to December 1999

Purpose	Number
Public health, food safety	37
Animal health	10
Plant health	2

Source: WTO (Documents in the G/SPS/N/JPN/ series).

provides no indication of the trade restrictiveness of such measures. There are also several weaknesses in the notification process that could potentially undermine its usefulness. Members are only required to notify changes to existing SPS measures or the introduction of new measures that deviate from international standards. Thus, existing measures, unless changed, are excluded, even though they may differ from international norms and their protective effect may have increased over time due to the relaxation of other trade barriers.

In addition, as for most WTO reporting, the process is one of self-notification. There may also be uncertainties as to whether all members duly notify or are required to notify the introduction of new measures for which there are no international norms. In the case of SPS measures, members have substantial latitude in deciding what may constitute a sufficient change that requires notification and in judging whether the new measures sufficiently deviate from international norms. Thus, it is likely that the notification process is picking up only a very small share of Japan's SPS measures.

In more than two-thirds of notifications, Japan has indicated that no international norms exist. In all remaining cases, Japan has indicated that it has adopted the international standard. This implies that Japan has made no changes that do not conflict with international norms (Table 3.5).

A key aspect of the SPS Agreement is to promote transparency in SPS measures, and despite deficiencies in the notification process, the system does allow exporters to raise concerns about notified measures before they are introduced. Each meeting of the WTO's SPS Committee (held three to four times a year) includes an opportunity for comments on recent notifications. The SPS Committee also provides a forum for exporters to raise concerns about existing measures. There have been relatively few complaints or concerns raised about

Table 3.5 Japan's SPS notifications and international standards

Year	Number of notifications	Cases where no international standard exists	Cases where proposed measures are same as or consistent with international standards
1995	7	5	2
1996	12	6	6
1997	9	9	0
1998	11	7	4
1999	10	6	4
Total	49	33	16

Source: WTO (Documents G/SPS/N/JPN/1-49).

Japan's SPS measures. Minutes from SPS Committee meetings indicate that only one matter involving measures applied by Japan has been raised over the past five years (i.e. the varietal testing case, discussed below).

The SPS Committee has no formal system for recording how members respond to comments on each notification - that is, whether changes are made or exporters' concerns adequately addressed. However, the minutes indicate that responses to complaints have ranged from silence, to explanations, to modifications (Roberts, Orden and Josling 1999).

Dispute settlement

While the notification requirement gives members an opportunity to raise concerns about new or altered measures, the dispute settlement provisions provide a formal mechanism for challenging existing measures. The rules and processes for dealing with disputes, from initial consultations through to consideration by an impartial panel of trade experts and review by the Appellate Body, where necessary, are set out in the Dispute Settlement Understanding.

Since the adoption of the SPS Agreement in 1995, nine trade disputes alleging violations of the Agreement have been dealt with under the formal dispute settlement process. Negotiated settlements were reached in two of the nine cases, and formal consultations are still pending in four cases. Consultations failed in the other three cases and the matters were referred to WTO panels and then the Appellate Body (see Table 3.6).

Table 3.6 Formal SPS disputes

Measure	Complainant	Outcome
Korean shelf-life measures	United States	Case settled
Korean measures for bottled water	Canada	Case settled
Korean inspection of agricultural products	United States	Pending consultations
US measures affecting poultry imports from the EU	European Union	Pending consultations
EU measures affecting imports of wood from conifers	Canada	Pending consultation
EU measures affecting asbestos and asbestos products	Canada	Panel requested
EU measures affecting meat and meat products (hormones case)	United States and Canada	Appellate Body proceedings completed
Australian measures affecting salmon imports	Canada	Appellate Body proceedings completed
Japanese varietal testing for agricultural products	United States	Appellate Body proceedings completed

Source: WTO dispute update bulletin, 1/2/00.

Japan has been the object of complaint in one of the nine cases to proceed to the formal dispute resolution and appeals stages. The majority of cases have been brought by the United States, Canada and the European Union.

The US complaint against Japan's varietal testing requirement is one of only three to have proceeded through the full panel and appeal stages. In each of the three cases, the panel and the Appellate Body found that the scientific basis of the measures was faulty, and therefore upheld the complaints.

The United States protested that Japan was prohibiting imports of all varieties of certain agricultural products requiring quarantine treatment until the treatment had been tested for that particular variety, even if the treatment had proved effective for other varieties

of the same product. A panel established in November 1997 to consider the complaint found that Japan had acted inconsistently with the Agreement. The Appellate Body upheld the basic finding that Japan's required testing for apples, cherries, walnuts and nectarines was without scientific basis. The Dispute Settlement board (DSB) adopted the Appellate Body report and the panel report.

Japan agreed to abolish the varietal testing requirement in accordance with the DSB's findings, and is consulting with the United States about a new quarantine methodology to prevent the entry of codling moth (WTO 2000). The case clearly illustrates the need for measures to be based on sound scientific evidence, if they are to stand up against complaints under the Agreement.

The roles of scientific and economic analysis

The factors that need be taken into account in assessing risk and determining the appropriate level of SPS protection are set out in Article 5 of the SPS Agreement. Paragraph 2 of Article 5 explains that members should consider available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; the prevalence of specific diseases or pests; the existence of pest- or disease-free areas; relevant ecological and environmental conditions; and quarantine and other treatment options.

Given the wide range of scientific evidence that can be considered in assessing risks and designing policies, it is not surprising that assessments tend to be extremely complex and the measures adopted difficult to challenge. SPS decision-making processes and any subsequent challenges by trading partners can take many years to resolve (see Box 3.1).

The role of economic analysis in risk assessment and the setting of SPS standards is clarified in Paragraph 3 of Article 5. Relevant economic factors that members should consider include: the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease; the cost of control or eradication in the territory of the importing member; and the relative cost effectiveness of alternative approaches to limiting risks.

This type of economic analysis effectively takes scientific risk assessment a step further, providing an economic or dollar value to the possible outcomes identified by the scientists. Like the scientific analysis, the economic analysis can become very complex, and there is often considerable uncertainty associated with many economic variables. For

Box 3.1 Devising, challenging and defending SPS measures – the case of Australian salmon

The case of Australian quarantine restrictions on salmon imports, the subject of a recent WTO dispute, illustrates the complexities and time that can be involved in developing, challenging and defending SPS measures. Australia's policies on salmon imports have been frequently challenged since they were introduced in 1975. Following several years of exchanges and consultations, in 1997 the WTO established a dispute settlement panel to consider a complaint by Canada (AQIS 1999). In July 1999 Australia announced a revised set of fish import policies (AQIS 1999). The scientific analysis that underpinned these policies had begun seven years earlier with the commissioning of a comprehensive study of aquatic animal quarantine measures. The new policies represented Australia's response to the outcome of the panel and appeals process but in February 2000 the WTO announced that some of the new measures failed to meet the requirements of the Agreement.

example, scientists may conclude that there is a certain probability that the introduction of some fish disease will affect the appearance and taste of domestic fish stocks in certain ways. How will these changes in taste and appearance affect sales of local fish? There will always be considerable economic uncertainty as well as biological uncertainty, and many assumptions have to be made when assessing the effects on the domestic industry.

By setting out the grounds on which SPS measures can be challenged, the Agreement essentially provides a framework for WTO members to use when developing their policies. Measures will be acceptable provided it can be shown that they are based on a scientific assessment of the risks involved. The role for economic analysis is relatively narrow. While the economic impacts of a disease or pest outbreak on local producers are explicitly considered, the potential costs and benefits of restrictions on trade are not. SPS regulations are not required to satisfy the important test of most other policies – that is that the economic benefits outweigh the costs. A policy that is scientifically sound could still impose considerable net costs on an importing economy by limiting consumer access to imports. Ignoring these economic impacts could result in a very misleading view of the policy's impact.

The economics of SPS restrictions

The economic rationale for SPS measures is that the importation of a product that results in the establishment of a disease or the introduction of a pest could impose costs on the country's producers, consumers or the general population. Importers may have an incentive to take some measures to prevent disease or health problems but do not have an incentive to take into account the wider costs that could be imposed on others. For example, importers will wish to control the entry of diseased products if the disease would adversely affect the appearance of the product and therefore demand for it, but are unlikely to consider the injury to other products if the disease spreads. Private buyers and sellers of potentially damaging imports will undertake less than the socially optimal level of SPS measures. This market failure provides a justification for government intervention to set SPS rules.

Various instruments can be used to manage the risks of disease outbreak or the entry of pests. The most stringent measure is a complete ban on the entry of certain imports. Alternatives include requirements that certain treatment, inspection or certification be undertaken before the product is admitted. Like an import ban introduced for purely protectionist purposes, an SPS ban increases the price of similar locally produced goods, reduces demand and increases domestic production. The SPS measures that allow imports under restrictions result in an increase in the import prices. Therefore, like tariffs and non-tariff barriers to trade, SPS measures affect local import-competing producers as well as consumers. They may also affect local industries that use the restricted import and, indirectly, other exporting industries.

If there was no risk of disease, SPS measures would result in the standard producer gains and consumer losses of a trade restriction. Domestic suppliers of import-competing goods gain from the effective increase in the price of the imports. Domestic consumers are worse off, as they are deprived of access to certain imports or must pay higher prices because of the additional costs of meeting SPS requirements. Compared with a situation of free trade, there would be a net welfare loss to the community because the gains to producers are more than offset by the losses to consumers.

When the risk of a disease outbreak is taken into account, the analysis becomes considerably more complex. The standard tools for the analysis of trade barriers can still be used, but much more information is required. Estimates of the economic impacts of a disease outbreak on domestic production of the good in question (and other products adversely

affected) are required, along with estimates of how the SPS measure alters the probability of disease outbreak (recognising that SPS measures may not completely eliminate the probability of disease, only reduce it).

A framework for analysing the costs and benefits of SPS measures

A simple trade model can be used to analyse the economic costs and benefits of SPS measures. To simplify the analysis, initially assume:

- the restriction would involve a complete ban on certain imports;
- the removal of the ban would result in the certain outbreak of a disease or the introduction of a pest;
- a disease or pest outbreak would result in increased domestic production costs;
- the adverse effects are limited to the product in question; and
- domestic and imported goods are close substitutes.

With the ban in place, Q_0 units of the good are supplied domestically at price P_0 (Figure 3.2a). When the ban is removed, the price falls to the world price (assuming imports are perfect substitutes for the domestic good and the importing country is small, and therefore a price taker). Total demand rises, but the quantity supplied by domestic producers falls.

If there was no disease outbreak to consider, the consumer and producer effects would be the same as in the standard case of the removal of an import ban. Producer surplus would fall, but the increase in consumer surplus would more than offset this, leaving a net welfare gain from trade, shown by the triangle ABC.

If the imports result in a disease outbreak, domestic production would be affected. Costs would increase as productivity falls and/or costly measures are taken to deal with the disease or pests. The costs must be offset against the gains from trade. In terms of the simple model, the effects of disease are represented as a left shift in the domestic supply curve (Figure 3.2b). The additional loss in producer surplus is given by the area S_0CDS_1 . Removal of the SPS ban would result in a net welfare loss only if the producer loss more than offset the standard welfare gain from trade.

The lower the world price relative to the closed market price, the more likely it would be that the trade gains of removing the ban would offset the producer losses from a disease

Figure 3.2a SPS ban removed, no disease outbreak

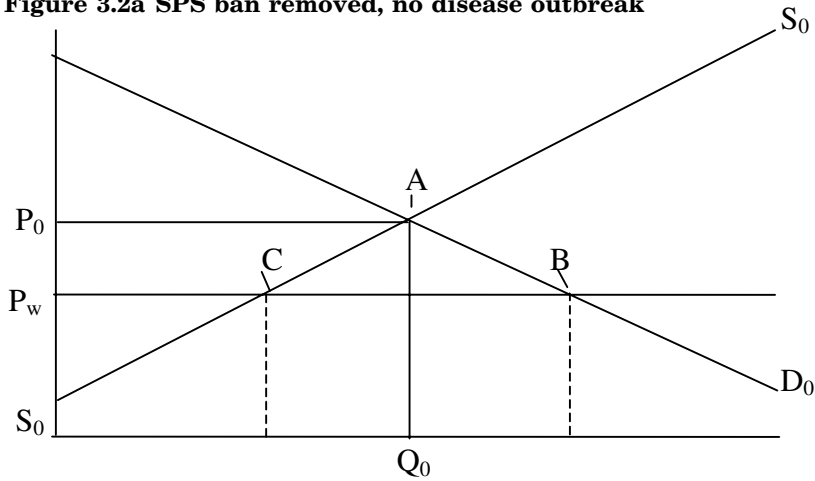
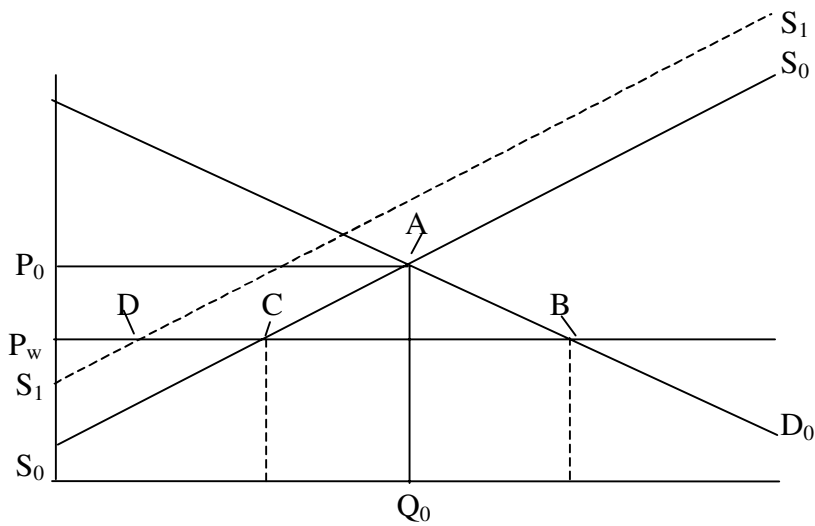


Figure 3.2b SPS ban removed, disease outbreak shifts supply



outbreak, resulting in a net welfare gain. If opening the market to competition from imports results in a substantial price fall such that domestic suppliers could not compete (that is, P_w is below the point where S_0 cuts the price axis), then there would be no additional loss from disease and the net gain would be positive. The case of Australian bananas provides an illustration of this (see below).

Data requirements

In the simple case set out above, assessing the net economic welfare effects involves estimating the value of two areas – the net welfare gain from trade and the producer loss from the disease. To do this, the following information is needed (or if actual data is not available, reasonable assumptions must be made):

- the world price of the banned good (or the price in an unrestricted market);
- the price of the domestic product in the closed market;
- the price responsiveness of both supply and demand;
- the magnitude of the increase in domestic production costs when there is a disease outbreak; and
- the initial output level in the domestic market.

As the simple model is extended to take account of alternative real world assumptions, the analysis will become more complex and additional data will be required.

Extending the simple model

Incorporating uncertainty about a disease outbreak

In most real-world situations, it will not be a matter of no disease when the SPS measure is in place or certain disease without the measure. There may be some probability that a disease would become established even with the measure in place. There may also be some probability that with no measure there will still be no disease. To estimate the net effect of a SPS measure it is therefore necessary to consider costs and benefits under four possible scenarios:

1. no SPS measure and a disease outbreak occurs;
2. no SPS measure and no disease outbreak;
3. SPS measure in place but a disease outbreak; and,
4. SPS measure in place and no disease outbreak.

The net benefit of the SPS measure is then the expected benefit *with* the measure less the expected benefit *without* the measure. The expected values are found by weighting outcomes 1 to 4 by their respective probabilities (Hinchy and Fisher 1991).

Determining the relevant probabilities is likely to involve much time and effort, and probably disagreement among scientists. In light of these problems, it is even more important to analyse SPS policy options in the type of economic framework outlined above. Where scientists disagree about probabilities, it can be very useful to put an economic value on estimates and comparisons of the effects of different assumptions. For example, say policymakers are considering the removal of an SPS measure, but there is considerable disagreement on the probability of this resulting in a disease outbreak. A useful question to consider would be: how large would the probability of disease outbreak have to be to generate costs to production that are higher than the expected benefits from giving consumers greater access to imports? If the answer is very large (or outside the range of reasonable expectations), then it may be decided to remove the restriction, even without reaching firm conclusions about the probability of disease outbreak.

What if the goods are not perfect substitutes?

The analysis becomes more complex if we move beyond the simple case where the imports are perfect substitutes for the locally produced goods. If consumers do not consider imports to be close substitutes for the domestic good, the gains from removing the import ban and providing competition for local producers may be relatively small. Furthermore, the domestic goods may also be exports, so any adverse impact of a disease outbreak on export markets must be counted as an additional cost. Australian salmon provides an example of when a disease outbreak would affect its price premium on export markets.

Similarly, the potential economic costs of SPS restrictions are likely to be less for export-competing as opposed to import-competing commodities, especially where the domestic market is competitive and statutory marketing controls are weak. In these cases, the domestic price of the export commodity will be competed down to parity with the export price, such that the SPS restrictions will have little price impact. Moreover, the SPS measures on such products are more likely to reflect international norms since stricter measures would cost exporters. Thus, for SPS measures on major export commodities, the possible adverse effects on the economy could largely be neutralised by maintaining a competitive domestic market and removing any statutory arrangements.

What about spillovers to other industries?

Additional costs of removing an SPS ban also have to be counted if there are other industries that might be affected. An example could be where a pest carried in one type of fruit or

vegetable can harm the production of a range of local products. Such a situation requires that much more information about production impacts on other industries.

Not all spillover effects from the removal of an SPS measure will necessarily be negative. In addition to the standard welfare gains for consumers of the directly affected good, other industries may also benefit from the removal of the import ban. Like any other trade barrier, the SPS ban acts as a tax on exports, so there would be gains from removing it.

Partial restrictions on imports

This framework can be applied to a case where the SPS measure does not ban imports but involves measures which add to import prices (say by requiring costly treatment or inspection). With the restriction in place, the price of imports is above the world price, and the consumer and producer effects are analogous to the case of a tariff.

There is one important difference, however. While a tariff generates tariff revenue from the transfer from consumers to taxpayers, and is not counted as a welfare loss, when imports enter with an SPS restriction, there are costs of compliance, adding to the welfare loss.

Who bears the compliance costs?

Who bears the costs of compliance (and whether costs are counted as a loss for the importer) will depend on how the SPS measure is levied. For example, does the restriction apply to imports from all sources or just selected countries? There are four possible scenarios (Roberts, Josling and Orden 1999):

1. the measure is adopted by all importers and applies only to products from certain sources;
2. the measure is adopted by all importers and applies to exports from all sources;
3. the measure is adopted by just one importer and applies to exports from all sources; and
4. the measure is adopted by just one importer and applies only to exports from certain sources.

If all importers restrict exports from a certain source, the targeted exporter must bear the compliance cost because importers are able to buy from other sources at the world price. However, if all exporters are affected, the compliance costs will be shared by importers and exporters.

If only one buyer restricts exports from all sources, that importer must bear the costs of compliance, as exporters can readily supply at the world price to markets where there are no restrictions. If the measure is adopted by just one importer and applies only to a certain exporter, both can avoid compliance costs by buying from or selling to other markets, so the measure becomes a potential rather than an actual trade barrier (Roberts, Josling and Orden 1999).

SPS measures to protect human health

The simple model can also be applied to the case where the SPS measure exists for food safety or human health reasons. Say that the market is initially open to imports so the good is supplied at the world price. However, consumers are concerned about the health risks associated with the imports. In the absence of SPS measures, consumers cannot distinguish risky goods from safe. Now assume an SPS measure is introduced which requires some certification for risky imports. This effectively increases the price of the imports (because of the time and cost involved in complying with the rule). As in the case of applying a tariff, the increase in the price of the imports results in a welfare loss. However, if the SPS measure results in greater consumer confidence, demand will increase (in terms of Figure 3.2, the demand curve will shift to the right) and there will be a consumer gain that must be weighed against the loss from the rise in the import price.

In many cases, determining the size of this consumer gain may be very difficult. For example, say a measure is designed to control the use of certain additives in food, but the effects of the additives on human health are highly uncertain and therefore so too are the likely consumer responses to policies that control it. Even in such complicated cases, the framework outlined above can provide some important insights. For example, a useful question to consider would be: how large would the consumer gains from increased food safety have to be to more than offset the losses from reduced access to and/or higher costs of imports? If the answer is implausibly high, it may be decided to not proceed with the food safety measure.

Estimates of net economic effects

Some recent empirical studies have clearly illustrated that the type of framework outlined above has practical applications and can yield important insights into the significant costs

that SPS measures can impose on importing economies. The empirical studies also illustrate the types of circumstances where large benefits might be expected from the removal of SPS measures – for example where the domestic price of the restricted product is substantially higher than the world price. In contrast, where the restricted import is not a close substitute for the domestic product, but there is a high risk of adverse impacts of a disease on local production, removing SPS measures could result in production losses that are greater than any consumption gains.

A recent study of the economic implications of Australia's quarantine ban on banana imports illustrates the cost to consumers when imports are banned. James and Anderson (1998) estimate the economic welfare consequences of removing Australia's ban on banana imports. They first estimate the production, consumption, trade and welfare effects of moving from a ban to free trade, assuming no disease enters with the imports. The entry of imports results in a significant fall in prices, which benefits consumers, harms local producers, but results in a net welfare gain. When the possibility of disease is considered, there are possible losses to producers to consider, and these could offset the welfare gain. However, in the cases estimated by James and Anderson, the price fall is so large that the domestic industry is unlikely to survive, even before disease is considered. If competition from imports wipes out the domestic industry, there would be no further producer losses if a disease was introduced (assuming the disease only affects bananas). If only producer impacts were considered, the removal of the ban would be seen as a bad thing, generating a welfare loss. But when the significant gains to consumers are considered, there is a net gain.

A study of the economic impacts of removing the United States' ban on imports of avocados from Mexico also illustrates the potential significance of gains to consumers from access to lower-priced imports. Roberts, Josling and Orden (1999) estimate the gains from moving from a ban to free trade or limited trade under different assumptions about the probability and impact of a pest infestation. Even in the worst-case scenario of a certain pest infestation and maximum damage to the domestic industry (a 60 per cent increase in marginal costs and 20 per cent reduction in yield), moving from the ban to free trade resulted in a net welfare gain. As in the Australian bananas case, the removal of the ban resulted in a substantial fall in the domestic price, and the associated consumer gains more than offset the production losses.

Consumers may consider the restricted (potentially diseased) import to be a poor substitute for the disease-free domestic product, so reduced access to the inferior good may

have limited effect. Although not involving empirical estimations of the costs and benefits of restrictions, a recent study of the Australian salmon market provides a useful illustration of a case where restricting consumer access to certain imports results in relatively small consumer costs. The Australian Industry Commission (now the Productivity Commission) studied the potential impacts of allowing imports of salmon from North America (assuming no disease outbreak), concluding that the imports would be unlikely to compete directly with Australian salmon (Industry Commission 1997). Australian salmon's established 'disease-free' status gives it a price premium in export markets over salmon from North American and other markets where diseases are present.

Implications for Japan's SPS policies

Incorporating economic assessments into SPS policymaking

There may be some sound reasons why SPS policymaking in most countries does not involve explicit analysis of the economic costs and benefits associated with policy options. One reason is that in many cases complete economic assessments are likely to be complicated and time consuming. Scientific risk assessments, which would be the first step in a full cost-benefit analysis, can take many years to complete and be the subject of much debate. Further time and effort would then be required to analyse economic factors, such as how demand for domestic products is likely to change if the products are affected by disease and how domestic prices are likely to respond to trade liberalisation. Therefore economic analysis of this type has been rare.

Another possible reason for the limited application of economic analysis to SPS policies is that the WTO SPS Agreement does not require it. As noted earlier, any challenges to an importing member's measures must focus on scientific integrity, so it is not surprising that detailed scientific study is at the heart of SPS policymaking in most WTO member countries. If there was a requirement that the trade-restricting impacts of SPS measures should be taken into account, this would be one way to encourage analysis of the full costs and benefits. However, such a shift in focus away from pure risk assessment is likely to be difficult and contentious. As noted by Roberts, Orden and Josling (1999), the implicit endorsement in the Agreement of a 'risk-related costs' approach rather than 'benefit-cost analysis' probably reflects pragmatic concerns about overly complicating the Agreement together with philo-

sophical objections to the incorporation of economic benefits from trade when assessing SPS policies.

The potential for a full economic analysis to become very time consuming and complex, and the fact that it is not required by the SPS Agreement does not, however, mean that economic analysis and some simple messages about the possible costs and benefits of SPS measures should be ignored.

Using the framework set out in this paper, it is possible to construct a simple checklist of factors that policymakers could consider when assessing whether the costs of a measure are likely to be greater than the benefits. Even without a rigorous analysis of costs and benefits, it is possible to identify situations where there may be significant net costs or benefits. For example, if the world price is significantly below the domestic price in a restricted market, removing the restriction may result in significant consumer gains that more than offset the expected losses due to a disease outbreak. Conversely, if the adverse effects of the entry of pests or disease are likely to spread widely throughout the economy, imposing costs on producers, exporters and consumers of other goods, these costs may more than offset the consumer benefits.

Checklist for SPS policymakers

Japanese policymakers could ask the following questions when assessing the economic costs and benefits of SPS measures:

- *Is there a domestic industry that is protected by the SPS measures?* If there is, the characteristics of production in the industry will need to be examined closely to determine the likely net welfare effects of restricting competition from imports. For example, is the price of the restricted goods in the domestic market significantly higher than the world price, or the price in unrestricted markets? If it is, there may be considerable gains from removing the trade restriction. In some cases, such as SPS measures designed to protect food safety or public health, there may not be a competing domestic industry being protected by the measure. In these cases, there are no potential domestic production losses to consider when assessing the removal of a restriction. However, the potential gains for consumers from increased access to imports still need to be taken into account.

- *Are consumers likely to consider imports a close substitute for domestic production?* If so, then the gains from allowing competition from imports by removing an SPS measure may be significant. If the imports and local goods are not considered close substitutes, the SPS measure is unlikely to be providing much protection for the local industry, so the gains from removing the measure and allowing trade may be relatively small. However, it may also be necessary to examine other markets where the import may compete to identify any possible gains from trade. For example, Australia argued that imported salmon would not be a strong competitor for Australian salmon, but that imports could compete with other varieties of local fish (Industry Commission 1997). These effects will have to be considered when assessing the costs and benefits of removing an SPS measure.
- *Is any domestic production exported?* If so, then any adverse effects of a disease or pest outbreak on export demand must be counted as a welfare loss. The larger the adverse impact, the more likely that it will offset the gains from trade.
- *Are spillover effects likely?* The more widely a disease or pest outbreak spreads to affect the production of other goods, the more likely it is that there will be a net welfare loss from removing an SPS measure.
- *Do the restrictions apply to all exporters?* If so, the importer is likely to bear the costs of compliance, unless all other importing economies also impose the restrictions. If all export sources are covered and other importers also apply the restrictions, then the costs of compliance will be shared, with the allocation of costs depending on the relative bargaining strength of the importers and exporters.
- *Are the restrictions prohibitive, or do some imports still enter?* The net outcome from a partial restriction is likely to be more difficult to analyse than the net outcome from a complete ban. In the case of a restriction that allows imports under certain conditions, it is necessary to identify the cost imposed on the imports (for example, how much prices increase as a result of testing or certification), who bears the compliance costs (and whether they should be counted as a loss for the importing economy), and the effect of restricted entry on the probability of disease outbreak (the probability is likely to be more difficult to determine than in the case of a complete ban, where it is likely to be very low).

Box 3.2 An example of assessing the likely economic impacts – the varietal testing requirements

The case of Japan's varietal testing requirements for certain fruits and nuts illustrates how difficult and complex a full economic analysis can be. However, by asking the types of questions listed above, even without detailed analysis it is possible to gauge whether the restrictions are likely to impose net costs on the Japanese economy.

A major difficulty in undertaking a detailed economic assessment is the lack of disaggregated data on the production and consumption characteristics of the fruits and nuts covered. In the empirical studies referred to in this paper, the analysis was of two well-defined markets – bananas and avocados – for which data were available. In the varietal testing case, several types of fruits and nuts are covered, and analysis requires disaggregated data on the production, consumption and price of each product, and the links between the markets.

Although detailed data are not available, it does seem that small amounts of some of the restricted products are produced locally and therefore removing the restrictions may generate a net gain. Giving consumers greater access to competing imports at world prices could therefore generate net welfare gains. Japan does not seem to be an exporter of the restricted products, so the possibility of a pest infestation imposing additional costs on exports is not relevant.

The potential compliance costs should also be a major consideration in the assessment of the net economic impact of removing the varietal testing requirements. A wide range of exporters seem to be covered by the requirements, and other importers do not seem to apply equivalent restrictions (or at least they have not been challenged through the WTO as Japan has), so if imports do enter at a higher price, reflecting the costs of treatment, it is likely that Japanese consumers will bear the costs.

Conclusion

Given Japan's heavy reliance on imports of agricultural and fisheries products, import policies can have a significant effect on its economy. SPS policies pose a particularly difficult challenge for policymakers. Protecting humans, plants and animals from imported diseases and pests is an essential policy objective that generates benefits for the domestic economy. However, policies to achieve this objective can also impose costs on domestic consumers and

reduce net community welfare if applied inappropriately. If the correct policies are to be identified and adopted by governments, the trade-offs must be explicitly recognised and analysed.

A comprehensive cost-benefit analysis, using the type of framework set out in this paper, may be difficult and time consuming because of data limitations or scientific uncertainties. However, even if rigorous economic analysis is not considered feasible or warranted, a range of questions about the possible economic impacts of SPS policies should still be asked to help ensure that the best policies are adopted.

Notes

- 1 Authors are on leave from the Productivity Commission. They would like to thank Deborah Peterson for helpful comments on the paper. The views given in this paper are not necessarily those of the Productivity Commission.
- 2 See the WTO's Web page on the SPS Agreement at <http://www.wto.org/english/tratop_e/sps_e/spsund.htm>.
- 3 Defined by UNCTAD to include 'regulations that provide technical requirements in order to protect human or animal life or health (sanitary regulation) or to protect plant health (phytosanitary regulation)'.
- 4 Defined by UNCTAD to include 'inspection by health authorities prior to release from customs or a quarantine requirement covering live animals and plants'.
- 5 WTO Trade Policy Reviews are conducted every two years. Since the Trade Policy Review Mechanism started in 1989, Japan has been reviewed three times – another review is in progress.
- 6 These include the Codex Alimentarius Commission, the World Animal Health Organisation and the organisations that operate within the framework of the International Plant Protection Convention.

References

- AQIS (Australian Quarantine and Inspection Service) (1999) Revised fish import policies, July at <<http://www.aqis.gov.au/docs/pr/mrsalmondec.htm>>.
- FAO (Food and Agriculture Organisation) (2000) (trade database at <<http://apps.fao.org/cgi-bin/nph-db.pl?subset=agriculture>>).
- Hinchy, M.D. and B.S. Fisher (1991) 'A cost-benefit analysis of quarantine', ABARE Technical Paper 91.3, Australian Bureau of Agricultural and Resource Economics, Canberra.

- James, S. and K. Anderson (1998) 'On the need for more economic assessment of quarantine/SPS policies', *Australian Journal of Agricultural and Resource Economics*, Vol. 42, No. 4, December.
- Industry Commission (1997) *Australian Atlantic Salmon: Effects of Import Competition*, Industry Commission, Melbourne.
- OECD (Organisation for Economic Co-operation and Development) (1997) *Measurement of non-tariff barriers*, Deardorff A. and Stern, R., Economics Department Working Paper No. 179, OECD, Paris.
- Roberts, D. (1998) 'Implementation of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures', United States Department of Agriculture, Economic Research Service, WRS-98-44, Washington DC.
- Roberts, D., T.E. Josling and D. Orden (1999) 'A framework for analyzing technical trade barriers in agricultural markets', United States Department of Agriculture, Technical Bulletin No. 1876, Washington DC.
- Roberts, D., D. Orden and T.E. Josling (1999) 'WTO disciplines on sanitary and phytosanitary barriers to agricultural trade: progress, prospects and implications for developing countries', unpublished.
- WTO (World Trade Organisation) (1998) *Trade Policy Review of Japan*, WTO, Geneva.
- WTO (2000) Dispute Settlement Overview, as at 1/2/00 at <http://www.wto.org/english/thewto_e/whatis_e/eol/e/wto03/wto3_32.htm>.

**Constraints on Structural Adjustment and
Trade: The Role of Land Institutions and
Regulations in East Asia**

Randy Stringer
The University of Adelaide

CONTENTS

<i>List of figure and table</i>	vi
Introduction	4.5
Why do governments regulate land markets and land use?.....	4.6
Barriers to changing land uses.....	4.9
How do governments intervene in land markets?	4.10
Land reforms in East Asia	4.14
What are the costs and benefits of land regulations?	4.17
Conclusion	4.21
<i>Note</i>	4.21
<i>References</i>	4.21

FIGURE

Figure 4.1 The change in land use after tariff protection 4.10

TABLE

Table 4.1 Farmland prices: 1 hectare paddy field in Japan in
the mid-1990s 4.17

CONSTRAINTS ON STRUCTURAL ADJUSTMENT AND TRADE: THE ROLE OF LAND INSTITUTIONS AND REGULATIONS IN EAST ASIA

Introduction¹

Land rights play a fundamental role in shaping social and economic relations. The rules, rights, duties, laws, incentives and institutions governing land markets and land use are among society's most powerful mechanisms for encouraging productivity, promoting growth, stimulating investment, addressing income inequality and protecting the environment. How well land is used and how effectively land markets operate directly influence environmental health, public safety and economic welfare.

Policymakers in OECD countries have used a wide range of controls on land use to promote, direct or prevent growth. Governments influence land markets and land use through laws, regulations, administrative practices, investment, taxes, subsidies and a variety of other policies. Urban growth management goals include constraining the intensity of development, providing adequate public infrastructure, defining areas where development is permitted, separating incompatible land uses, and controlling the design and capacity standards for lots and buildings. Agricultural growth management goals include food security, the protection of farmland from conversion and the preservation of the multifunctional attributes of rural areas.

In the past decade, increasing attention has been paid to how land institutions, regulations and policies can aid structural adjustment, particularly adjustment toward a more open, market-oriented agricultural sector that is less dependent on support policies (OECD 1998). Price supports, input subsidies, input and output restrictions and related price-distorting policies all directly and indirectly affect agricultural land markets and patterns of land use by increasing land values and reducing land transfers (both within agriculture and from agricultural use to non-agricultural uses).

The nature and pattern of rural land ownership is seen as important because of the relationship between property institutions and agricultural productivity and because of the value economies and societies place on agriculture. New property laws and tenure reforms reflect this importance. Governments have regulated land transfers, zoning, rental markets

and lease arrangements, invested capital in agriculture and provided social infrastructure, and used taxation laws to foster the rural sector. Changes to land ownership, tenure patterns and land use regulations alter agricultural activities and production structures and directly affect the agricultural sector's performance.

Social, economic and property institutions vary widely both between and within countries and therefore some researchers have warned against choosing a specific land tenure regime or set of land institutions simply because it has worked well in some countries. Instead, property systems should reflect the endowments and resource constraints of individual communities (Dorner and Kanel 1971; Hayami and Ruttan 1971; Runge 1986).

The ways in which societies control land markets and uses to manage growth have changed greatly over time. Land policy reforms have tended to be gradual and location specific because they address problems unique to particular circumstances. Reforms of land policies are therefore unlike other recent reviews of regulatory regimes (e.g. airlines, utilities, copyright, food laws, visas, licensing regimes). A recent exception is the widespread and dramatic property reforms of the ex-Soviet bloc.

This paper examines how and why governments reform land policies, focusing particularly on East Asia. The role of land regulations in structural adjustment is explored and possible reforms are examined. The paper also draws on examples from Australia, Europe and the United States.

Why do governments regulate land markets and land use?

A competitive market has the potential to optimise social welfare. Producers and consumers arrive at an optimal allocation of land resources when they see a prospective profit, are able to buy land and other inputs as cheaply as possible, and can combine these inputs efficiently to create products that have a high value relative to production costs. For land markets to operate efficiently in a market system, property rights should be well-defined, enforced and transferable, and should also confront users with the full social cost of their actions.

Competitive land markets require security, flexibility and certainty. Users need protection against legal, physical and tenure uncertainties as they tend to obtain and use land for long-term investments only if rights are reasonably secure. The system is flexible if allocations between uses, users, regions and sectors can be changed at a low cost. In such a system, land can be easily reallocated to higher value uses. Certainty is also necessary: rules on land use must be easy to discover and understand.

Completely free markets rarely exist, but when land is plentiful relative to demand, laws governing land markets and land use tend to be simple and enforced only casually. As land becomes scarce, elaborate institutional systems evolve. Growing populations, rapid urbanisation, increasing incomes, technological advances and regulatory and policy-induced incentives prompt societies to establish more formal land use systems to manage growth and direct development.

Location determines the contribution land makes to income and welfare. Land prices tend to decline as distance from urban centres increases, forcing land-intensive urban activities to either move away from the centre or to substitute capital for land. The demand for land is a function of numerous factors including opportunities for land use, income, population and a host of policies and market influences that promote or discourage urban-based relative to rural-based activities, and one type of urban or rural activity relative to another.

Land is often owned and operated by a small group of people for personal gain. The adverse effects from land use are unlikely to be considered unless there are undesirable consequences for the owner or user; the social benefits from land use are also by-products.

Market failures partly explain this divergence between private and social welfare. Market failures occur when the incentives available to individuals or firms encourage behaviour that does not meet efficiency criteria. Land market failures include externalities, public goods and asymmetric information that lessen the efficiency of land markets, push land prices out of equilibrium and impact on equity or social and environmental policy goals.

Negative externalities from the construction of buildings, roads and public utilities in urban areas include increased noise, inflated property values, congestion and pollution, the loss of open space and farmland, and the destruction of historic buildings and sites. Urban development creates profitable opportunities for some businesses but places others at risk due to the new competition. Negative externalities from agricultural activities include: pollution and contamination of soil, water, air and food from agrochemical use; the degradation of natural resources, particularly soil, water and rural landscapes; and the loss of biotopes, wildlife species and habitats. Controls on land use are one method of limiting these negative externalities (Mills 1979; Mills and Hamilton 1989; Ihlanfeldt and Boehm 1987).

As a result, all governments regulate land markets to some extent, but whether intervention is the best way to address land use problems and whether it produces more desirable social outcomes than an uncontrolled land market can sometimes be questioned.

OECD policymakers and governments have tended to consider farmland the victim of urbanisation, paying little attention to the urban and industrial policies that influence urban growth. In addition, there has been little research on the negative effects of rural preservation policies, for example the costs of urban housing and the social costs of excluding groups for racial or income motivations (Fischel 1990, Nelson 1992).

Governments also use land use regulations to improve income distribution and promote regional growth. Public parks and recreational facilities provide access to land for non-land owners. Governments have to deal with ongoing pressures on land due to population growth and urbanisation. While some groups demand open space and the preservation of farmland, others want to open these same lands for development. Politically powerful groups lobby for land regulations for monetary gain or to exclude ethnic or racial minorities from acquiring access to their neighbourhoods (Fischel 1990; Nelson 1992). These conflicting pressures are often concentrated at a city's outer rings where the market is driven by capital gains, discouraging agricultural producers from investing in long-term opportunities. If land markets are complete, land values should be the same at the urban-rural border. However, prices on the urban-rural fringe are influenced by speculators, who precede developers in attempts to purchase cheap land. The supply of land is determined by the geography of the area, by prior investments and by regulations. Regulations affect both the demand for and supply of land by distorting prices, influencing opportunities, altering efficiency gains and shaping technological innovation. Most policy interventions tend to raise land prices by fixing supply.

A number of factors can prompt regulatory reforms: the existing system's inability to protect significant natural resources (e.g. wetlands, coastal areas, unique habitats and environmentally sensitive areas); a wish to balance regional development; the need to link city planning and land regulations with capital investment planning; the need for better mechanisms to resolve interjurisdictional conflicts; the desire to improve coordination among governmental units; the perception that the existing system is unfair, unwieldy, unpredictable and delay-ridden; community concerns about urban sprawl, unaffordable housing and the loss of open space and agricultural lands; pressures caused by the mismatch between development and infrastructure; and the need for new planning tools and techniques (APA 1998; IC 1998.)

In OECD countries over the past several decades, reforms have been motivated by concerns over the loss of agricultural land, increased urban sprawl and environmental

degradation. The expanding mosaic of suburban, residential and industrial development makes farming near these developments increasingly difficult. High land prices push up property taxes and increase the opportunity costs to farmers who are not able to earn similar profits growing rice, tomatoes and strawberries. In addition, tensions rise between farmers and residents over the noise, odours and air pollution caused by agricultural activities.

Barriers to changing land uses

It can be very difficult to convert land to agricultural use. Figure 4.1 (following Salazar et al. 1995) shows the implications for land use of a policy of protecting the industrial sector. Land use is measured along the horizontal axis. VMP_U represents the demand for land for urban uses and VMP_A represents the demand for land for agriculture. Point a represents the market equilibrium with no policy distortions. OL_1 land units are used in the urban sector and XL_1 land units are used in the agricultural sector. The land rental is r_1 . When a tariff is imposed on manufactured imports, the value of the marginal product for land in urban uses shifts out. The new equilibrium has L_1 to L_2 units of land moving from agricultural to urban uses and a new market rental value of land, r_2 . However, the social value of land for the urban sector in the new equilibrium is r_3 . The total social cost of the tariff policy during each period is the area abc or w .

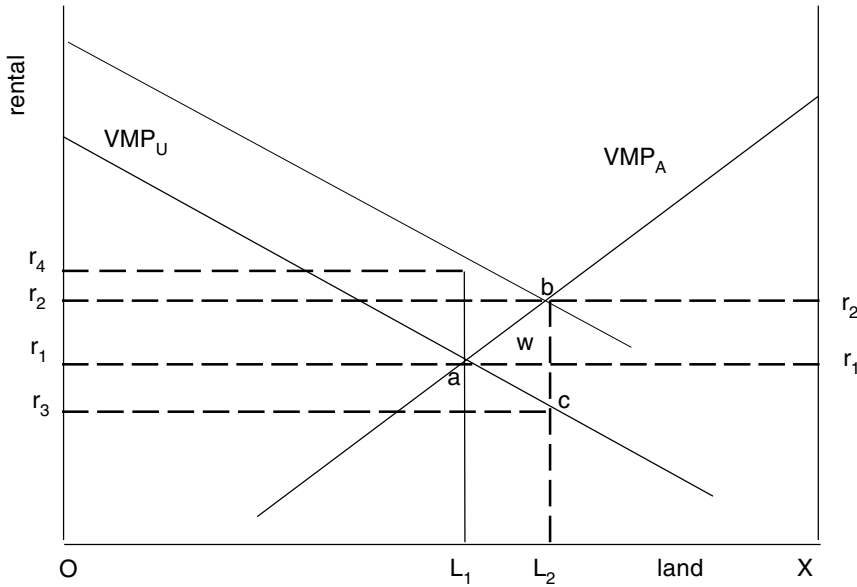
The area w represents the social cost of the tariff policy. For t periods, at interest rate i , the total economic loss is:

$$\sum_{n=1}^t \frac{w}{(1+i)^n} = \frac{w}{i} \left[\frac{(1+i)^t - 1}{(1+i)^t} \right]$$

If the tariff is removed in period $(t + 1)$, the equilibrium should return to point a , but the costs associated with converting land from urban use back to agricultural use are so high that the land is likely to remain in urban activities. The social cost of the tariff policy can be as high as w/i . If the government imposes the tariff temporarily and simultaneously restricts the conversion of agricultural land, the rental value of urban land moves to r_4 , the agricultural rent remains at r_1 and w is avoided as long as the tariff and the conversion restrictions remain.

There will also be additional general equilibrium effects and costs associated with the tariff and the 'counter' zoning policy (for example, zoning enforcement costs may be higher

Figure 4.1 The change in land use after tariff protection



than w , capital and labour will follow land to the urban sector, land may be slow to move back to agriculture and numerous other policies may also alter relative input and output prices).

The conversion of farmland to urban uses can be more costly to governments than had the farms remained. For example, providing public services to housing developments can cost more than the taxes generated by the new suburban residents. In addition, there are other costs to society. Farming is often less detrimental to water quality than urbanisation – the run-off from household hazardous waste such as motor oil and lawn-care chemicals can lead to a decline in water quality. Agriculture has many benefits to society, for instance it forms a buffer around natural areas to protect habitat and aesthetically pleasing open spaces (Kelly and Vosick 1997).

How do governments intervene in land markets?

The public sector can ameliorate income inequalities, promote development in disadvantaged regions, regulate private activities that harm the environment and control the undesirable

effects of private actions. The five most widely used policy instruments to control land allocation and use are: property rights, land titling and registration, land use regulations, public interventions and fiscal practices. The effectiveness of these interventions depends on the bundle of rights associated with land use and land transfers at a local level – the rights to sell, use, lease, mortgage, or give away or not use land.

Land use regulations refer to those government programs that explicitly manage land uses. Public interventions include direct controls over land values; powers of prohibition and consent; policies affecting transport, housing, health, water and sewerage; urban planning; state-sponsored development programs; forced sales; prohibited land sales; and zoning and related policies and programs that attempt to separate land uses to minimise nuisances and optimise city services and infrastructure. Fiscal practices include land, inheritance and capital gains taxes, related financial incentives and controls on capital markets.

Zoning is a major way of controlling land use in many OECD countries, including Australia, Japan, Korea and the United States. Certain activities are designated to particular areas, and zoning boards decide which category an activity belongs to. Zoning may include a legal map showing existing and proposed subdivisions, with controls on subdividing and developing a tract of undeveloped land; building and housing codes that regulate the construction, maintenance and use of structures; architectural controls that regulate structure or design for aesthetic purposes; and zoning restrictions that prevent development on agricultural land.

Policymakers use these various tools individually and in combination to provide appropriate incentives for the location of businesses and residences, to conserve historic and cultural sites, to protect farmland from conversion and to promote the production of specific agricultural activities. The aim is to encourage the best use of transport networks, public services and farmland, and to regulate the pace, location and characteristics of development. In theory, land policies can be used to offset inefficient development patterns, to take account of the nature of nuisances created by different land uses, to inform buyers and sellers of the public's interest in the environment, to provide the optimal level of public goods and to reduce the costs of providing public services.

Countries regulate land ownership transfers to encourage qualified farmers (Denmark, Germany and Japan); to avoid excessive aggregation of land (Denmark, Germany, New Zealand and Switzerland); and to avoid land subdivision (Australia, Denmark, Germany, Ireland, Italy, Japan, Portugal, Spain and Switzerland) (OECD 1998).

Unlike in Japan and many European countries, Australia, Canada, New Zealand and the United States generally do not intervene to encourage the consolidation of parcels that are deemed too small or the redistribution of those that are too large. Instead, the mechanisms used to control urban growth and protect farmland tend to be based on economic incentives rather than direct control of rights and permission. Examples include property tax relief and agricultural districting that taxes land on its agricultural value as opposed to its development value.

In general, the Australian and American regulatory approaches can be characterised as a process of national selection, involving local initiatives and a capacity for experimentation. Most land use policies are locally developed and then exchanged, strengthened or rejected until the successful ones gain national recognition (Alterman 1997). In contrast, Korea, Japan and many European countries have a hierarchical approach to land use regulations and reform. Local governments initiate reforms, but approval and implementation are dependent on the national government.

The United States has been innovative in its protection of agricultural land. 'Right to farm' laws exist in all states, providing farmers with immunity against legal action from suburban neighbours. Transfer of Development Rights (TDR) programs allow developers to purchase development rights from farmers in agricultural zones (sending areas) provided they increase the density of residential development in development zones (receiving areas). Sending areas are usually farmland or areas with sensitive environmental attributes, historical significance, or some other valuable asset that would be harmed or degraded if development was to intensify. Receiving areas are locations identified by the community for future growth, possibly due to the availability of public services and transportation. Most TDR schemes allow landowners to decide whether to develop their land or sell their development rights and then protect their property against any future development. Developers must own the development rights before they can build in the receiving areas. TDRs achieve goals on land use without the use of public funding for local acquisition and allow property owners protecting public goods to be paid for saving and maintaining areas with special attributes.

Since the late 1980s, the emphasis of land use goals in the European Union has shifted from protecting agricultural lands for food security purposes to protecting the environmental value of agricultural land and preserving the countryside for its own sake (Alterman 1997).

In practice, however, urban planning policies often dominate, with the protection of the countryside being a by-product.

Australian rural land management policies overwhelmingly focus on environmental and sustainable development goals, although they are also driven by urban sprawl, which has resulted in the loss of farmland. In some communities, concerns over sustainable development and environmental degradation arise when farm households expand into less fertile and more ecologically fragile areas after selling their farms to housing developments. More commonly, however, it has been disputes between new and existing rural land uses that have driven the regulation of agriculture.

The spread of residential housing and commercial land uses onto what was previously agricultural land reflects the increasing demand for land for urban use. Some agricultural producers and advocacy groups do want to ensure a plentiful supply of rural land for agriculture, but many landowners stand to gain from subdividing their land for urban development. Australia's current approach to deregulation and economic efficiency encourages the transfer of land to higher valued uses. Broader questions are being raised, however, about the way other government policies such as the tax treatment of hobby farms, the provision of infrastructure and the potential misuse of zoning regulations result in sub-optimal social outcomes.

As in the United States, zoning is used widely in Australia to separate incompatible land uses, delineate urban boundaries and establish conservation areas. A 1998 Industry Commission study concluded that zoning is likely to continue to be the main policy to control land use. The study recommended that local governments use infrastructure provision in conjunction with zoning to assist in the efficient transition of rural land to urban and peri-urban use (IC 1998). The study suggested that zones be established for different land uses (e.g. rural, rural-residential) focusing less on size restrictions and more on ensuring the cost-effectiveness of infrastructure (e.g. roads, water and sewerage). Developers might be required to build roads in less densely settled areas and provide a more complete set of services including roads, water and sewerage in densely settled areas. The aim is to avoid existing households having to subsidise new households. The report recommended that wherever possible, costs should be met by residents on a user-pays basis to ensure full cost recovery.

Australian has also set minimum subdivision sizes to keep allotments large enough to make agricultural production viable. Where there are residential development pressures on

areas subject to minimum sizes, rural residents buy large lots even though they do not intend to use them for agriculture (McKenzie 1997; IC 1998). In New South Wales, the state has imposed a minimum lot size of 40 hectares. However, many local governments have approved subdivisions of less than 40 hectares (IC 1998). The state of Queensland forces developers to demonstrate an overriding need for the development in terms of the benefit to the community before 'good quality' agricultural land may be converted.

Australia does have a comprehensive regulatory review process aimed at evaluating all existing regulations and any planned regulations. Regulations are supported only where a well-defined social or economic problem exists, where other solutions such as market mechanisms or self-regulation are inappropriate, and where expected benefits exceed likely costs. The guidelines do not prescribe what type of regulation should be used in a particular circumstance but set out principles and analytical requirements to be followed in developing regulations (ORR 1998).

Land reforms in East Asia

Land reforms in Japan, Korea and Taiwan followed a similar pattern, partly because of similarities in their agricultural sectors. In all three countries, land reforms were successful in stimulating agricultural output, enhancing productivity, reducing poverty and promoting equitable growth.

Japan's land reforms started in 1946 with the government purchase of all tenanted land in excess of one *cho* (0.99 ha) for resale to tenants or others (King 1977). In the three-year period from 1946 to 1949, two million hectares of cultivated land was purchased from 1.8 million landowners – representing one-third of the country's total cultivated area (Ohto 1990). The beneficiaries were 4.3 million tenants. New regulations ended the payment of rent in kind and set maximum sums for rents (Ohto 1992). Another 1.25 million ha of uncultivated land, half of which was privately owned, was sold to farmers and settlers.

The reforms had a major impact on agricultural performance, income distribution, poverty reduction and the contribution of the agricultural sector to industrialisation. The purchasing power of millions of small farmers was increased, providing a large market for emerging manufacturing industries. During the second half of the 19th century, agricultural land taxes made up approximately 80 per cent of national tax revenue – most of which was used for financing industrialisation. Prior to the reforms, landlords had tended to invest their

incomes in urban activities, industrialisation or banks, rather reinvesting in farming. After the reforms, the outflow of capital from agriculture to other sectors decreased dramatically – from more than 20 per cent in the mid 1930s to 3.5 per cent in 1952 (Ohto 1992).

The number of farms run by owner-cultivators increased from 31 per cent in 1946 to 62 per cent by 1950. Over the same period, part-tenant/part-owner-cultivators fell from 20 per cent to 7 per cent and tenants fell from 28 per cent to 5 per cent. Over the next two decades, agricultural output grew by around 4 per cent a year, with labour productivity increasing by 4.8 per cent (Berry 1984). By the 1960s, however, the widening gap in labour productivity between agriculture and manufacturing meant farm incomes were falling behind urban incomes. The extremely small size of agricultural holdings hampered government efforts to increase labour productivity. Price-support policies were introduced and over time these have placed an increasing financial burden on Japan, encouraged strong political lobby groups and attracted increasing criticism from the world's leading agricultural exporters.

Agricultural production in Korea rose rapidly after the 1945–52 land reforms redistributed land from landlords to owner-operators and practically eliminated tenancy. Agricultural output grew by between 3 per cent and 4.5 per cent during the 1950s and 1960s. A ceiling was set on farm size, decreasing the proportion of farms of more than 3 hectares from about a quarter in 1945 to only 5 per cent after the reforms. By the early 1960s, output per hectare was some 40 per cent higher on farms of less than 0.5 hectares compared with farms of more than 2 hectares (Berry 1984).

Taiwan's land reforms included rent reduction, land transfers from landlords to tenants and the confiscation and sale of land formerly owned by expelled Japanese. Similar to the experiences of its two East Asian neighbours, Taiwan's land reforms boosted agricultural performance, with substantially higher yields and net farm incomes twice as high on farms of less than 0.5 hectares than on those of more than 2 hectares (Berry 1984).

East Asia's enormous success in agriculturally led industrialisation, together with high urbanisation rates, extremely low ratios of arable land per person and concerns over food security have all contributed to agricultural protection policies. Land regulations have been part of this protection. Over the past decade, a variety of issues relating to land have been identified as inhibiting efficient resource allocation, constraining structural adjustment and imposing high and often unnecessary costs on consumers, producers and trading partners (ABARE 1989; OECD 1998).

In Japan these issues include:

- a) the high proportion of agricultural land in urban areas, which places upward pressure on housing costs and urban developments, reduces urban investment, raises the costs of public works and reduces purchasing power;
- b) a property tax system that favours agricultural land, thereby distorting land use;
- c) a capital gains tax on land that discourages sales;
- d) an inheritance tax on land that encourages fragmentation of farmland;
- e) an agricultural support and subsidy regime that has created politically influential interest groups;
- f) direct prohibitions on converting farmland to other uses;
- g) despite government efforts to promote farmland 'mobilisation', farmland owners tend not to rent or lease land in anticipation of opportunities for capital gains (inhibiting consolidation of land and reducing economies of scale); and
- h) farmland rent is determined by administration not by the market (only 13 per cent of farmland in Japan was rented in the mid 1990s).

Farmers complain that regulations aimed at controlling farmland rights are time consuming, expensive and cumbersome. For example, before purchasing or renting farmland in Japan, authorisation must be applied for and, in principle, this may be granted only when all of the following conditions are met (OECD 1998):

- a) the individual will cultivate all of the farmland;
- b) the individual or at least one family member will regularly farm the land;
- c) the total area of farmland after the acquisition or lease must be 0.5 hectares (2 hectares in Hokkaido) or more except for some types of intensive farming; and
- d) the individual must be considered capable of farming effectively on the land, in light of their financial situation and the location of their residence.

A second example relates to tax concessions. Agricultural land in Japan is either exempt from or provided concessions on land-value tax, land-holding tax, fixed-asset tax, inheritance tax, acquisition tax and capital gains tax. Table 4.1 presents land value estimates for the mid 1990s by the National Chamber of Agriculture in Japan. A 1 hectare paddy field was valued at ¥20 million if in an agricultural area, at ¥161 million if in a rural-urban district and at ¥531 million if in an urban area (the national average), but at ¥3113 million if it was converted to urban use. The National Chamber of Agriculture calculated that the real value of farmland

Table 4.1 Farmland prices: 1 hectare paddy field in Japan in the mid-1990s

Type of land	Price per hectare, million ¥
Market price urban zone	531
Market price converted to housing use in urban zone	3,113
Market price peripheral zone	161
Market price agricultural zone	20
Productive price (rice production; net land return/i)	3.6
Inheritance tax price (agricultural investment price)	9.5

Source: National Chamber of Agriculture, 'Farmland price survey', cited in OECD 1998.

in agricultural areas is some six times higher than the theoretical productive price of ¥3.6 million per hectare (calculated as the three-year average net return divided by the interest rate).

In the mid-1990s, the government removed or reduced various land tax exemptions on two-thirds of the agricultural land located within the Tokyo, Osaka and Nagoya metropolitan districts. After a transitional period, owners will pay the urban rates for fixed-asset, land-value and inheritance taxes.

Korea's urban land management regime has distorted land markets in ways that result in excessively high land, housing and building costs; expensive residential and commercial space; the degradation of environmentally fragile land; the loss of cultural resources, open space and prime agricultural land; and excessive urban sprawl (Green, Malpezzi and Vandell 1994; Lluch 1995; Son 1994; Lee 1994).

What are the costs and benefits of land regulations?

Urbanisation creates growth and aids structural transformation. Urban development will be affected by the cost and availability of labour, land and infrastructure (electricity, freight, public transport, water, sanitation and telecommunications).

Firms are attracted to urban areas because of the benefits of sharing resources with other firms and being able to access to input and output markets, knowledge, skilled labour and services. Total factor productivity tends to be higher in cities because agglomeration economies are greater, at least until congestion and rising land and labour prices take over

(Mills 1998). The additional capital involved in production boosts the productivity of urban workers – a reason why incomes improve when rural workers migrate to cities (Mills and Becker 1986; Mazumdar 1987; Mills 1998). Urban areas attract and retain educated workers and are able to match up skills and job requirements. However, these effects can be constrained greatly by inefficient housing and urban transport policies, and by constraints on labour mobility such as poor information flows, high search costs and residential segregation (Keare 1999).

Traditional manufacturing industries are sensitive to rising costs and tend to relocate to the outskirts of large metropolitan areas or to small and medium-sized cities. Less labour-intensive industries and services usually remain as they depend on information and technology resources and a well-educated workforce (Henderson 1997).

Globalisation is rapidly changing urban development. The worldwide trends that affect the economic growth of metropolitan areas include the growing importance of international trade and investment, the increasing global mobility of factors of production, the growing importance of knowledge industries, the critical role of market size, the need to adopt ‘agile’ business practices and the necessity of forging international strategic alliances (United Nations 1995). Globalisation requires a investment, business and living climate that supports and attracts internationally competitive firms and industries (Rondinelli and Vastag 1997). Regulatory reforms that improve urban land management can therefore result in large dynamic benefits to the economy. Even only a modest improvement in land, housing and commercial buildings and assets can increase GDP by more than new annual investment.

Most cost–benefit studies of urban land use regulations have tended to analyse one or a few regulations in isolation (Bertaud and Malpezzi 1994). Examples include the net economic impact of zoning (Pogodzinske and Sass 1991), the costs and benefits of density and subdivision regulations (Real Estate Research Corporation 1974), rent controls and related price controls (Malpezzi 1993) and building codes (Muth and Wetzler 1976). However, urban land markets are influenced by a range of rules, policies and institutions.

Regulations and government policies change the equilibrium price of land. Land prices perform two roles. First, land rents and increases in land values produce returns to land owners. Second, land prices indicate the value of land to producers and signal how land should be used. High land prices signal that the land should be developed intensively or be occupied by an activity that highly values the site. In residential use, for example, high land values encourage dense residential development.

Agricultural support will change agricultural land values by increasing the returns to factors of production (with most benefits tending to go to factors with low elasticities of supply). Numerous empirical studies have assessed how agricultural support raises land prices (Alston 1986; Chavas and Shumway 1982; Burt 1986; Phipps 1984; Clark et al. 1993; Runge and Halbach 1990). Some research has suggested the impact of government support policies is only 15 to 20 per cent of capitalised land values and that inflation, price expectations and the cost of capital are more important factors. However, no research argues that support policies do not contribute to inflated land values.

Land use regulations can artificially restrict land supply and building designs to such a degree that the rise in land and housing costs may far outweigh the intended benefits. Once housing prices begin to rise, governments often intervene to control prices or subsidise disadvantaged groups in ways that may further dampen incentives to supply housing, further exacerbating problems.

In addition, land use policies impact on a wide range of economic activities and their success depends on macroeconomic, trade, banking, finance and investment policies, to name a few. Land use policies tend to bias economic growth toward urbanisation and away from rural-based activities, and provide biased investment returns in favour of land at the expense of other socially productive assets. Proper cost–benefit analysis of policy reforms is complex and difficult in this setting. The net impact of the entire set of policies is invariably different from the economic results obtained from the cost–benefit analysis of a single land use policy. It is also important to analyse the physical development of urban areas and to understand how the residential, commercial and physical infrastructure is distributed within the area, and how this distribution changes over time. In most countries, urban industrial employment exhibits strong patterns of decentralisation (K.S. Lee and Choe 1989). In some cities, employment decentralization seems to be driven mainly by market forces, but in others, such as Seoul, government policies also encourage it (K.S. Lee 1989). In addition, cost–benefit studies need to analyse how urbanisation impacts on land used for recreation and housing and on commercial and industrial property prices and rental fees. The costs and benefits need to be measured from the point of view of the economy as a whole as well as for different groups, including land owners, building suppliers, housing landlords and owners of commercial buildings, and for national and local government revenues.

The many variables that need to be considered in the analysis of costs and benefits include delays imposed by regulatory procedures, which tie up capital and increase risk;

controls on prices; taxes (acquisition taxes, property taxes, income taxes, capital gains taxes etc); financial taxes and subsidies; infrastructure pricing and subsidy policies; effects on consumer demand for land and housing; and locational effects.

A second set of prices needs to be used to derive the net benefits of open space and the net costs of pollution and congestion. For example, property owners within restricted development zones and Korea's greenbelts bear the cost of land use restrictions, while the larger community receives the benefits of open space. However, without the land use restrictions, property owners would maximise their own incomes and the market would fail to provide the 'optimum quantity' of open space. Even if the optimum quantity and location of open space is able to be identified, the market fails to provide for non-rival and non-exclusive goods such as open space. Thus, a fundamental role for cost-benefit studies is to understand how regulatory reforms can price benefits such as greenbelts and provide compensatory payments to those forgoing development gains.

With overwhelming evidence that the costs of land regulation in Japan and Korea are excessively high, the most important use for cost-benefit analysis is likely to be measuring the benefits of deregulation and alternative options to help form new land use rules. Policymakers could use the information to anticipate how consumers and producers of land (including land owners, contractors, building suppliers, home owners, renters, landlords, users of parks and open space, etc) might react to a new regulation. The analysis should help policymakers assess the various components of a proposal, including what each component is expected to do and how the components relate to each another, and determine whether the proposal will achieve the desired outcomes (Macdonald and Crutchfield 1997).

In Japan and Korea, like in other countries, a more efficient land use management regime will require a flexible mix of policies, rules and institutions that increase net welfare, including the quality of the urban environment. In responding to an OECD regulatory reform survey in 1999, the Korean government identified land regulations as one of four key areas for reform.

Much of the literature suggests that to prevent land policy inducing further urban problems, policymakers in Japan and Korea need to exert a different type of influence over land use and land development. The greatest gains appear to be from not unnecessarily constraining the supply of land for housing or discouraging the private sector from providing affordable housing in appropriate and safe locations.

Conclusion

Economic growth, urban development, environmental protection, increasing equity and preserving the benefits that farming provides are all important goals. Balancing these often-conflicting objectives requires a land management strategy that facilitates land market operations and protects sensitive land and cultural resources. Such a strategy will need a mix of policies (including regulatory and economic policies), clear property rights, good infrastructure, and information and education to help land managers avoid land degradation problems. Well-functioning land markets and land use activities can be recognised by the ease of entry and transactions. Secure, long-term rights for land tenure and land transfer should be in place and must be maintained by relevant laws, policies and institutions. Transaction costs should be low, adequate information should be provided, land market support mechanisms must be competitive, and there needs to be clear, simple and enforceable legal rules for transferring land rights (Hanstad 1998).

The process of reforming land use policies will depend on economic, social, historical and policy features that are unique to a particular setting. Regulatory reform of land use should eliminate obstructing and costly rules and promote regulations that focus on the protection of public health, public safety and the environment.

Note

- 1 Thanks are due to Jeff Bennet and Ray Trewin for helpful comments and suggestions.

References

- Alterman, R. (1997) 'The challenge of farmland preservation: lessons from a six-nation comparison,' *Journal of the American Planning Association*, Vol. 63, No. 2 (Spring), pp. 220–43.
- Alston, J.M (1986) 'An analysis of growth of AUS farmland prices, 1963–1982,' *American Journal of Agricultural Economics*, February, pp. 1–9.
- APA (American Planning Association) (1998) *The Growing Smart Legislative Guidebook: Model Statutes for Planning and the Management of Change*, APA Planners Press, Chicago.

- ABARE (Australian Bureau of Agricultural and Resource Economics) (1989) 'Japanese agricultural policies: a time of change', Policy Monograph No 3, ABARE, Canberra.
- Baharoglu, D., L.M. Hannah and S. Malpezzi (1997) 'Getting housing incentives right in Turkey', Urban Development Division, World Bank, Washington DC.
- Bertaud, A. and S. Malpezzi (1994) 'Measuring the costs and benefits of urban land use regulations: a simple model with an application to Malaysia', Urban Development Division, World Bank, Washington DC.
- Berry, R.A. (1984) 'Land reform and the adequacy of world food production', in *International Dimensions of Land Reform*, J. D. Montgomery (ed.), Westview Press, Boulder.
- Burt, O.R. (1986) 'Econometric modelling of the capitalisation formula for farmland prices', *American Journal of Agricultural Economics*, February, pp. 11–26.
- Chavas, J.P. and C.R. Shumway (1982) 'A pooled times series cross section analysis of land prices', *Western Journal of Agricultural Economics*, July, pp. 21–41.
- Clark, J.H.S., K.K. Klein and S.J. Thompson (1993) 'Are subsidies capitalised into land values? Some time series evidence from Saskatchewan', *Canadian Journal of Agricultural Economics*, Vol. 41, pp. 155–68.
- Dorner, P. (1972) *Land Reform and Economic Development*, Penguin Books, Harmondsworth.
- Dorner, P. and D. Kanel. (1971) 'The economic case for land reform: employment, income distribution and productivity', in *Land Reform in Latin America: Issues and cases*, P. Dorner (ed.), Land Economics Monograph Series, No 3, Land Tenure Center, Madison.
- Fischel W.A. (1990). *Do Growth Controls Matter? A review of empirical evidence on the effectiveness and efficiency of local government land use regulation*, Lincoln Institute of Land Policy, Cambridge.
- Green, R.K., S. Malpezzi and K. Vandell (1994) 'Urban regulations and the price of land in housing in Korea', *Journal of Housing Economics*, No. 3, pp. 330–56.
- Hanstad, T. (1998) 'Introduction to agricultural law reform', in R. Posterman and T. Hanstad (eds), *Legal Impediments to Effective Rural Land Relations in ECA Countries: A comparative perspective*, World Bank, Washington DC.
- Hayami, Y and V.W. Ruttan (1971) *Agricultural Development, An International Perspective*, Johns Hopkins Press, Baltimore.
- Henderson, V. (1997) 'Urbanization in developing countries', background paper for the *World Development Report 1999/2000*, World Bank, Washington DC.
- Ihlanfeldt, Keith and Thomas P. Boehm (1987) 'Government intervention in the housing market: an empirical test of the externalities rationale', *Journal of Urban Economics*, Vol. 22, pp. 276–90.
- IC (Industry Commission) (1998) *A Full Repairing Lease: Inquiry into Ecologically Sustainable Land Management*, AusInfo, Canberra.
- Keare, D. (1999) 'The importance of spatial efficiency for large cities', draft paper for the World Bank research project on Cities in Global History (682-40), World Bank Transportation, Water and Urban Development Department, Washington DC.
- Kelly, K. and D. Vosick (1997) 'The role of agriculture in protecting biological diversity', Helsinki Seminar on Environmental Benefits from Agriculture Country Case Studies, OECD, Paris.

- King, R. (1977) *Land Reform: A World Survey*, G. Bell and Sons, London.
- Lee, C.M. (1994) 'Greenbelt impacts on dynamics of a physical urban development and land market: a welfare analysis, unpublished doctoral dissertation, University of Pennsylvania, Philadelphia.
- Lee, K-S, and S-C Choe (1989) 'Changing location patterns of industries and urban decentralization policies in Korea', in J. Kwon (ed.), *Korea Economic Development*, Greenwood Press, Westport.
- Lluch, C. (1995) 'Macro-economic policies and urban issues,' in *Urban Futures*, No. 19.
- Mazumdar, D. (1987) 'Rural-Urban Migration in Development Countries', in Edwin Mills (ed.), *Handbook of Regional and Urban Economics: Vol. 2, Urban Economics*, North-Holland, New York.
- McDonald J.M. and S. Crutchfield (1997) 'Modeling the Costs of Food Safety Regulation', Food Marketing Policy Center, University of Connecticut.
- Mills, David E. (1979) 'Segregation, Rationing, and Zoning', *Southern Economic Journal*, Vol. 45, pp. 1195-207.
- Mills, E. (1998) 'Internal Functioning of Urban Areas', Draft paper for the World Bank research project on Cities in Global History (682-40), World Bank Transportation, Water and Urban Development Department, Washington, DC.
- Mills, E. and C. Becker (1986) *Studies in Indian Urban Development*, Oxford University Press, New York.
- Mills, E. and Hamilton B. (1989). *Urban Economics*, Fourth Edition, Harper Collins, New York.
- Mills, E.S., and J.F. McDonald (eds.) (1992) *Sources of Metropolitan Growth*, Rutgers University Press, New Brunswick.
- McKenzie, F. (1997) 'Growth management or encouragement? A critical review of land use policies affecting Australia's major ex-urban regions', *Urban Policy and Research*, Vol. 15, No. 2, pp. 83-99.
- Muth, R. and E. Wetzler (1976) 'The effect of constraints on housing costs,' *Journal of Urban Economics*, Vol. 3, pp. 57-67.
- Nelson, A. (1992) Preserving prime farmland in the face of urbanisation: lessons from Oregon, *Journal of the American Planning Association*, Vol. 58. No. 4, pp. 467-88.
- Ohto, M. (1990) 'Japan's land reform', *International Issues in Agrarian Reform*, Food and Agricultural Organisation, Rome.
- OECD (Organisation for Economic Cooperation and Development) (1998) *Adjustment in EECD Agriculture: Reforming Farmland Policies*, OECD, Paris.
- ORR (Office of Regulation Review) (1998) *A Guide to Regulation*, Second Edition, AusInfo, Canberra.
- Phipps T.T. (1984) 'Land prices and farm-based returns', *American Journal of Agricultural Economics*, Vol. 66, pp. 422-29.
- Pogodzinski, J.M. and T.R. Sass (1991) 'Measuring the effects of municipal zoning regulations: A survey', *Urban Studies*, Vol. 28, No. 4, pp. 597-621.
- Real Estate Research Corporation (1974) 'The costs of sprawl: a detailed cost analysis', USGPO, Washington DC.

- Rondinelli, D.A. and G. Vastag (1997) 'Analyzing the international competitiveness of metropolitan areas: the MICAM model', *Economic Development Quarterly* Vol. 11, No. 4 (November), pp. 347(20).
- Runge, C.F. (1986) 'Common property and collective action in economic development', *World Development*, Vol. 14, No. 5, pp. 623–35.
- Runge, C.F. and D. Halbach (1990) 'Export demand, US farm income and land prices: 1949–1985', *Land Economics*, Vol. 66, 2 May, pp. 151–62.
- Salazar, Antônio, P. Brandão and G. Feder (1995) *Regulatory Policies and Reform: A Comparative Perspective*, Claudio Frischtak (ed.), World Bank, Washington DC.
- Son, J-Y (1994) 'The land problem in Korea', in *Korea's Political Economy, an Institutional Perspective*, Lee-Jay Cho and Yoon Hyung Kim (eds), Westview Press, Boulder.
- United Nations (1995) *World Urbanization Prospects: The 1994 revision (ST\ESA\SER.A\150)*, United Nations Department of Economic and Social Information and Policy Analysis, New York.

Problems and Policies of Japan's Farmland Regulations and Taxation

Yoshihisa Godo
Meiji Gakuin University

CONTENTS

<i>List of figures</i>	vi
Introduction	5.5
Barriers to farmland conversion	5.5
Political dynamics underlying farmland problems	5.9
Farmland policy reform	5.10
<i>Notes</i>	5.12
<i>References</i>	5.13

FIGURES

Figure 5.1 Comparison of trade prices of paddy fields	5.8
Figure 5.2 Fiscal expenditure on rice support policies compared with capital gains from farmland conversion	5.11

PROBLEMS AND POLICIES OF JAPAN'S FARMLAND REGULATIONS AND TAXATION

Introduction

Japanese agriculture is highly inefficient. Although Japan's protection of agriculture is the highest in the world (Honma and Hayami 1991; Yoshioka 1996, p. 16), it has been the only industrialised country to have decreased its food-sufficiency ratio in the postwar period (Yoshioka 1988, p. 45). Agricultural value added in real terms has been falling since 1970 (Yamada 1991)¹ and the sector's net contribution to national income is now negative, reflecting the government's excessive intervention in agricultural production and marketing (Hayami and Godo 1997).

The small scale of Japanese farming is behind the poor performance of the agricultural sector.² The Ministry of Agriculture, Forestry and Fisheries estimates that a profitable farm size is around 10 to 20 hectares (MAFF 1992), but nearly 80 per cent of farms are smaller than 3 hectares.³ Despite MAFF's assertions that the consolidation of farmland has been its top objective since the Agricultural Basic Law was passed in 1961, small-scale farming has persisted.

Farmland problems are so complicated and sensitive that researchers as well as farmers have tended to avoid discussing them (Godo 1996, 1998). Agricultural economists in Japan had not been able to provide a clear-cut explanation for the persistence of small-scale farming until Godo and Hayami pointed the blame at regulations on farmland use and low taxes on farming (Hayami and Godo 1994; Godo 1996, 1998).

This short paper explains, for the first time in English, Godo and Hayami's assertion that these factors have encouraged farmers to hold onto land in the expectation of large capital gains when it is sold for development.

Barriers to farmland conversion

Japan is highly populated and therefore conflicts often arise as to whether the limited flatlands should be used for agricultural or non-agricultural purposes. On the surface, Japan's farmland zoning system aims to prevent piecemeal development, but in practice

regulations are often put aside, for instance when a public works plan emerges. It is an open secret that development plans are located according to the ability of politicians to induce them to their constituencies. If the conversion of farmland is involved, the high price offered by developers gives farmers huge capital gains. These profits are so attractive that farmers tend to hold on to land even it is losing money. The low taxes on farmland further encourage this tendency. In addition, because strict rights protect tenants, Japanese farmers are reluctant to lease land to larger, more efficient operations. Families who have farmed in the same place for generations make up one of the most influential groups in Japanese politics. Farmers' solidarity has been critical in gaining favourable farmland regulations and attracting development plans. Newcomers are discouraged because they pose a threat to this solidarity, and this is another factor that prevents free and open competition in the farmland market. The enlargement of farm size may be MAFF's top objective but the small scale of farming provides a justification for its existence and its large budget allocation in a time of government cutbacks.

Regulations on farmland use

Regulations on converting farmland to non-agricultural use are very complicated as separate permission needs to be obtained under various laws: the Agricultural Land Law and the Law Concerning Construction of Agricultural Promotion Areas being the most important.⁴

Under the Law Concerning Construction of Agricultural Promotion Areas, municipal governments are obliged to define Exclusively Agricultural Areas (EAAs) in their jurisdictions (currently, nearly 80 per cent of farmland is designated as EAA). These lands are prohibited from conversion to non-agricultural use and MAFF gives priority to producers in these areas when allocating subsidies. Officially, municipal governments are only supposed to revise the designation of an EAA if there is a significant change in the economic (or social) environment. In other words, farmers or developers who want to build on EEA farmland must wait till the municipal government changes the area's status.

For farmland not in an EEA, the conditions for conversion are outlined in the Agricultural Land Law. The village's Agricultural Commission, whose members are elected by farmers,⁵ decides whether a conversion plan submitted by a farmer or a developer satisfies the law. If the plan passes the assessment, the local governor or office of the MAFF gives it a permit.

Officially, land conversion laws are very strict, but in reality they are interpreted very broadly. Municipal governments often revise EAA status when presented with a farmland conversion plan by farmers and developers. The Agricultural Commission's examination of farmland conversion plans also tends to reflect the interests of farmers rather than the public.

When farmland is converted to non-agricultural use, the price is between 30 and 140 times higher than its earning capacity under agricultural use (Figure 1). Even when used for farming, its saleable value is between 3 and 80 times higher than its current earning capacity. This reflects expectations of capital gains: the value is too high if agricultural production is the sole motivation of farmers.

Farmland taxation

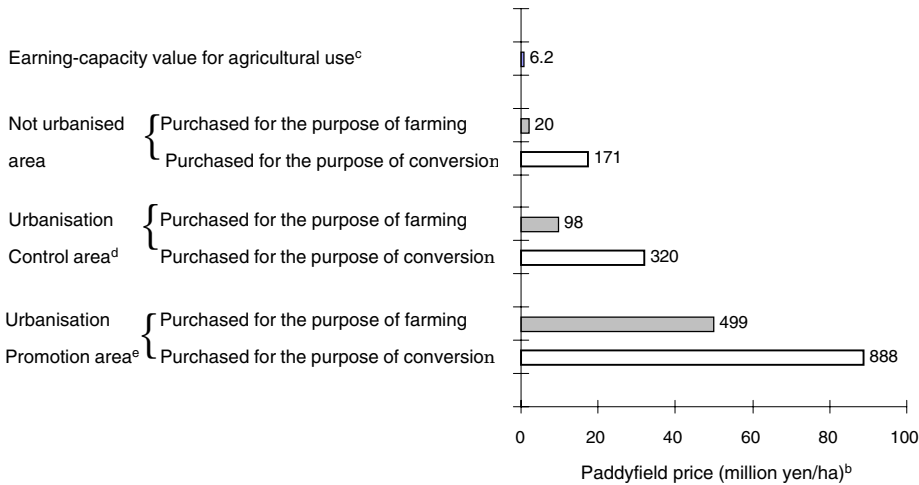
The burden of land tax in Japan (as measured by the ratio of tax to the market value of land) is low compared with other industrialised countries (Boone 1990, p. 17), but the assessment methodology is complex.⁶ This is particularly the case for farmland taxes. Various kinds of tax are levied on farmland, with the major three being property tax, inheritance tax and transfer income tax.⁷

Property tax is levied annually on the assessment value of land at 1.4 per cent. But farmland is assessed differently, based on the earning capacity for agricultural use and not reflecting the value of the surrounding non-farmland.⁸ This value is much lower than the trade price, as shown in Figure 1, meaning the property tax burden on farmers is negligible.⁹

When farmland is transferred after an inheritance or bequest, the inheritance tax that will apply will depend on the degree of urbanisation of the surrounding area. But, in most cases, especially with farmland in EAAs, the assessment value of farmland is so low that inheritance taxes are virtually nil.¹⁰ Even for non-EAA farmland, thanks to special tax provisions, farmers can effectively postpone the legal obligation to pay inheritance tax indefinitely.

When the sale of farmland involves a capital gain, a 30 per cent transfer income tax applies after a basic deduction of 15 million yen is subtracted from the profit. Transfer income tax is therefore progressive. However, a further deduction applies if the farmland is sold for public works, meaning that selling to the government is the most favourable way to maximise the capital gain.

Figure 5.1 Comparison of trade prices of paddy field^a



- Notes: a Prices are the average of all the prefectures excluding Hokkaido as of 1996.
 b While the prices in the original data sources are per *tan* (991.7 m²) or per *tsubo* (3.3 m²), which are conventional Japanese units of measurement, they have been converted into million yen per hectare for the convenience of readers.
 c Earning capacity is calculated as the present value of the average rental charge per hectare of farmland (with an annual discount rate of 4.1 per cent).
 d,e Based on City Planning Law, urban areas that include cities with populations of over 100,000 are divided into Urbanisation Promotion Areas and Urbanisation Control Areas. An Urbanisation Promotion Area is defined as ‘an area that is already urbanised and is a planned and prioritized area that should be further developed within ten years’. An Urbanization Control Area is ‘an area whose urbanization should be controlled’. General development, such as residential and commercial development, is restricted in Urbanisation Control Areas (for details, see City Bureau, Ministry of Construction 1996).

Sources: MAFF; National Federation of Agricultural Commission; Godo 1998.

The inseparability of tenancy and ownership

Even if loss-making farmers are holding on to land with expectations of capital gains in the future, they could still make money by leasing their farmland to more efficient farmers, allowing large-scale farming to emerge. Tenancy rights are heavily protected under the Agricultural Land Law and the Land Lease Act, which were established after the war to prevent the revival of the exploitation of tenant farmers. Because it is difficult to cancel tenancy contracts without paying a lot of compensation, in effect making tenancy inseparable

from ownership, landlords have been reluctant to lease their properties and tenant farming has not occurred on a large scale.¹¹

Under the 1975 Agricultural Land Use Promotion Project, MAFF introduced tenancy contracts that allow landlords to evade the stipulations of the Agricultural Land Law if permission is granted by the Agricultural Committee. This was a makeshift measure to mitigate the rampant underground leasing of farmland, and the overprotective rules of the Agricultural Land Law still exist. In close rural communities, even after the introduction of the new contracts, landlords often feel under strong pressure to compensate tenants if contracts are cancelled.

Political dynamics underlying farmland problems

Throughout the postwar era, farmers have been a strong political lobby group. As in Korea and Taiwan, farmers have tended to live in the same place for generations and are a tight-knit group. The number of registered voters per member of the House of Representatives is small in rural areas and large in urban areas, giving farmers greater political weight and making it difficult for not only for ruling party but also for the opposition to oppose farmers' interests.

Farmers have benefited from agricultural price support policies that have resulted in domestic prices that are many times higher than world prices. The most typical (and notorious) case is rice, which has been highly supported through heavy regulations and huge fiscal expenditures on production and marketing. However, as off-farm income has increased, farmers have been less concerned about the price they can obtain for their products.¹² Accordingly, Japan has been resorting more and more to public works to gain the votes of farmers. Public works are the best opportunity for farmers to maximise capital gains from the sale of farmland and for politicians to display their allegiance to farmers by bringing these works to their constituencies. For most farmers, preserving the chance of farmland conversion is more important than improving the profitability of agricultural production. In order to avoid missing opportunities for farmland conversion, farmers give top priority to maintaining close relations with similar small farmers and resisting the entry of outsiders. Newcomers need the Agricultural Commission's approval to purchase or lease farmland in the village (Article 3 of the Agricultural Land Law) and the Commission has tended to block potential new entrants. This is another factor that distorts the market for farmland and reduces the efficiency of farming.

Figure 5.2 shows how the method of protecting farmers has gradually shifted from price support to public works. Nearly 0.5 per cent of farmland is converted to non-agricultural use each year and the capital gain from farmland conversion is almost equivalent to four-fifths of the total value of agricultural production (Godo 1996).

MAFF has repeatedly said that enlarging the size of farms is its top priority, but it has done little to foster large-scale farming because this would mean the loss of a large number of farmers, the deterioration of farmers' political power, and little need for MAFF's extravagant agricultural policies (and employment and budget). Although the lack of transparency and consistency in farmland regulations have been major obstacles to the consolidation of farming, MAFF has done little about these problems. Instead, it has raised farmers' expectations of capital gains by relaxing restrictions on farmland conversion on the pretext of deregulation. Raising the tax burden on farmland would help promote large-scale farming, but this has been politically impossible because the government does not want to hurt traditional farmers.

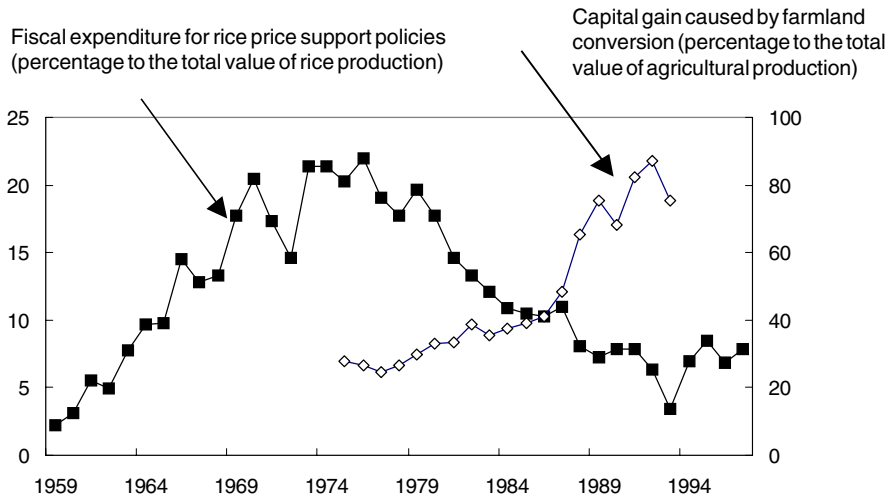
Farmland policy reform

Researchers have debated whether farmland regulations are necessary and some believe that the zoning system should be abandoned. The reasons for this belief differ – while some deny that farming produces externalities and call for the conversion of all farmland (for example, Hasegawa 1994), others wish to preserve the positive benefits of farming but suggest a Pigovian tax/subsidy system should replace the zoning system.

The overwhelming majority of Japanese researchers and the general public support the preservation of farmland, especially paddyfields, because of its many benefits, particularly in preserving the environment (such as preventing floods and soil erosion). It is unlikely that zoning regulations would be replaced with a Pigovian tax/subsidy system because the difference between the social value and the private value of farmland would need to be assessed parcel by parcel, which is unfeasible.

A number of reforms are desperately needed. Most importantly, the zoning system needs to be stricter and clearer in defining which land is to be protected exclusively for agricultural use. Japan's citizens need to work with the municipal governments to agree which farmland should be protected and which should not. In the past, the public has tended to leave land use planning to the municipal governments and only criticise or resist plans if

Figure 5.2 Fiscal expenditure on rice support policies compared with capital gains from farmland conversion



Sources: Ministry of Agriculture, Forestry and Fisheries; Godo (1998, 2000).

they infringe on their own interests.¹³ The success of a new zoning system will depend on changing the public’s attitude to planning, as well as ending the abuse of farmers’ political power.

The farmland tax system also needs to be thoroughly reformed. While the zoning system needs to allow for farmland conversion if changes in social or economic situations occur, farmers should not expect windfall benefits. The capital gains tax therefore needs to be much higher. In addition, taxes on the ownership and inheritance of farmland should be raised to induce inefficient small farmers to sell or lease land to more efficient and innovative farmers. Farmland that is not protected should be taxed according to its non-agricultural value to induce the conversion to non-agricultural use. This would be equitable as farm households tend to be wealthier than urban households. A unified and systematic methodology needs to be set up for assessing farmland values.

The Agricultural Land Law should no longer be used to regulate the entry of new farmers and the role of the Agricultural Commission in screening newcomers should be removed. The need for farmers to collaborate on issues such as water use and preventing

blight and other plant diseases does not rationalise the entrance barriers imposed by the Agricultural Commission. Entry liberalisation is compatible with collaborative farming, as farmers could draw up explicit and open-minded contracts about the use of common resources. In addition, the Agricultural Land Law's overprotection of tenancy rights should be abolished in order to activate farmland leasing.

Because farmland problems are so complicated and politically sensitive, any attempts at reform will encounter a lot of political backlash. Although in the past, Japanese citizens have tended only to raise problems that personally affect them, it is important that they take part in shaping new farmland policies. These problems are too challenging to solve in a short time, but Japan will need to face up to them if the inefficiency and stagnation of Japanese agriculture is to be resolved.

Notes

- 1 Yamada (1991) estimates the average annual compound rates of total production and net value added in Japanese agriculture after 1970 have been -0.5 and 0.8 per cent, respectively.
- 2 MAFF (1992) estimates agricultural production costs could be cut in half if farming was done efficiently, on a large-scale.
- 3 This figure does not include Hokkaido island and is taken from 1995 Agricultural Census.
- 4 The City Bureau of the Ministry of Construction (1996) describes Japan's land use regulations.
- 5 Although the Agricultural Commission does include members who are not farmers, their role is not influential.
- 6 See, for example, Nomura Research Institute (1991) for details.
- 7 For details of all land taxes, see Ishi (1993).
- 8 In Urbanisation Promotion Areas, a portion of farmland is assessed as residential.
- 9 The tax office does not publish the assessment value of farmland. According to a survey conducted by the National Federation of Agricultural Commissions, the average assessment value is around 1 million yen per hectare. This means an average farmer (who owns 1.5 hectares of farmland) pays less than 20,000 yen (approximately A\$300) in property tax.
- 10 Because of the unclearness and ambiguousness of the assessment methodology, the inheritance tax will not be known unless the inheritance occurs. Yet, the Central

Union of Agricultural Cooperatives (1996) provides some evidence as to the lightness of the inheritance tax burden on farmland.

- 11 Neither the Agricultural Land Law nor the Land Lease Act obligates landlords to pay compensation when cancelling a tenancy contract, but compensation has become a judicial precedent.
- 12 Agricultural income now accounts for only 20 per cent of the total income of an average farm household.
- 13 Iwata et al. (1992) also severely criticize ordinary Japanese citizens for their reluctance to participate in city planning.

References

- Boone, Peter David (1990) 'Land in the Japanese Economy', Ph.D. dissertation, Harvard University.
- Central Union of Agricultural Cooperatives (1996) 'Noka JA Kankei Zei no Sodan' (Tax reference book for farmers and agricultural cooperatives), Ie No Hikari Kyokai.
- City Bureau, Ministry of Construction (1996) *Urban Land Use Planning System in Japan*.
- Godo, Yoshihisa (1996) 'Nochi Ten-yo Kisei no Yugami ga Nogyo wo Forobosu (Unclearness of farmland use regulations deters the competitive power of Japanese agricultural industry', Keisai Semina (Nippon Hyoron-sha), 503 (December), pp. 24-7.
- (1998) 'Nochi Mondai to Nihon Nogyo' (Japanese farmland policy), pp. 61-86 in Masahiro Okuno and Masayoshi Honma (eds), *Nogyo Mondai no Keizai Bunseki* (Economic analysis of Japanese agricultural problems), The Nihon Keizai Shimbun Sha, Tokyo.
- Godo, Yoshihisa and Yujiro Hayami (2000) 'Reforming Japan's Agricultural Policies', paper presented at a pre-conference meeting of the Japan Foundation Center for Global Partnership's project on 'Issues and options for the multinational, regional and bilateral trade politics of the United States and Japan', Tokyo, May 19-20.
- Hasegawa, Tokunosuke (1994) 'Keigaika Suru Nochiho' (Agricultural land law that has become a dead letter), *Keieisha*, 48 (6 June).
- Hayami, Yujiro (1988) *Japanese Agriculture Under Siege: The Political Economy of Agricultural Policies*, Macmillan Press, London.
- Hayami, Yujiro and Yoshihisa Godo (1994) 'Nochino Ten-yo Kisei Tomeika wo' (Proposal for Farmland Policy Reform), Column for *Nihon Keizai* (October 6).
- (1997) 'Economics and politics of rice policy in Japan: a perspective on the Uruguay Round', pp. 371-99 in Takatoshi Ito and Anne O. Krueger (eds) *Regionalism versus Multilateral Trade Arrangements*, The University of Chicago Press, Chicago.
- Honma, Masayoshi and Yujiro Hayami (1991) 'Causes of growth in agricultural protection' in Yujiro Hayami and Saburo Yamada (eds) *The Agricultural development of Japan: A Century's Perspective*, The University of Tokyo Press, Tokyo.
- Ishi, Hiromitsu (1993) *The Japanese Tax System* (2nd edition), Oxford University Press, Oxford.

- Iwata, Kikuo, Shigenori Kobayashi and Hideo Fukui (1992) *Toshi to Tochi no Riron* (City and Land Theories) Gyosei, Tokyo.
- Masuda, Yoshitaka (1998) *Gendai Nogyo Seisaku Ron* (Modern agricultural policy), Norin Tokei Kyokai, Tokyo.
- MAFF (Ministry of Agriculture, Forestry and Fisheries) (1992) *Atarashii Shokuryo Nogyo Noson Seisaku no Hoko* (New direction for food, agriculture and rural policies), MAFF, Tokyo.
- Nomura Research Institute (1991) *Chika to Shosai Toshi Keikaku* (Real estate prices and urban planning), Nomura Research Institute, Yokohama, Japan.
- Yamada, Saburo (1991) 'Quantitative aspects of agricultural development', in *The Agricultural development of Japan: A Century's Perspective*, Yujiro Hayami and Saburo Yamada (eds), The University of Tokyo Press, Tokyo.
- Yoshioka, Yutaka (1988) *Food and Agriculture in Japan* (2nd edition), Foreign Press Center/Japan, Tokyo.
- (1996) *Food and Agriculture in Japan* (3rd edition), Foreign Press Center/Japan, Tokyo.

Previous *Pacific Economic Papers*

- 304 Food embargoes against China: their likelihood and potential consequences
Yongzheng Yang, June 2000
- 303 Foreign direct investment and intra-industry trade – the case of the United States
Tina Yiping Chen, May 2000
- 302 Implications of recent Japanese legal reforms
Leon Wolff, Veronica Taylor and Akiyoshi Horiuchi, April 2000
(special volume)
- 301 Toward reform and transparency in Japanese policymaking processes
J.A.A. Stockwin, Jennifer Amyx and Gregory Noble, March 2000
(special volume)
- 300 A way forward for Japanese agriculture?
Masayoshi Homma, Ray Trewin, Jennifer Amyx, Allan Rae, February 2000
(special volume)
- 299 Japanese foreign direct investment in the world economy 1951–1997
Roger Farrell, January 2000
- 298 The genesis of APEC: Australian–Japanese political initiatives
Takashi Terada, December 1999
- 297 Is shutting Krugman’s ‘liquidity trap’ the answer to Japan’s problems?
Dominic Wilson, November 1999
- 296 Japanese government–business collaboration and the operations of Japanese corporations in Asia: A telecommunications case
Hidetaka Yoshimatsu, October 1999
- 295 Free trade champion? Australian views of the US crusade against Japan
Julia Lowell, September 1999
- 294 Governance and Australian financial institutions
Kevin Davis, August 1999
- 293 The changing climate for foreign direct investment into Japan
Peter Drysdale, Ray Trewin, Toshi Naito and Dominic Wilson, July 1999
- 292 The Japanese origins of PAFTAD: The beginning of an Asian Pacific economic community
Takashi Terada, June 1999

- 291 Not just a question of multilateral free trade: Australia's bilateral trade liberalisation agenda towards Japan
Jamie Anderson, May 1999
- 290 Perspectives on Japanese investment, employment and management in Australia
Roger Farrell and Peter Drysdale, April 1999
- 289 Predicting banking crises: Japan's financial crisis in international comparison
Michael Hutchinson and Kathleen McDill, March 1999
- 288 Japan's financial reform Volume I
Hugh Patrick, Takatoshi Ito, February 1999
- 287 International trade and environmental policy: how effective is 'eco-dumping'?
Xinpeng Xu, January 1999
- 286 Open regionalism going global: APEC and the new transatlantic economic partnership
Andrew Elek, December 1998
- 285 Realism and postwar US trade policy
John Kunkel, November 1998
- 284 Attracting FDI: Australian government investment promotion in Japan, 1983–96
Jamie Anderson, October 1998
- 283 The Multi-function polis 1987–97: an international failure or innovative local project?
Paul Parker, September 1998
- 282 Organisation, motivations and case studies of Japanese direct investment in real estate 1985–94
Roger Farrell, August 1998
- 281 Japan's approach to Asia Pacific economic cooperation
Peter Drysdale, July 1998
- 280 The politics of telecommunications reform in Japan
Hidetaka Yoshimatsu, June 1998
- 279 Sustainability of growth in the Korean manufacturing sector
Chang-Soo Lee, May 1998
- 278 Export performance of environmentally sensitive goods: a global perspective
Xinpeng Xu, April 1998
- 277 Modelling manufactured exports: evidence for Asian newly industrialising economies
Francis In, Pasquale Sgro and Jai-Hyung Yoon, March 1998

- 276 Laos in the ASEAN free trade area: trade, revenue and investment implications
Jayant Menon, February 1998
- 275 Globalisation
Heinz Arndt, January 1998
- 274 The WTO and APEC: What role for China?
Stuart Harris, December 1997
- 273 The APEC air transport schedule
Christopher Findlay, November 1997
- 272 Japanese foreign direct investment in real estate 1985–1994
Roger Farrell, October 1997
- 271 China and East Asia trade policy volume 4: Trade reform and liberalisation in China
Yang Shengming, Zhong Chuanshui, Yongzheng Yang, Feng Lei, Yiping Huang, and Pei Changhong, September 1997
(Special volume)
- 270 The politics of economic reform in Japan
T.J. Pempel, Tony Warren, Aurelia George Mulgan, Hayden Lesbirel, Purnendra Jain and Keiko Tabusa, August 1997
- 269 Diplomatic strategies: the Pacific Islands and Japan
Sandra Tarte, July 1997
- 268 Interest parity conditions as indicators of financial integration in East Asia
Gordon de Brouwer, June 1997
- 267 Consensus in conflict: competing conceptual structures and the changing nature of Japanese politics in the postwar era
Lindy Edwards, May 1997
- 266 The role of foreign pressure (*gaiatsu*) in Japan's agricultural trade liberalisation
Aurelia George Mulgan, April 1997
- 265 Transformation in the political economy of China's economic relations with Japan in the era of reform
Dong Dong Zhang, March 1997
- 264 Economic relations across the Strait: interdependence or dependence?
Heather Smith and Stuart Harris, February 1997
- 263 Has Japan been 'opening up?': empirical analytics of trade patterns
Jayant Menon, January 1997
- 262 Postwar private consumption patterns of Japanese households: the role of consumer durables
Atsushi Maki, December 1996

- 261 East Asia and Eastern Europe trade linkages and issues
Jocelyn Horne, November 1996
- 260 National choice
Wang Gungwu, October 1996
- 259 Australia's export performance in East Asia
Peter Drysdale and Weiguo Lu, September 1996
- 258 Public infrastructure and regional economic development: evidence from China
Weiguo Lu, August 1996
- 257 Regional variations in diets in Japan
Paul Riethmuller and Ruth Stroppiana, July 1996
- 256 Japanese FDI in Australia in the 1990s: manufacturing, financial services and tourism
Stephen Nicholas, David Merrett, Greg Whitwell, William Purcell with Sue Kimberley, June 1996
- 255 From Osaka to Subic: APEC's challenges for 1996
Andrew Elek, May 1996
- 254 NAFTA, the Americas, AFTA and CER: reinforcement or competition for APEC?
Richard H. Snape, April 1996
- 253 Changes in East Asian food consumption: some implications for Australian irrigated agriculture
Philip Taylor and Christopher Findlay, March 1996
- 252 Behaviour of Pacific energy markets: the case of the coking coal trade with Japan
Richard J. Koerner, February 1996
- 251 Intra-industry trade and the ASEAN free trade area
Jayant Menon, January 1996
- 250 China and East Asia trade policy, volume 3:
China and the world trade system
Various authors, December 1995 (special volume)
- 249 China and East Asia trade policy, volume 2:
Regional economic integration and cooperation
Various authors, November 1995 (special volume)
- 248 China and East Asia trade policy, volume 1:
East Asia beyond the Uruguay Round
Various authors, October 1995 (special volume)
- 247 The question of access to the Japanese market
Peter Drysdale, September 1995

- 246 The Asia factor in US–Japan relations
Urban C. Lehner, August 1995
- 245 ASEAN's new role in the Asia Pacific region: can it be a driving force of wider regional economic cooperation?
Jiro Okamoto, July 1995
- 244 Dollar shortage — yen shortage?
Heinz W. Arndt, June 1995
- 243 The dynamics of employment, wages and output: a comparative study of Korea and Japan
Francis In and Arlene Garces, May 1995
- 242 On exports and economic growth: further evidence
Ligang Song and Tina Chen, April 1995
- 241 US trade policy towards the Asia Pacific region in the 1990s
John Kunkel, March 1995
- 240 A simple model of main bank monitoring in Japan
Luke Gower, February 1995

Annual subscription rate for twelve issues:

Individuals A\$65.00

Institutions A\$110.00

Cost for single issues:

A\$15.00

A\$10.00 (Students)

No postage required within Australia

Available from: Publications Department
Australia–Japan Research Centre
Asia Pacific School of Economics and Management
The Australian National University
Canberra ACT 0200, Australia
Facsimile: (61 2) 6249 0767
Telephone: (61 2) 6249 3780
Email: ajrc@anu.edu.au
URL: <http://ajrcnet.anu.edu.au/>