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PRICES AND COSTS RELEVANT TO
JAPANESE AGRICULTURE

E.A. Saxon .

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PRICES AND COSTS RELEVANT TO
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1. Introduction

As Japan has become Australia's most important market for rural products, agricultural production and trade policies pursued by the Japanese Government and production decisions made by farmers in the light of those policies can be very important determinants of agricultural import requirements and hence of the potential for Australian exporters.

With the importance of the Japanese market in mind, the Bureau of Agricultural Economics has published a series of studies covering various aspects of Japanese agriculture(1), while some further work is nearing completion.(2)

In these publications, the BAE aimed to meet a need for a broader and deeper understanding of the potential and problems of Japan's farm industries and of policies designed to meet these problems. The earlier publications contained principally physical data on production, consumption and trade, while those which are forthcoming are concerned largely with policy considerations.

These reports reveal the concern of the Japanese Government to guide agricultural output along predetermined lines in conformity with general political, economic and social objectives. This guidance is made effective in a number of ways, important among which are pricing policies and other financial incentives. Most of the earlier papers contain only limited material on farm costs and prices of inputs and on prices received by farmers for their output. Trends in prices, many of

(1) See BAE, Developments in the Japanese Beef Market, Beef Research Report No. 17, Canberra, 1975. BAE Occasional Papers Nos. 32, 35, 38, 42, 43.

(2) BAE, Japanese Agricultural Production and Trade Policies (forthcoming). BAE, Report on Japanese Livestock Sector (forthcoming).

which are strongly influenced by Government policy decisions, are very important factors determining the production decisions of farmers and consumption patterns of Japanese households.(3) Both of these are relevant in attempts to assess likely future developments in the Japanese market for Australian farm products. The BAE therefore aims in this paper to provide a body of reference material concerning prices to serve as a supplement to the other papers mentioned. It also aims to explore briefly any apparent relationships between prices, profitability and changes in production patterns.

Prices can be both cause and result of physical trends. In a free market, prices would be determined by the interaction of supply and demand, both domestic and international, but in the Japanese situation prices of few farm products (mainly perishables such as horticultural products, fresh milk, eggs etc.) are determined in this way, policy consideration being more important than economic forces in many cases.

The policy objectives pursued by the Japanese Government include:

- (a) giving efficient farmers the opportunity to earn incomes comparable with those of people in other occupations;
- (b) expanding food production selectively by encouraging output of items for which demand is increasing and discouraging production for which demand is falling;
- (c) raising farm productivity and the level of food self-sufficiency; and
- (d) improving farm structures, rural infrastructures and welfare of rural people.

To achieve these objectives, the Government intervenes to a considerable extent in the marketing process and it is especially through measures

(3) Some discussion on the relationship between prices and consumption (including price and income elasticities of demand) may be found in BAE Occasional Papers No. 32 and No. 43 op. cit.

involving prices that it gives effect to the first two objectives listed. (4) Intervention measures include deficiency payments, incentive payments, diversion payments and various measures of price support as well as tariffs, quotas and other measures affecting imports.

2. General Price Trends

Trends in wholesale and retail prices and in other prices of particular concern to farmers are summarised in Table 1. This table shows that over a period of 27 years (1951 to 1978):

- (a) Retail prices in general rose 4.7 times, the increase in food prices being rather greater than the overall increase.
- (b) Wholesale prices rose much more slowly except in the period following the 'oil shock' of 1973. The increase in the whole period was almost twofold, with a 2½ times increase in wholesale prices for foodstuffs.
- (c) Prices received by farmers for their output increased appreciably more than prices paid for farm inputs and for goods consumed in farm households. This was basically a result of Government price supports and measures taken to moderate increases in prices of farm inputs, including direct input subsidies and encouragement of increased efficiency in industries supplying farm requisites. Prices paid for household items increased rather more than prices of production items, but prices for both rose less than the Consumer Price Index during this period. Relative movements in prices received and paid are illustrated in Figure I.
- (d) Manufacturing wages (to which imputed wages of farm operators are related by law) increased 17-fold.

(4) Further details of farm policies and the ways in which the Government influences prices are given in BAE, Japanese Agricultural Production and Trade Policies (forthcoming).

Table 1
PRICE TRENDS

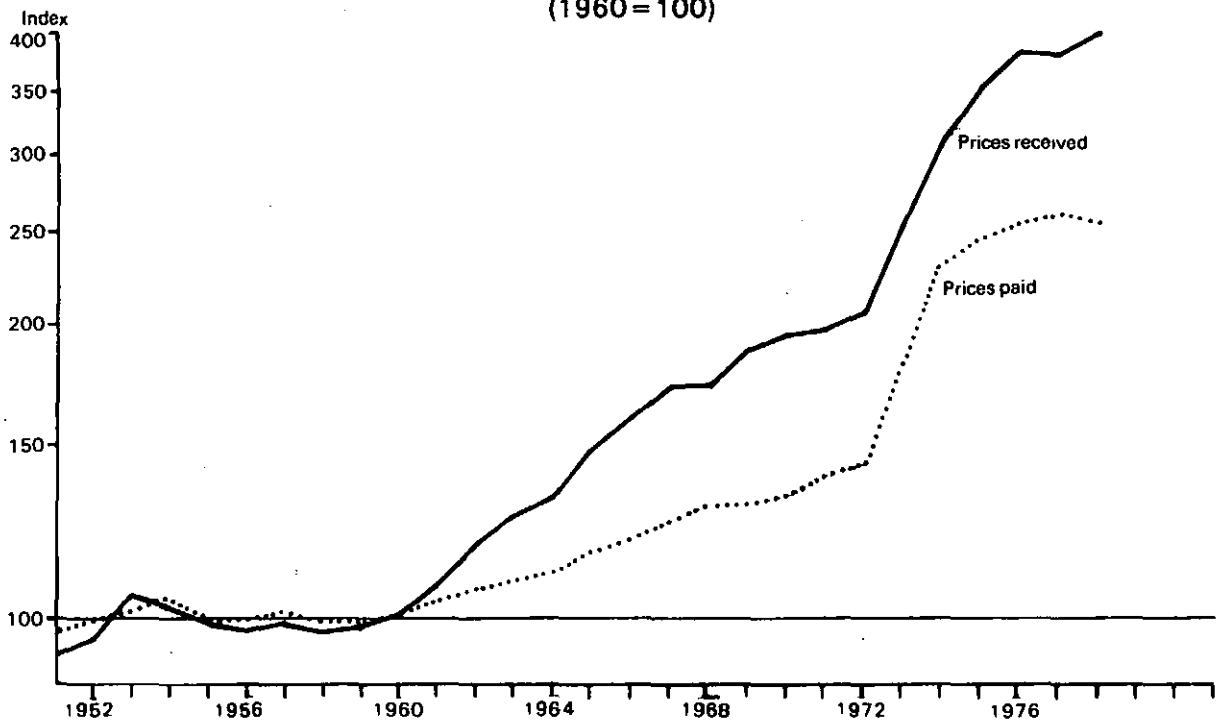
Year	Consumer price index(a)		Wholesale price index(a)		Farm price index(b)		Nominal wages index	Rural land prices index
	Food	All items	Food	All items	Prices received	Prices paid	Manufacturing (a)	(a) (c)
1951	57.8	58.2		95.3	57.7	74.5	33	12
1955	66.7	68.6	88.4	95.4	65.3	79.1	46	56
1960	70.5	74.0	90.4	97.9	67.2	82.2	63	91
1965	100.0	100.0	100.0	100.0	100.0	100.0	100	100
1970	134.0	130.4	118.4	111.3	131.0	122.9	198	155
1971	142.0	138.3	123.5	110.4	133.2	128.2	224	165
1972	147.5	144.6	125.9	111.3	140.5	135.4	259	183
1973	166.7	161.6	139.1	129.0	173.3	164.2	322	234
1974	212.9	201.1	171.1	169.4	209.9	200.2	406	283
1975	240.7	224.8	193.8	174.5	237.1	215.5	453	311
1976	262.6	245.7	210.9	183.2	259.6	227.6	508	338
1977	280.2	265.5	222.1	186.7	257.7	240.1	556	362
1978	290.0	276.0	222.1	182.0	270.5	242.5	594	386

(a) Calendar years. (b) Fiscal years. (c) Excluding land in towns etc.

If included, the rise is from about 33 in 1955 to 975 in 1977.

Sources: MAFF, *Pocketto Nōrinsuisan Tōkei* and Bureau of Statistics, Japan, *Statistical Yearbook*.

Figure 1
INDEXES OF PRICES PAID AND RECEIVED
BY JAPANESE FARMERS
(1960 = 100)



- (e) Rural land prices rose more than 30-fold or approximately 100-fold if farm land in urban areas is included.

The large rise in wages, given the high physical labour inputs on most Japanese farms, has been an important factor contributing to the high production costs of most farm products. There has also been a considerable degree of overcapitalisation which, coupled with the extraordinary multiplication of land values, has caused a steep increase in the imputed interest and rent charges incorporated in production costs. In addition, the high land prices have induced farmers to retain land in expectation of still further appreciation, thus thwarting the stated policy of the Government to promote structural change involving enlargement of holdings by amalgamations. However, co-operative use and leasing of land without change in ownership is occurring to a limited extent, permitting some economies of scale to be achieved.

3. Relative Price Trends

In order to compare movement in prices of a number of farm products, wholesale and retail prices have been converted to index numbers which are set out in Table 2. From this table it is clear that the greatest price increases have occurred in beef, rice, pig meat, flour and soybean products. It is worth noting that some price declines took place in 1977 and 1978. These were due largely to cheaper imports of raw materials and feedstuffs which lowered production costs sufficiently to influence wholesale and retail prices. The lower import costs were related to yen appreciation as well as to lower world prices for products such as cereals and sugar. During 1979 import costs of these items have tended to increase once more.

For many purposes it is useful to compare movements in prices or costs of individual products in real terms. This involves deflating actual prices (or price index numbers) by an appropriate index series. No one

Table 2
TRENDS IN ACTUAL PRICES
1965 = 100

Calendar year	Rice	Wheat	Soybeans	Sugar	Milk	Beef	Pig meat	Eggs	Mikan
<i>RETAIL PRICES</i>									
		(a)	(b)						
1951	53	62	52	89	64	48	60	100	46
1955	71	75	62	119	68	51	64	99	62
1960	74	80	69	113	72	68	76	98	89
1965	100	100	100	100	100	100	100	100	100
1970	139	108	125	111	124	164	125	106	123
1971	142	115	138	113	144	174	129	105	116
1972	149	120	145	116	144	190	138	110	99
1973	163	127	184	135	159	248	155	123	92
1974	184	187	228	190	193	286	173	156	115
1975	237	185	229	231	207	322	211	169	127
1976	272	208	243	206	221	361	230	156	140
1977	302	225	252	189	221	368	223	168	155
1978	322	226	263	185	224	372	220	142	160
<i>WHOLESALE PRICES</i>									
	(c)	(c)	(d)						
1955	72	109		130		41	75		
1960	78	103	86	126	80	65	93	103	86
1965	100	100	100	100	100	100	100	100	100
1970	133	98	135	114	122	165	106	103	129
1971	132	99	147	116	133	169	116	101	114
1972	132	96	157	118	133	182	122	106	91
1973	140	133	182	131	153	278	132	115	91
1974	184	132	239	202	216	283	150	148	115
1975	219	131	261	255	236	322	199	161	124
1976	241	167	282	230	263	389	200	147	148
1977	265	167	399	197	263	371	196	162	152
1978	265	167	406		275	355	187	129	172

(a) Price for flour. (b) Price for miso. (c) Government selling price.
(d) Basic price paid by Government.

Sources: Bureau of Statistics, *Family Income and Expenditure Survey MAFF*; *Pocketto Nōrinsuisan Tōkei*.

series is ideally suited to this purpose and there is a good theoretical case for using different deflators for different price series (wholesale, retail, farm costs etc.). However, as may be seen from Table 1, several relevant series have tended to follow closely parallel courses. Therefore, for the purposes of this paper, the Consumer Price Index has been taken as a reasonable compromise and used to deflate prices and costs of the products selected for study. Deflated price series are given in Table 3. This table shows that for the period as a whole, real retail prices for beef and rice have risen, while those for the other products examined have fallen. However, real prices for most foods tended to fall in 1977 and 1978, the falls being particularly steep in the case of pig meats and eggs. This fact may be attributed to declining feed costs (due partly to yen appreciation) and to increased productivity following the introduction of improved production techniques.

4. Production Costs

The Japanese Ministry of Agriculture Forestry and Fisheries (MAFF) has for many years undertaken an annual survey of a sample of farms in order to gather data, both physical and financial, relevant to the economic situation of farm households. Among the studies based on the results of these annual surveys is an analysis of average costs of production of major farm products. Costs of crop products are most commonly reported in relation to units of output, but costs per unit area are also used in some analyses. Costs of livestock products are also related to output, although in the case of animals slaughtered for meat (cattle and pigs), costs per head are more widely used.

These studies in many ways resemble the cost of production studies undertaken by the BAE in earlier years. Costs may be separated into cash costs (representing purchased inputs) and various notional costs, the actual amount of which is determined by agreed formulae rather than by actual expenditure. The non-cash costs include depreciation and imputed values for family labour, rent of the owner-operator's land and

Table 3
TRENDS IN REAL PRICES
1965=100

Calendar year	Rice	Wheat	Soybeans	Sugar	Milk	Beef	Pig meat	Eggs	Mikan
<i>RETAIL PRICES</i>									
		(a)	(b)						
1951	91	107	90	153	109	83	103	172	79
1955	103	108	91	174	99	74	93	144	90
1960	101	108	93	152	97	92	103	132	120
1965	100	100	100	100	100	100	100	100	100
1970	107	83	96	85	95	126	96	81	94
1971	103	83	99	80	104	126	93	76	84
1972	103	83	100	84	100	131	95	76	68
1973	101	79	114	84	98	153	96	76	57
1974	91	93	113	94	96	142	86	78	57
1975	105	82	102	103	92	143	94	75	57
1976	112	85	99	84	90	147	93	64	57
1977	114	85	95	71	83	139	84	63	58
1978	117	82	95	67	81	135	80	51	58
<i>WHOLESALE PRICES</i>									
	(c)	(c)	(d)						
1955	105	158		190		60	109		
1960	106	139	117	170	108	88	125	139	116
1965	100	100	100	100	100	100	100	100	100
1970	102	76	104	87	94	127	82	79	99
1971	96	71	106	84	95	122	83	73	82
1972	91	67	108	82	92	126	84	73	63
1973	87	82	113	81	95	172	82	71	57
1974	92	66	119	110	108	140	75	74	57
1975	97	59	116	113	105	143	89	72	61
1976	98	68	115	94	106	158	82	60	61
1977	100	63	150	74	98	140	74	61	57
1978	96	61	147		100	129	68	47	62

(a) Flour. (b) Miso. (c) Government and selling price. (d) Basic price for sales by the Government.

Sources: Derived from Table 2.

interest on his investment. As in Australia, the imputation of values for these items is largely subjective and amenable to political pressure. The rise in the assessed cost of family labour reflects rising real wage levels in industry while the rise in rent reflects, largely though not entirely, the phenomenal rise in land values in Japan which in turn is largely a result of the demand for land for non-farm uses as well as the capitalisation into land values of Government price support measures. Increases in imputed interest are due both to rises in interest rates and the general inflation of capital values.

(a) Trends in Costs

The differing rates of increase in costs of selected farm products can be seen in Tables 4 and 5. The steepest increases in total costs have occurred in veal calves, beef cattle and rice. Costs of these products have increased in both real and money terms, but real costs of milk, eggs, pig meat and fruits (as represented by mikan or mandarin oranges) have declined. In fact, the real cost of egg production appears to have halved during the years for which data are available. The rise in cash costs has been particularly large in the case of calves, beef cattle and wheat. Feed costs were the dominant cause of the rapid rise in cash costs for cattle and calves, and these were not offset by increases in productivity such as occurred in the pig and poultry industries. Fertiliser, machinery and labour costs were the principal elements in the cost increases for rice and wheat.

It appears that the price and income policies which ensure that rice producers' cost increases are compensated by price adjustments have dampened any incentive to avoid cost increases by raising the efficiency of input use. Farmers have, however, succeeded in raising yields through greater use of fertiliser and some other inputs. It is also possible that techniques of rice production have developed to a stage where further increases in yields are very difficult to achieve. Similarly, policies to increase self-sufficiency in livestock products, especially beef, have tended to encourage output regardless of cost and producers have been able to exert pressures leading to the adoption of legislation and stabilisation arrangements which ensure that they receive prices sufficient to recoup these high costs.

Table 4
TRENDS IN COSTS
(Per unit of output)

Fiscal year	Rice	Wheat	Sugar beet	Milk	Beef (young steers)	Veal Calves	Pig meat	Eggs	Mikan
<i>CASH COSTS</i>									
1951	47	71		72					
1955	60	98		82					
1960	70	97	88	79	76	73	81	94(a)	62
1965	100	100	100	100	100	100	100	100	100
1970	149	144	137	120	166	247	127	95	82
1971	161	173	159	126	167	287	112	100	78
1972	159	164	156	128	169	294	117	95	64
1973	174	190	176	135	184	361	131	99	69
1974	249	264	291	182	256	514	159	148	90
1975	280	400	404	223	348	653	184	166	92
1976	335	443	314	230	322	748	217	154	105
1977	340	492	358	245	326	859	209	160	109
1978					345		185		
<i>TOTAL COSTS</i>									
1951	46	59		69					
1955	55	74		81					63
1960	60	75	89	81	82	70	94	92(a)	54
1965	100	100	100	100	100	100	100	100	100
1970	167	153	121	112	163	174	122	100	115
1971	186	160	135	118	157	192	108	105	117
1972	186	159	123	119	159	201	110	100	97
1973	200	145	139	113	177	226	122	103	110
1974	262	172	222	153	240	290	144	141	146
1975	297	224	300	197	318	353	169	157	156
1976	383	254	266	228	306	411	212	152	202
1977	383	286	301	238	315	444	206	156	203
1978					332		197		

(a) 1961 data.

Sources: MAFF, *Statistical Yearbook and Shokuniku Kankei Shiryo*.

Table 5
TRENDS IN UNIT COSTS (DEFLATED)

Fiscal year	Rice	Wheat	Sugar beet	Milk	Beef (young steers)	Veal calves	Pig meat	Eggs	Mikan
<i>CASH COSTS</i>									
1951	81	122		124					
1955	88	143		120					94
1960	94	131	119	107	103	98	109	121 (a)	83
1965	100	100	100	100	100	100	100	100	100
1970	114	110	105	92	127	189	98	73	63
1971	116	125	115	91	121	208	81	72	57
1972	110	113	108	89	117	203	80	65	45
1973	107	118	109	83	114	223	81	61	43
1974	124	131	145	91	127	255	79	73	45
1975	125	178	179	99	155	291	82	74	38
1976	136	180	128	93	131	305	88	62	43
1977	128	185	135	92	123	324	79	60	41
1978					125		67		
<i>TOTAL COSTS</i>									
1951	79	102		119					
1955	80	108		118					92
1960	81	101	120	109	110	95	128	118 (a)	73
1965	100	100	100	100	100	100	100	100	100
1970	128	117	93	86	125	133	93	77	88
1971	135	116	97	86	114	139	78	76	84
1972	129	110	85	82	110	139	76	69	67
1973	124	90	86	70	110	140	75	64	68
1974	130	85	110	76	119	144	72	70	73
1975	132	99	133	88	141	157	75	70	69
1976	156	103	108	93	125	167	86	62	82
1977	144	108	113	90	119	167	78	59	76
1978					120		71		

(a) 1961 data.

Source: Derived from Table 4.

The downward trend in real costs for pig meat and eggs reflects a rapid decrease in the number of farmers producing these products and corresponding increases in the scale of management of those remaining. Milk costs declined over a number of earlier years for similar reasons. There have been considerable gains in efficiency and productivity, and the efficiency of production of pigs, poultry and eggs now compares favourably with that in other advanced countries. However, the dairy industry, despite some reductions in real costs, is still characterised by relatively small production units having costs which are much higher than in leading overseas dairying countries.

(b) Composition of Costs

Purchased inputs comprise less than 30% of total costs of most crop products, but the proportion tends to be higher for livestock products, especially fat cattle and pigs.

In the traditional industries, especially in cereal production, the imputed value of family labour accounts for more than a third of costs. However, with a general decrease in labour inputs and greater use of labour saving devices, the labour component of costs has generally tended to decline despite substantial rises in real wage rates. Labour costs are relatively low in livestock industries such as poultry and pigs where intensive production methods, often involving mechanisation, have been introduced.

The largest item of cash expenditure in crop production is fertiliser, while labour is by far the major self-supplied input. In livestock industries, the largest expenditure item is usually feed, although feeder livestock assumes considerable importance in enterprises which concentrate on fattening. Both labour and feed are major self-supplied inputs in dairying and calf-rearing.

The composition of assessed production costs for several products is shown in Table 6, while Table 7 gives the same information in the form of index numbers to facilitate a comparison of trends in the principal cost components for each product and also of the differing rates of

Table 6
COMPOSITION OF ACTUAL COSTS

Fiscal year	Unit	Cash costs	Depre- ciation	Family labour	Feeder live- stock (a)	Feed and forage (b)	Imputed interest and rent	Total costs (c)
<i>MILK</i>								
1955	¥/100 kg	1233	538	694	na	1815	260	2923
1960	"	1192	485	729	na	1826	269	2931
1965	"	1508	498	960	47	2129	306	3611
1970	"	1804	594	967	53	2298	399	4056
1973	"	2036	592	1084	61	2589	464	4096
1976	"	3462	858	2389	95	4329	685	8234
1977	"	3701	912	2364	100	4580	696	8580
<i>FAT CATTLE (WAGYU)</i>								
1960	¥'000/head	86.2	1.8	9.1	68.6	36.7	3.2	112.9
1965	"	113.9	2.7	10.2	86.6	38.9	4.3	139.1
1970	"	200.4	4.1	21.6	119.6	91.8	9.6	244.4
1973	"	232.2	5.0	24.0	141.1	99.6	9.8	278.5
1976	"	424.0	9.2	50.3	236.0	197.5	14.5	502.5
1977	"	443.1	12.1	58.0	230.9	221.1	17.7	533.6
1978	"	483.0	12.2	62.2	272.8	219.3	19.4	577.9
<i>VEAL CALVES</i>								
1960	"	8.3	16.1	17.6	na	37.4	8.2	59.5
1965	"	11.5	15.0	23.9	na	50.9	10.4	84.5
1970	"	28.3	24.0	37.4	2.9	66.3	22.4	147.3
1973	"	41.3	27.6	56.2	5.4	86.2	23.2	191.3
1976	"	85.7	47.9	107.1	6.2	156.5	39.8	347.4
1977	"	98.4	50.7	109.4	6.2	176.6	42.4	375.2
<i>FAT PIGS</i>								
1960	"	10.8	0.5	3.2	5.4	8.1	0.4	17.4
1965	"	12.8	0.4	2.0	6.2	8.9	0.5	17.8
1970	"	17.8	0.5	1.9	11.4	9.0	0.6	23.7
1973	"	19.3	0.4	1.7	12.7	9.6	0.5	25.0
1976	"	34.1	0.7	3.3	24.9	16.6	0.5	46.3
1977	"	32.6	0.6	3.0	24.2	16.0	0.4	44.7
1978	"	29.1	0.8	3.0	23.1	15.0	0.5	43.0
<i>EGGS</i>								
1961	¥/kg	111.0	28.1	20.3	-	12.7	8.3	158.1
1965	"	118.6	31.7	20.8	-	11.8	8.1	171.5
1970	"	112.8	40.2	19.7	-	10.8	6.3	172.0
1973	"	117.5	40.6	18.6	-	11.3	5.8	176.7
1976	"	181.9	53.2	28.3	-	17.3	6.8	261.2
1977	"	189.3	53.9	28.1	-	17.8	6.6	267.0

(Continued on next page)

Table 6 (continued)

Fiscal year	Unit	Cash costs	Depreciation	Family labour	Fertiliser (d)	Imputed interest and rent	Total costs (c)
<i>RICE</i>							
1955	¥/60 kg	619	183	998	460	268	2 177
1960	"	719	255	1042	443	287	2 374
1965	"	1030	581	1867	504	417	3 939
1970	"	1537	1230	2483	560	1295	6 589
1973	"	1790	1674	2782	541	1673	7 883
1976	"	3447	2772	5628	1080	3343	15 082
1977	"	3508	2947	5410	1070	3319	15 098
<i>WHEAT</i>							
1955	"	553	179	1084	662	187	2 382
1960	"	549	266	1050	601	206	2 393
1965	"	565	525	1606	617	248	3 203
1970	"	813	1082	2367	665	544	4 909
1973	"	1075	1004	1627	641	834	4 651
1976	"	2501	1318	2896	1304	1214	8 137
1977	"	2753	1541	3075	1470	1442	9 153
<i>SUGAR BEET</i>							
1960	¥/tonne	1860	159	1383	1730	388	4 551
1965	"	2118	350	1620	1620	400	5 138
1970	"	2910	509	1589	1733	735	6 206
1973	"	3720	695	1539	2122	934	7 126
1976	"	6656	1239	3561	4342	1447	13 692
1977	"	7577	1397	3756	5037	1780	15 447
<i>2-ROW BARLEY</i>							
1960	¥/52.5 kg	468	200	975	492	167	2 021
1965	"	601	399	1426	621	180	2 877
1970	"	673	786	1810	489	416	3 830
1973	"	1006	876	1960	643	629	4 631
1976	"	2150	1244	2618	1115	1216	7 476
1977	"	2406	1320	2903	1202	1305	8 262
<i>MIKAN</i>							
1955	¥/100 kg	1025	319	707	613	256	2 349
1960	"	990	304	485	537	184	1 993
1965	"	1590	620	1160	820	317	3 708
1970	"	1307	928	1344	490	654	4 275
1973	"	1100	805	1445	310	713	4 078
1976	"	1671	1307	3215	494	1244	7 474
1977	"	1738	1244	3301	547	1197	7 512

(a) Includes cost of young animals and insemination, both purchased and self-supplied. (b) Feed and forage, purchased and self-supplied. (c) After deduction of value of by-products. (d) Includes self-supplied fertiliser.

Source: MAFF, *Statistical Yearbook*.

Table 7
COMPOSITION OF COSTS
Index Numbers : 1965=100

Fiscal year	Cash costs	Depreciation	Family labour	Feeder livestock (a)	Feed and forage (b)	Imputed interest and rent	Total costs (c)
<i>MILK</i>							
1955	82	108	72	na	85	85	81
1960	79	97	76	na	86	88	81
1965	100	100	100	100	100	100	100
1970	120	119	101	113	108	130	112
1973	135	119	113	130	121	152	113
1976	230	172	249	202	203	224	228
1977	245	183	246	213	215	227	238
<i>FAT CATTLE (WAGYU)</i>							
1960	76	67	89	79	94	74	81
1965	100	100	100	100	100	100	100
1970	176	153	211	138	236	223	176
1973	204	187	235	163	256	228	200
1976	372	343	492	273	508	337	361
1977	389	448	569	267	568	412	384
1978	424	452	610	315	564	451	415
<i>VEAL CALVES (WAGYU)</i>							
1960	73	107	74	-	73	79	70
1965	100	100	100	-	100	100	100
1970	247	160	156	-	130	215	174
1973	361	184	235	-	169	223	226
1976	748	319	448	-	307	383	411
1977	859	337	458	-	347	408	444
<i>FAT PIGS</i>							
1960	84	120	162	87	91	80	98
1965	100	100	100	100	100	100	100
1970	139	132	96	184	101	120	133
1973	151	100	82	205	108	100	140
1976	267	168	165	402	187	100	260
1977	255	144	153	390	180	80	251
1978	227	185	154	373	169	100	242
<i>EGGS</i>							
1961	94	89	98	-	108	102	92
1965	100	100	100	-	100	100	100
1970	95	127	95	-	92	78	100
1973	99	128	89	-	96	72	103
1976	153	168	136	-	147	84	152
1977	160	170	135	-	151	81	156

Table 7 (continued)

Fiscal year	Cash costs	Depreciation	Family labour	Fertiliser (d)	Imputed interest and rent	Total costs (c)
<i>RICE</i>						
1955	60	31	53	91	64	55
1960	70	44	56	88	69	60
1965	100	100	100	100	100	100
1970	149	212	133	111	311	167
1973	174	288	149	107	401	200
1976	335	477	301	214	802	383
1977	341	507	290	212	796	383
<i>WHEAT</i>						
1955	98	34	67	107	75	74
1960	97	51	65	97	83	75
1965	100	100	100	100	100	100
1970	144	206	147	108	219	153
1973	190	191	101	104	336	145
1976	443	215	180	211	490	254
1977	487	294	191	238	581	286
<i>SUGAR BEET</i>						
1960	88	45	85	107	97	89
1965	100	100	100	100	100	100
1970	137	145	98	107	184	121
1973	176	199	95	131	234	139
1976	314	354	220	268	362	266
1977	358	399	232	311	445	301
<i>2-ROW BARLEY</i>						
1960	78	50	68	79	93	70
1965	100	100	100	100	100	100
1970	112	197	127	79	231	133
1973	167	200	137	104	349	161
1976	358	312	184	180	676	260
1977	400	331	204	194	725	287
<i>MIKAN</i>						
1955	64	51	61	75	81	63
1960	62	49	42	65	58	54
1965	100	100	100	100	100	100
1970	82	150	116	60	206	115
1973	69	130	125	38	225	110
1976	105	211	277	60	392	202
1977	109	201	285	67	378	203

(a) Includes cost of young animals and insemination both purchased and self-supplied. (b) Feed and forage purchased and self-supplied. (c) After deduction of value of by-products. (d) Includes self-supplied fertiliser.

Source: MAFF, *Statistical Yearbook*.

change between products. Table 8 shows the percentages of total costs which are attributable to the various categories of inputs. In interpreting Table 6 it is necessary to note that where by-products are produced in association with the main product under consideration, it is assumed that the costs attributable to the by-products are equal to the proceeds of the sale (or on-farm use) of these by-products. Thus the total production cost of the main product (called 'secondary cost' by the Japanese) is calculated by deducting these proceeds from total farm costs. However, individual cost items as recorded include costs attributable to by-products and the total of all components is equivalent to 'secondary costs' plus the value of by-products. Therefore in Table 8, the value of by-products has been added back to total costs in order to obtain a divisor which ensures that the proportions obtained for purchased inputs, self-supplied inputs, depreciation, rent and interest add to 100% of all costs, including those attributable to by-products.

5. Relative Profitability of Farm Products

The success of measures designed to influence the allocation of resources between alternative farm products will depend to an important extent on farmers' assessment of relative profitability of the enterprises concerned. Government policy advisors are also interested to compare profitability of different enterprises as one of several ways of assessing the effects of past policies and the need for future policy changes.

Information derived from the production cost surveys undertaken by MAFF enables relative profitability of different farm products and changes in profitability of a given farm product to be estimated in at least two ways. These are (a) the ratio of returns to costs; (b) the return to labour and management. A brief description of each is given below.

Table 8
° COMPOSITION OF PRODUCTION COSTS
Proportion of Total

Product	Fiscal Year	Purchased inputs	Self-supplied inputs	Depreciation	Rent and interest	Family labour (a)	Purchased fertiliser or feed(b)
		%	%	%	%	%	%
Rice	1965	24	52	14	10	44	7(c)
	1976	22	38	18	22	36	5(c)
	1977	23	37	19	21	35	5(c)
Wheat	1965	17	60	16	7	48	10(c)
	1976	30	40	15	15	34	13(c)
	1977	30	39	16	15	33	13(c)
2-row Barley	1965	20	61	13	6	48	12(c)
	1976	29	39	16	16	35	13(c)
	1977	29	39	16	16	35	12(c)
Sugar beet	1965	41	44	7	8	31	22(c)
	1976	49	32	9	10	26	27(c)
	1977	49	30	9	12	24	27(c)
Sugar cane	1968	32	36	5	27	32	13(c)
	1976	22	66	2	10	64	9(c)
	1977	23	66	2	9	64	9(c)
Milk	1965	38	39	13	10	21	32(d)
	1976	39	43	10	8	27	32(d)
	1977	40	43	10	7	26	33(d)
Fat cattle	1965	79(e)	16	2	3	7	18(d)
	1976	81(e)	14	2	3	10	35(d)
	1977	80(e)	15	2	3	11	36(d)
Calves (Wagyu)	1965	11	65	14	10	23	7(d)
	1976	22	54	12	12	27	17(d)
	1977	24	54	12	10	26	19(d)
Fat pigs	1965	69(f)	25	3	3	11	42(d)
	1976	72(f)	25	2	1	7	35(d)
	1977	72(f)	26	1	1	7	33(d)
Eggs	1965	66	13	17	4	11	64(d)
	1976	67	10	20	3	10	64(d)
	1977	68	10	20	2	10	64(d)
Mikan	1965	43	32	17	8	31	22(c)
	1976	22	44	17	17	43	7(c)
	1977	23	44	17	16	44	6(c)

(a) Included with self-supplied inputs. (b) Included in purchased inputs. (c) Fertiliser purchased. (d) Feed purchased.

(e) Of which feeder livestock 60% in 1965, 45% in 1976, 41% in 1977.

(f) Of which feeder livestock 26% in 1965, 36% in 1976, 35% in 1977.

(a) Ratio of Returns to Costs

Data collected and published by MAFF show returns from the sale and domestic use of major farm commodities net of selling costs. A comparison between these returns and assessed costs gives an indication of profitability. It is considered that the data on returns to farmers derived from these surveys are more appropriate for the purpose of estimating profitability than the various price series which are available because they enable costs and returns to be assessed at the same point and from the same sample. Published price series relate to different samples and do not necessarily indicate the amount the farmer actually receives from the sale of his products. However, it is recognised that price data are very useful in analysing trends affecting the economic situation of farmers and some price series relating to various products are given in the Appendix.

Relative profitability of several farm products for selected years as assessed by comparing returns with costs as calculated by MAFF is shown in Tables 9 and 10.

Rice is probably the best example of a commodity where returns have consistently exceeded costs. This is a result of the price and purchase policies which the Government is required to pursue under the Agricultural Basic Law in order to achieve accepted income and welfare objectives. Government policies of 'selective expansion' were designed to encourage output of commodities for which demand was increasing and to restrain production of those for which demand was declining (e.g. rice, sweet potatoes). These policies stimulated production of some fruits and vegetables, but their effects were greatest in the livestock industries, since the pricing provisions of those policies caused returns to livestock producers to rise relative to those of crop producers. Returns for milk, both for drinking and for manufacture, have consistently exceeded assessed costs, but in the case of fat cattle, pigs and eggs, profitability has been more variable. The variability in profitability of pig production occurred despite the existence of a stabilisation scheme, while abrupt changes in income of beef producers led to the introduction of a similar scheme for beef in

Table 9

COMPARISON OF COSTS AND RETURNS

Product	Unit	1955	1960	1965	1970	1971	1972	1973	1974	1975	1976	1977	1978
Rice													
Returns	Y'000/0.1 ha	27.4	29.9	47.0	65.9	64.3	72.6	87.2	113.9	135.3	136.4	150.1	
Costs	"	15.2	17.7	29.2	53.4	56.8	60.4	67.2	86.6	102.3	122.0	129.0	
Wheat													
Returns	"	9.0	10.0	12.7	14.6	15.5	17.8	21.5	26.5	27.1	30.2	42.4	
Costs	"	10.4	11.5	15.5	21.9	22.8	24.1	23.3	27.0	32.8	39.1	44.3	
2-row barley													
Returns	"	10.8	10.5	13.8	15.9	20.6	21.6	19.7	31.4	31.2	32.7	46.2	
Costs	"	8.7	11.2	15.4	21.3	22.5	23.7	23.3	27.8	33.6	40.2	45.2	
Soybeans													
Returns	"	7.6	8.3		15.4	12.0	16.6	24.0	25.2	31.7	36.2	47.2	
Costs	"	5.0	4.9	7.9	13.8	13.2	14.0	17.4	24.1	30.1	35.8	35.9	
Sugar beet													
Returns	"	12.1	12.6	23.1	35.0	34.6	43.0	42.4	46.1	46.2	68.0	77.8	
Costs	"	10.0	10.9	17.4	29.0	30.5	33.5	36.3	48.7	59.9	72.4	76.1	
Sugar cane													
Returns	"			44.5(a)	40.9	42.2	46.1	61.1	72.7	86.5	89.0	121.5	
Costs	"			39.1(a)	42.3	47.1	60.0	75.0	87.6	107.6	134.2	144.0	

(Continued on next page)

Table 9 (continued)

Product	Unit	1955	1960	1965	1970	1971	1972	1973	1974	1975	1976	1977	1978
Mikan													
Returns	Y'000/0.1 ha	89.2	129.8	172.1	190.0	179.3	132.6	151.7	179.8	167.8	229.4	187.9	
Costs	"	51.4	64.2	103.7	123.2	123.1	140.3	143.8	168.9	199.1	222.7	254.3	
Milk													
Returns	Y'000/100 kg			3.96(a)	4.64	4.70	5.01	5.27	6.31	8.25	9.09	9.50	
Costs	"	2.92	2.93	3.71(a)	4.06	4.30	4.30	4.10	5.53	7.12	8.23	8.58	
Eggs													
Returns	"			17.4(a)	17.9	17.0	17.9	19.7	22.7	28.5	25.8	26.7	
Costs	"		15.8(b)	16.3(a)	17.2	18.1	17.2	17.7	24.1	26.9	26.1	26.7	
Fat cattle													
Returns	Y'000/head		108.6	134.0	239.6	234.1	252.4	346.1	450.7	458.6	567.6	602.8	
Costs	"		112.9	139.1	244.4	229.1	242.8	278.5	391.6	545.2	502.5	533.6	577.9
Fat pigs													
Returns	"		17.9	18.4	24.6	21.5	25.4	27.7	29.5	39.1	51.6	44.6	
Costs	"		17.4	17.8	23.7	20.9	21.9	25.0	29.6	35.6	46.3	44.7	43.0
Veal calves													
Returns	"			100.4(a)	90.0	106.1	121.0	219.5	306.0	222.5	233.9	275.9	
Costs	"		59.5	115.3(a)	147.3	162.2	169.4	191.3	245.0	298.4	347.4	375.2	

(a) Data for 1967. (b) Data for 1961.

Source: MAFF, Statistical Yearbooks.

Table 10

RETURNS AS A PERCENTAGE OF COSTS

Product	1955	1960	1965	1970	1971	1972	1973	1974	1975	1976	1977
Rice	180	150	161	123	113	120	130	132	132	112	116
Wheat	87	87	82	67	68	74	92	98	83	77	96
2-row barley	124	94	90	75	92	91	85	113	93	81	102
Soybeans	152	169	na	112	91	119	138	105	105	101	131
Sugar beet	121	116	133	121	113	128	117	95	77	94	102
Sugar cane	na	na	114(a)	97	90	77	81	83	80	66	84
Mikan	174	202	166	154	146	95	105	106	84	103	74
Milk	na	na	105(a)	114	109	117	129	114	116	110	111
Eggs	na	na	107(a)	104	94	104	111	94	106	99	100
Fat cattle	na	96	96	98	102	104	124	115	84	113	113
Fat pigs	na	103	103	104	103	116	111	100	110	111	100
Veal calves	na	na	87(a)	61	65	71	115	125	75	67	74

(a) Data for 1967. na, not available.

Source: Derived from Table 9.

1974, together with other measures of protection which have combined to ensure a relatively high level of profitability since 1975. The profitability of calf rearing has been even more variable, with substantial apparent 'losses' in some years. It is not clear to what extent these may be balanced by profits in other activities such as beef cattle production.

Returns for cereals other than rice have generally been below assessed costs, despite the fact that the Government purchase price has been maintained at artificially high levels and various additional incentives were introduced as from 1975 in an effort to stimulate output. Cash costs have always been adequately covered, but the farmer's reward for labour and capital appears to have fallen short of the assessed costs of these inputs. Sugar cane and sugar beet have also shown an excess of costs over returns in a number of years, again despite special incentive payments to encourage greater output.

Profitability in fruit and vegetable production has been favourable for the majority of products, a notable exception being sweet potatoes. In this paper, mikan (mandarin oranges or tangerines) have been selected as representative of this large group of products as they are the most important single horticultural product. While profitability was quite high in earlier years, it has since fallen and in the last few years returns have averaged around the same amount as assessed costs.

(b) Returns to Labour (including management)

It has already been noted that a major policy objective is to enable farmers to achieve parity of income with other workers and that data relating to profitability are likely to be of considerable interest to those involved in the assessment of the results of past policy measures and in the drafting of new ones.

For this reason it is interesting to look briefly at an alternative perspective of relative profitability which can be obtained by a comparison of returns to resources of labour and management used in producing various products. These 'returns to labour' as derived from

MAFF survey data comprise the net proceeds from the sale of the product concerned at the farm gate, less all cash and imputed costs other than labour (which includes the managerial component of the labour input). This approach has the effect of crediting to labour any pure profit and any returns to land and capital over and above the imputed values of these inputs which are used in the cost calculations. For this reason, caution is required in interpreting the results.

Returns to labour calculated in this way for selected products are set out in Table 11. The returns have been expressed in terms of 1970 purchasing power to facilitate comparison. The fact that real returns thus calculated show a general upward trend through time indicates that farmers have been able to increase the reward for their labour more or less in line with rewards for labour in other sectors of the economy. No doubt the Government sees this as a measure of the success of its farm income policies.

During the past decade, returns to labour employed in livestock industries have tended to exceed those in crop industries, although returns in beef cattle and pig production have been very variable, mainly due to variations in prices of feedstuffs and some fluctuations in product prices. This observation is consistent with the data in Table 10.

There has been some increase in returns to labour used in producing wheat, soybeans and sugar in recent years, reflecting the incentives and diversion payments introduced by the Government. On the other hand, mikan, which were once highly profitable, have encountered problems of oversupply and depressed prices, resulting in a severe drop in returns.

Returns to labour calculated as outlined above generally reveal trends similar to those shown by the ratio of returns to costs. However, where labour costs are a relatively small proportion of total costs (as in the case of livestock products where feed and feeder livestock are the largest cost items), the fact that any surplus above defined costs is credited to 'labour' means that a small change in the overall ratio of returns to costs will be accompanied by a proportionately much larger change in the return to labour. A further cause of difference between

Table 11

RETURNS TO LABOUR USED IN PRODUCING SELECTED FARM PRODUCTS

(yen per day, 1970 prices)

Commodity	1965	1970	1971	1972	1973	1974	1975	1976	1977
Rice	2551	2493	2204	2701	3085	3571	4119	3186	3624
Wheat	667	454	421	631	1159	1551	870	716	2224
Sugar beet	na	2624	2372	3551	2730	1360	-182	2125	3088
Soybeans	1032	1655	920	2316	3466	1819	2126	2490	4709
Mikan	3987	4144	3907	1412	1965	2167	1177	2742	1072
Fat steers	na	1084	1954	2343	5137	4334	-2110	5560	5441
Fat pigs	1248	2034	1884	4843	3789	1459	5039	7301	2583
Eggs	238	1864	649	2182	3363	376	3403	2318	2785
Milk	790	2166	2024	2553	3021	2527	3255	3653	3841
Deflator (a)	78.7	100.0	104.7	111.2	132.4	158.9	168.8	182.8	195.6

(a) Derived from Index of Prices Paid by Farmers for household consumption items.

na, not available.

Source: Rakunō Kankei Shiryō.

the two approaches to estimating profitability is that the ratio of returns to costs for sales of livestock is calculated on a per head basis and is therefore independent of yield per animal, whereas the return to labour is based on the quantity of product sold and is hence affected by such yields, which have tended to increase steadily.

6. Profitability and Production Decisions

Farmers' assessments of the profitability of their enterprises are powerful factors influencing their production decisions which in turn determine their use of farm inputs. Where the Government adopts policies designed to modify farm production patterns, it aims to achieve its objectives primarily through measures which are expected to influence farmers' production decisions. One of the ways in which it seeks to influence these decisions is by ensuring adequate profitability of production which it wishes to expand and by decreasing the relative profitability of production which it intends to discourage.

One of the aims of this paper is to see whether the relationships between profitability and production which economic reasoning would lead one to expect are actually borne out by available statistics. It is recognised that estimates of profitability based on survey data do not necessarily coincide with farmers' own assessments of profitability. Further, it is necessary to bear in mind that there are factors other than profitability which strongly influence farmers' production decisions. Among these are custom, tradition, the nature of farmers' skills and experience and non-price measures used by the Government to influence production. These include payments to encourage diversion of land from rice to other uses, investment incentives and some non-financial forms of persuasion. It may be noted here that some measures adopted by the Government are mutually contradictory; for example, a purchase price for rice based on a generous interpretation of cost of production is scarcely compatible with substantial payments to farmers to divert resources away from rice.(5)

(5) A more complete discussion on these policies will appear in BAE, Japanese Agricultural Production and Trade Policies (forthcoming).

In view of these considerations, it was felt that no formal model could realistically relate output to profitability and it was therefore decided to make a general appraisal of the extent to which changes in profitability as deduced from Tables 9, 10, and 11 have been reflected in changes in crop areas and livestock numbers which are summarised in Table 12.

In the case of rice which accounts for 35% to 40% of the value of farm output and occupies almost 50% of the arable area, profitability has been maintained relatively high by Government support measures aimed at fulfilling the legislatively established income objectives. At the same time, in the past decade, crop area has been curtailed by measures designed to reduce output to the level of demand. Some of the land taken out of rice has been used for other cereals despite lower levels of profitability for these. Low profitability for wheat and barley appears to be a major reason for declines in areas devoted to these crops up to 1975. However, substantial incentive payments introduced in that year led to some recovery in profitability while the greatly increased incentives to divert land from rice to other crops in 1978 and 1979 have been largely responsible for a considerable recovery in area and hence in output of other cereals.

Soybean output declined steadily up to 1977. The reason appears to be not low profitability of soybeans but higher profitability of rice and vegetables which can be grown readily on land suitable for pulses. Special production incentives as well as rice diversion payments have since increased profitability of soybean production and an increase of more than 50% in area planted occurred in 1978, mainly in Hokkaido.

Both sugar cane and sugar beet responded to fairly high levels of profitability in the 1950s and 1960s, but profitability subsequently declined and planted areas tended to fall up to 1976. Increased prices, diversion payments and special incentives have since increased the profitability of both crops and a modest recovery in area has ensued.

Reasonably satisfactory profitability for many vegetables and fruits led to substantially increased output. High profitability in the 1950s and

Table 12
TRENDS IN CROP AREAS AND LIVESTOCK NUMBERS
Index Numbers : 1965 = 100

Product	1955	1960	1965	1970	1971	1972	1973	1974	1975	1976	1977	1978
Rice	99	102	100	90	83	81	80	84	85	85	85	78
Wheat	139	126	100	48	35	24	16	17	19	19	18	23
Barley (total)	236	199	100	53	39	29	19	18	18	19	18	23
Soybeans	209	167	100	52	55	48	48	51	47	45	43	69
Sugar beet	28	80	100	90	90	97	103	78	80	70	82	97
Sugar cane	23	44	100	93	81	72	70	70	72	74	77	
Mikan	34	55	100	142	145	149	150	150	147	143	138	133
Cattle - dairy	33	64	100	140	144	141	138	136	138	140	146	154
- beef	140	124	100	95	93	93	95	99	97	101	105	108
Pigs	21	48	100	159	174	176	188	202	193	188	205	222
Laying hens	45	51	100	134	141	139	139	137	166	168	173	178

Source: MAFF, *Statistical Yearbook* (various issues).

1960s led to greatly increased plantings of mikan and subsequently to a saturation of demand in the 1970s. This in turn resulted in a fall in real prices and in profitability and more recently in some reductions in area and output.

Continued profitability of milk production has been a major factor in the increase in the dairy herd, although the demand for feeder calves for dairy beef production has also played a part. Profitability has declined a little recently, largely because output has continued to grow and prices in real terms have fallen slightly.

Beef cattle numbers (including dairy breeds fattened for beef production) have been rising for some years in response to price and profitability levels maintained by Government control of imports and more recently a price stabilisation scheme for domestic beef. Costs increased sharply when world feed prices rose several years ago, but a satisfactory level of profitability has since been restored. Since there has been an increasing degree of overlap between the beef and dairy industries through the use of dairy breeds for beef, the profitability of milk production also has some effect on beef output.

Profitability of pig and poultry production has been maintained by introduction of cost-reducing technology and output has advanced steadily. Egg production has continued to rise despite some cost-induced falls in profitability. However, cost increases have been minimised by improved technology and the egg industry has achieved a high degree of production efficiency.

7. Summary

Agriculture in Japan is characterised by a considerable amount of Government planning designed to achieve specified policy objectives. Important among these are:

- (a) selective expansion of production to adjust to changes in demand and to maintain or increase self-sufficiency levels;

- (b) giving farmers the opportunity to achieve parity of income with people in other occupations.

The Government uses a variety of measures designed to achieve its policy objectives. Most of these are designed to influence directly or indirectly the prices received by farmers for their produce and the profitability of their farm enterprises.

In line with its policy of selective expansion, the Government has sought to encourage livestock production and over the years livestock product prices and profitability have tended to rise relative to crop products. There seems little doubt that the relatively higher rate of growth of livestock production over the past two or three decades when compared with crop production is causally related to the trends in prices and profitability.

It has also been a policy objective to increase output of some crop products to reduce import dependency. These include wheat, barley, soybeans, sugar cane and sugar beet. Related to this objective is that of diverting land from rice to these other crops, thus reducing rice production in line with demand, while giving farmers incentives to increase self-sufficiency ratios for some alternative products.

Although diversion of land from rice has proceeded largely according to plan, aided by large diversion payments to farmers, rice surpluses still persist mainly as a result of higher yields achieved at ever increasing costs. This emphasises the contradictory nature of policies which support the price of rice at a level closely related to these high costs at a time when rice production still exceeds demand and when other policy measures are being applied concurrently to reduce output.

Statistical Appendix

This appendix consists of a series of tables showing movement in prices and costs of selected farm products. It is intended for reference only, as some of the information in the tables is presented in a similar form in tables in the body of the paper.

Table A.1
TRENDS IN PRICES AND COSTS : RICE
(Yen per kg)

Year	Retail price (a)	Government prices		Free market (farmer) (c)	Average value of imports c.i.f. (d)	Farm costs		Farm returns (g)
		Selling (b)	Buying (b)			Cash (e)	Total (f)	
A. ACTUAL VALUES								
1951	62	45	47	70		8	31	46
1955	83	67	65	79	57	10	36	66
1960	87	73	69	70	48	12	40	59
1965	117	93	109	104	58	17	66	106
1970	163	124	138	134	51	26	110	135
1971	66	123	142	135	32	28	122	138
1972	174	123	149	140	34	27	122	147
1973	191	130	172	153	66	30	131	171
1974	215	171	226	193	163	43	172	227
1975	277	203	260	226	130	48	195	258
1976	322	224	276	256	85	57	251	272
1977	353	246	287	273	55	58	252	293
1978	377	246	287	275	138			
B. DEFLATED VALUES								
1951	107	77	81	140		14	52	79
1955	121	98	95	115	84	15	53	96
1960	118	98	94	94	65	16	54	80
1965	117	93	109	104	58	17	66	106
1970	125	95	106	103	39	20	84	104
1971	120	89	103	95	23	20	88	100
1972	120	85	103	97	23	19	84	102
1973	118	80	106	95	41	18	81	106
1974	107	85	113	96	81	21	86	113
1975	123	90	115	101	58	21	87	115
1976	131	91	112	104	34	23	102	111
1977	133	93	108	103	21	22	95	110
1978	137	89	104	100	50			

(a) Average unit cost of purchases (Family Income and Expenditure Survey).
 (b) Official selling and buying prices (including incentives etc.).
 (c) Average price for 3rd grade brown rice. (d) Average c.i.f. value, polished rice. (e) Average cost of purchased inputs. (f) Total costs including imputed rent, interest and family labour. (g) Net of selling costs.

Sources: MAFF, *Beika ni kansuru Shiryō, Poketto Nōrinsuisan Tōkei, Statistical Yearbook.*

Table A.2
TRENDS IN PRICES AND COSTS : WHEAT
(Yen per kg)

Year	Retail price (flour) (a)	Government prices		Free market (farmer) (c)	Average value of imports c.i.f.(d)	Farm costs		Farm returns
		Selling (b)	Buying (b)			Cash	Total	
A. ACTUAL VALUES								
1951	44					7	32	29
1955	53	36	36	34	26	9	40	34
1960	57	34	38	34	24	9	40	34
1965	71	33	47	47	25	9	53	43
1970	77	32	59	60	25	13	82	54
1971	82	32	63	65	25	16	86	58
1972	85	32	65	67	22	16	85	62
1973	90	44	74	75	33	18	78	75
1974	133	43	95	98	65	25	92	90
1975	131	43	138(d)	112	59	38	119	99
1976	148	55	151	121	54	42	136	105
1977	160	55	161	170	35	46	153	146
1978	161	55	164	173	31			
B. DEFLATED VALUES								
1951	76					12	54	50
1955	77	52	52	50	39	13	58	50
1960	77	45	51	45	32	12	54	47
1965	71	33	47	47	25	9	53	43
1970	59	25	45	46	19	10	63	42
1971	59	23	46	47	18	12	62	42
1972	59	22	45	47	15	11	59	43
1973	56	27	46	47	21	11	48	46
1974	66	21	47	49	33	12	45	45
1975	58	19	62(d)	50	26	17	53	44
1976	60	22	61	49	22	17	55	43
1977	60	21	61	69	13	17	57	55
1978	58	20	60	63	11			

(a), (b) As for Table A.1. (c) Average price for free market sales.
(d) Includes incentive payments from 1975.

Sources: MAFF, *Bakka ni kansuru Shiryō, Statistical Handbook*.

Table A.3
TRENDS IN PRICES AND COSTS : SOYBEANS
(Yen per kg)

Year	Retail price (miso) (a)	Wholesale price (b)	Price to farmer (c)	Average import value (c.i.f.)	Farm costs		Farm returns (d)
					Cash	total	
A. ACTUAL VALUES							
1955	68		53	44			
1960	75	53	51	34		29	48
1965	109	62	64	44		57	
1970	136	84	84	41		85	94
1971	150	91	91	46		113	103
1972	158	97	97	43	26	84	100
1973	201	113	113	58	31	95	131
1974	248	148	189(e)	79	39	141	147
1975	250	161	203	84	49	159	167
1976	265	174	224	70	53	170	171
1977	275	247	247	82	59	184	242
1978	287	252	252	56			
B. DEFLATED VALUES							
1955	99		80	64			
1960	101	72	69	46		39	65
1965	109	62	64	44		57	
1970	104	64	64	31		65	72
1971	108	66	66	33		82	75
1972	109	67	67	30	18	58	69
1973	124	70	70	36	19	59	81
1974	123	73	94(e)	39	19	70	73
1975	111	72	90	37	22	71	74
1976	108	71	91	29	22	69	70
1977	104	93	93	31	22	69	91
1978	104	91	91	20			

(a) Average unit cost of purchases (FIES). (b) Basic price. (c) Average payments to farmers. (d) Net of selling costs. (e) Incentive payments included from 1974.

Sources: MAFF, *Statistical Yearbook, Shokuryō Kanri Tokei Nenpō*.

Table A.4
TRENDS IN PRICES AND COSTS : SUGAR BEET
AND SUGAR CANE
(Yen per kg)

Year	Minimum producer prices		Farm costs				Farm returns(a)	
	Beet	Cane	Cash costs		Total costs		Beet	Cane (b)
			Beet	Cane (b)	Beet	Cane (b)		
A. ACTUAL VALUES								
1960			1.9		4.6		5.3	
1965	6.6	5.9	2.1		5.1		6.8	
1970	7.8	6.6	2.9	2.0	6.2	6.6	7.5	6.4
1971	8.0	6.8	3.4	2.2	6.9	7.3	7.8	6.6
1972	8.3	7.0	3.3	2.4	6.3	8.2	8.1	6.3
1973	8.6	10.0(c)	3.7	<u>2.6</u>	7.1	<u>9.4</u>	8.3	7.7
1974	11.1	15.0	6.2	3.1	11.4	13.3	10.8	11.1
1975	16.0(c)	16.1	8.6	3.9	15.4	15.2	11.9	12.2
1976	17.0	17.1	6.7	4.4	13.7	19.9	12.9	13.2
1977	18.1	18.4	7.6	4.3	15.4	19.1	15.8	16.1
B. DEFLATED VALUES								
1960			2.5		6.2		7.1	
1965	6.6	5.9	2.1		5.1		6.8	
1970	6.0	5.0	2.2	1.5	4.8	5.0	5.8	4.9
1971	5.8	4.9	2.4	1.6	5.0	5.3	5.7	4.7
1972	5.7	4.8	2.3	1.7	4.4	5.6	5.6	4.3
1973	5.3	6.2(c)	2.3	<u>1.6</u>	4.4	<u>5.8</u>	5.2	4.8
1974	5.5	7.5	3.1	1.5	5.7	6.6	5.4	5.5
1975	7.1(c)	7.2	3.8	1.7	6.9	6.8	5.3	5.4
1976	6.9	7.0	2.7	1.8	5.6	8.1	5.3	5.4
1977	6.8	6.9	2.9	1.6	5.8	7.2	6.0	6.1

(a) Net of selling costs. (b) Kagoshima prefecture only up to 1973.
(c) Includes incentive payments from 1973 (cane) and from 1975 (beet).

Sources: MAFF, Statistical Yearbook, Kanshatō Seisan Gorika Suishinkaigi Shiryo.

Table A.5
PRICE TRENDS : SUGAR
(Yen per kg)

Year	Retail	Wholesale (b)	Target stabilisation price(c)	Sugar Agency prices			Average import value c.i.f.
				Selling Cane(d)	Beet	Buying Cane(d)	
A. ACTUAL PRICES							
1951	111						
1955	149	130					39
1960	141	126					30
1965	125	100	41	70	99	83	32
1970	139	114	43	74	98	93	39
1971	141	116	43	82	99	97	45
1972	145	118	45	77	103	102	49
1973	169	131	46	89	114	123	50
1974	237	202	73	160	167	170	122
1975	289	255	97	146	189	181	202
1976	257	208	106	117	207	219	117
1977	236	197	115	104	220	228	72
1978	231		132				54
B. DEFLATED PRICES							
1951	191						
1955	217	190					57
1960	191	170					41
1965	125	100	41	70	99	84	32
1970	107	87	33	57	75	71	30
1971	102	84	31	60	71	70	32
1972	100	82	31	53	71	71	34
1973	105	81	28	55	70	76	31
1974	118	110	36	79	83	84	61
1975	129	113	43	65	84	81	90
1976	105	85	43	47	84	89	48
1977	89	74	43	39	83	86	27
1978	84		48				20

(a) White sugar (Family Income and Expenditure Survey). (b) White sugar (average). (c) Official target of Sugar Stabilisation Agency. (d) Kagoshima cane only.

Sources: MAFF, Poketto Nōrinsuisan Tōkei, Nōgyō Hakusho.

Table A.6
TRENDS IN PRICES AND COSTS : MIKAN
(Yen per kg)

Year	Retail price (a)	Wholesale price (Tokyo)	Price to farmer	Farm costs		Farm returns (b)
				Cash	Total	
A. ACTUAL VALUES						
1951	46					
1955	62			10	23	41
1960	89	68	45	10	20	40
1965	100	79	71	16	31	52
1970	123	102	88	13	43	66
1971	116	90	88	12	43	63
1972	99	72	50	10	36	34
1973	92	72	63	11	41	43
1974	115	91	91	14	54	58
1975	127	98	72	15	58	49
1976	140	117	137	17	75	77
1977	155	119	84	17	75	56
1978	160					
B. DEFLATED VALUES						
1951	79					
1955	90			15	34	59
1960	120	92	60	13	27	54
1965	100	79	71	16	37	52
1970	94	78	68	10	33	51
1971	84	65	64	9	31	46
1972	68	50	34	7	25	24
1973	57	45	39	7	25	27
1974	57	45	45	7	27	29
1975	57	48	29	6	26	22
1976	57	48	54	7	30	31
1977	58	45	32	6	28	21
1978	58					

(a) Average unit cost of purchases (FIES). (b) Net of selling costs.

Source: MAFF, Statistical Yearbook.

Table A.7
TRENDS IN PRICES AND COSTS : MILK
(Yen per kg)

Year	Retail price	Wholesale price	Standard sales price	Price to farmer		Farm costs		Farm returns
	(a)	(average)	price(b)	Average	Guarantee (c)	Cash	Total	(d)
A. ACTUAL VALUES								
1951	68					11	25	
1955	73					12	29	
1960	77	51		25		12	29	
1965	107	64	32(e)	36	37(e)	15	36	
1970	133	78	37	48	44	18	41	46
1971	154	85	37	52	45	19	43	47
1972	154	85	38	54	46	19	43	50
1973	170	98	41	61	49	20	41	53
1974	206	138	53	81	70	28	55	63
1975	221	151	58	90	80	34	71	83
1976	237	168	62	101	86	35	82	91
1977	236	168	64	102	89	37	86	95
1978	240	176	64	102	89			
B. DEFLATED VALUES								
1951	117					19	43	
1955	106					18	43	
1960	104	69		34		16	40	
1965	107	64	30(e)	36	35(e)	15	36	
1970	102	60	29	37	34	14	31	36
1971	111	61	27	38	32	14	31	34
1972	107	59	26	37	32	13	30	35
1973	105	61	25	38	30	13	25	33
1974	102	69	27	41	35	14	28	31
1975	98	67	26	41	36	15	32	37
1976	97	68	25	41	35	14	34	37
1977	89	63	24	38	34	14	32	36
1978	87	64	23	37	32			

(a) Average unit cost of purchases (Family Income and Expenditure Survey).
 (b) Government selling price to manufacturers. (c) Guaranteed minimum quantity for up to a specified quantity of manufacturing milk. (d) Net of selling costs. (e) Data for first year of stabilisation scheme (1966).

Sources: MAFF, *Rakunō Kankei Shiryō, Poketto Nōrinsuisan Tōkei, Statistical Yearbook.*

Table A.8
TRENDS IN PRICES AND COSTS: BEEF
(Yen per kg)

Year	Retail (a)	Wholesale (b)	Farmer's price (c)	Average import value c.i.f.	Farm costs		Farm returns (d)
					Cash	Total	
A. ACTUAL VALUES							
1955	378	210	124	192			
1960	503	333	178	200	178	238	229
1965	741	510	279	230	234	291	280
1970	1215	843	433	346	388	474	465
1971	1291	860	466	389	391	458	468
1972	1408	930	533	474	395	462	481
1973	1836	1419	811	630	430	516	641
1974	2122	1445	749	734	599	699	805
1975	2385	1640	876	498	813	927	780
1976	2673	1986	961	526	752	891	1006
1977	2727	1890	953	433	759	917	1036
1978	2755	1810	953	462	807	967	
B. DEFLATED VALUES							
1955	551	306	181	280			
1960	680	450	240	270	241	321	309
1965	741	510	279	230	234	291	280
1970	932	647	332	265	298	363	357
1971	932	621	337	281	283	331	338
1972	974	643	369	293	273	320	333
1973	1136	878	502	390	266	319	397
1974	1055	719	373	365	298	348	400
1975	1061	730	390	222	362	412	347
1976	1088	808	391	214	306	363	409
1977	1027	712	359	163	286	345	390
1978	998	656	345	167	292	348	

(a) Average unit cost of purchases (FIES). (b) Average for carcass.
(c) Live weight. (d) Net of selling costs.

Sources: MAFF, *The Meat Statistics in Japan*; *Shokuniku Kankei Shiryo Statistical Yearbook*.

Table A.9
TRENDS IN PRICES AND COSTS : PIG MEAT
(Yen per kg)

Year	Retail price (a)	Whole-sale price (b)	Price to farmer (c)	Stabilisation price (lower)	Average import value c.i.f.	Farm costs		Farm returns (a)
						Cash	Total	
<i>A. ACTUAL VALUES</i>								
1955	418	278	161	-	269			
1960	501	346	207	-	178	122	198	204
1965	656	373	216	310	219	151	210	217
1970	821	397	237	345	439	192	255	265
1971	845	431	269	355	412	170	227	256
1972	905	456	285	360	449	176	232	269
1973	1017	493	301	380	507	198	257	285
1974	1134	559	382	507	640	240	303	302
1975	1385	743	492	556	733	277	356	391
1976	1506	747	451	601	810	328	445	496
1977	1464	732	458	627	807	316	434	433
1978	1441	698	442	627	827	279	413	
<i>B. DEFLATED VALUES</i>								
1955	609	405	235	-	392			
1960	677	468	280	-	241	165	268	276
1965	656	373	216	310	219	151	210	217
1970	630	304	182	265	337	148	196	203
1971	611	311	194	257	298	123	164	185
1972	626	315	197	249	311	122	160	186
1973	629	305	186	235	314	123	159	176
1974	564	278	190	252	318	119	151	150
1975	616	331	219	247	326	123	158	174
1976	613	304	184	245	330	134	181	202
1977	551	276	173	236	304	119	163	163
1978	522	253	160	227	300	101	150	

(a), (b), (c), (d), see Table A.8.

Sources: See Table A.8.

Table A.10
TRENDS IN PRICES AND COSTS: EGGS
(Yen per kg)

Year	Retail (a)	Wholesale (b)	Price to farmer (c)	Farm costs		Farm returns (d)
				Cash	Total	
A. ACTUAL VALUES						
1951	210		181			
1955	207		188			
1960	204	193	182	111(e)	158(e)	163(e)
1965	209	188	190	119	172	174
1970	222	193	172	113	172	179
1971	220	189	176	118	181	170
1972	230	199	194	112	172	179
1973	257	217	217	118	177	197
1974	326	279	278	175	241	227
1975	354	303	272	197	269	285
1976	326	277	278	182	261	258
1977	352	304	267	189	267	267
1978	297	243	237			
B. DEFLATED VALUES						
1951	361		311			
1955	302		274			
1960	276	261	246	142(e)	203(e)	209(e)
1965	209	188	190	119	172	174
1970	170	148	132	86	132	137
1971	159	137	127	85	131	123
1972	159	138	134	77	119	124
1973	159	134	134	73	109	122
1974	162	139	138	87	120	113
1975	158	135	121	88	120	127
1976	133	113	113	74	106	105
1977	133	115	101	71	101	101
1978	108	88	86			

(a) Average unit cost of purchases (FIES). (b) Tokyo wholesale price.
(c) Average price received by farmers. (d) Net of selling costs.
(e) Data for 1961.

Sources: MAFF, *Statistical Yearbook, Poketto Nōrinsuisan Tōkei*.