

Estimating Agricultural Cooperatives' Share of Agricultural Input and Output Markets

Yoshihisa Godo
Professor, Meiji Gakuin University, Japan

INTRODUCTION

Japan's unique system of agricultural cooperatives forms a nationwide network, called the JA Group. This mammoth economic body organizes almost all Japanese farmers and has played a key role in shaping the rural economy since the Agricultural Cooperative Law (ACL) was enacted in 1947¹. Evaluation of the JA Group differs among researchers. Some praise the group as protecting farmers' benefits, while others criticize it as an "old guard" that is more concerned with its own vested interests than with improving agricultural productivity.

This debate has recently gained new relevance, as a full revision of the ACL and related laws is now placed atop Japan's political agenda. Throughout the general election campaign in December 2014, Prime Minister Abe repeatedly asserted that the reform of the JA Group would be the centerpiece of his policy agenda's "New Growth Strategy." A fierce controversy is thus currently raging, both among policymakers and the general public, over how to reform the JA Group.

The purpose of this paper is not to voice any specific opinion on how the JA Group should be reformed. Instead, it aims to provide objective information on the economic position of agricultural cooperatives within inputs and outputs markets in Japan. It is hoped that this information can form a foundation upon which to consider what the JA Group should be. To this end, the next two sections offer a brief overview of the system and relevant data sources, after which Sections 4 and 5 analyze this data to describe cooperatives' shares in Japan's inputs and outputs markets. Section 6 concludes.

Japan's system of agricultural cooperatives

Agricultural cooperatives in Japan provide not only agricultural services but also almost every other service required for daily life. In addition to farmers, non-farmers who have paid dues are allowed to use all the cooperatives' services as associate members under the same conditions as farmers².

Each agricultural cooperative has its own jurisdiction, and these do not overlap. As of April 1, 2014, there were 728 agricultural cooperatives in Japan³. The size and human resources available to any one agricultural cooperative are insufficient to enable it to compete with private businesses, such as supermarkets and trading companies. To conquer this weakness, agricultural cooperatives form federations at the prefectural and national levels. These federations are referred to as *Keizairen* and *Zen-noh*, respectively, and act as cooperatives' agents in the buying and selling of agricultural and non-agricultural commodities.

Data sources

For information on cooperatives, the Ministry of Agriculture, Forestry and Fisheries (MAFF) provides two useful annual statistical books. One is called *Nogyo Shokuryo Kanrensangyo no Keizaikeisan* (hereafter abbreviated as *Keizaikeisan*) and provides the MAFF's estimates for

the total values of inputs and outputs in the agricultural sector for every fiscal year (starting on April 1 in one calendar year and ending on March 31 in the next).

The other is *Statistics on Agricultural Cooperatives (SAC)*, which is based on the MAFF's complete survey of the business records of agricultural cooperatives. The MAFF aggregates data on agricultural cooperatives' business activities at the prefectural and national levels and publishes the results in *SAC*. One shortcoming of this data is that each agricultural cooperative reports its business activities based on its own accounting year, which is determined by the individual cooperative. Thus, strictly speaking, data in *SAC* are not comparable to the MAFF estimates in *Keizaikeisan*, which are reported on the basis of the standard Japanese fiscal year. However, more than half of the agricultural cooperatives use an accounting year identical to the Japanese fiscal year⁴. Thus, this paper ignores the difference between cooperatives' accounting years and fiscal years.

While *Keizaikeisan* and *SAC* contain useful information on the agricultural sector and agricultural cooperatives, they are not user-friendly for foreign researchers. *Keizaikeisan* is written only in Japanese. While *SAC* includes both Japanese and English titles for surveyed items, it uses special, sometimes difficult-to-understand terminology for surveyed items without providing concrete definitions. Studying the MAFF's relevant documentation (mostly written in Japanese), this paper also intends to provide an example of an optimal way to use *SAC* data.

Estimates of agricultural cooperatives' share of the agricultural inputs market

Keizaikeisan provides the MAFF's estimates of total expenditures on farming inputs. There are two main types of farming inputs: durable and nondurable. Expenditures on nondurable agricultural inputs include not only payments for tangible goods, such as fertilizers and pesticides, but also charges for intangible goods, such as contract farming and joint-use facilities. Durable agricultural inputs consist of three types of capital: farmland improvements, agricultural machinery, and agricultural buildings. Major farmland improvements, such as installing irrigation systems and reshaping land parcels, are mainly undertaken by the government as public construction projects. Thus, farmland improvements are not included in this paper's estimates of agricultural cooperatives' market shares.

Agricultural cooperatives sell various items, such as daily necessities, durable consumer goods, and farming materials. These activities are termed "Purchasing Business" in *SAC*, which groups such goods into two major categories: Production Materials and Livelihood Necessities. Production Materials consists of seven subcategories: fertilizer, agricultural chemicals, feed, agricultural machinery, oil products, automobiles (excluding two-wheeled vehicles), and others. Livelihood necessities consist of six subcategories: food, clothing, durable consumer goods, miscellaneous commodities for daily use and health maintenance, household fuel, and others. For each subcategory, *SAC* provides four types of data: value of current supplies procured, portion of this purchased through cooperative channels, value of current supplies handled, and purchasing profit (including commission). "Value of current supplies procured" indicates agricultural cooperatives' total expenditure for acquiring new stocks from *Keizairen*, *Zen-noh*, and other wholesalers during a business year. Of this quantity, the payment from agricultural cooperatives to *Keizairen* or *Zen-noh* is calculated as "Portion of this marketed through cooperative channels." "Value of current supplies handled" refers to the total value of commodities that agricultural cooperatives sold to farmers and non-farmers.

SAC defines the ratio of "Portion of this purchased through cooperative channels" to "Value of current supplies procured" as "Percentage utilization of cooperative channels." This

ratio can be seen as an indicator of the solidarity of the JA Group: the larger the ratio, the stronger the group's business solidarity.

While SAC includes "Oil products" and "Automobiles (excluding two-wheeled vehicles)" in "production materials," these two subcategories also contain goods acquired for non-agricultural purposes, as it is difficult to distinguish automobiles and oil used for farming from those used in daily life. Thus, this paper treats only the remaining five subcategories of "Production materials" as farming materials.

In addition to supplying farming materials, agricultural cooperatives provide joint agricultural facilities and contract farming services, referred to in SAC as "Warehousing business" and "Utilization business," respectively. The total amounts paid by farmers to use these businesses, captured in SAC as "Earnings from warehousing businesses" and "earnings from utilization businesses," also form part of the agricultural inputs.

Traditionally, "Purchasing business" was one of the main activities undertaken by agricultural cooperatives. Thus, we can use the following two ratios as indicators for agricultural cooperatives' share of the agricultural input market:

Ratio I-A = $\{(2) + (3)\} / (1)$ (in percentage terms)

Ratio I-B = $(2) / (1)$ (in percentage terms)

where:

- (1) = the sum of expenditures on nondurable agricultural inputs, agricultural machinery, and agricultural buildings (data from Keizaikeisan).
- (2) = the sum of "Value of current supplies handled" for "Fertilizers," "Agricultural chemicals," "Feeds," "Agricultural machinery," and "Others" in "Production materials" (data from SAC);
- (3) = the sum of "Earnings from warehousing business" and "Earnings from utilization business" (data from SAC); and

This paper's estimates of Ratios I-A, I-B, and "Percentage utilization of cooperative channels" are shown in Table 1 and Figures 1 and 2. As can be seen, both Ratios I-A and I-B increased until the early 1970s, fluctuated from the early 1970s to the mid-1990s, and have followed a declining trend since the mid-1990s. The gap between Ratios I-A and I-B is continually increasing, reflecting farmers' increasing tendency to contract out portions of the farming process. "Percentage Utilization of Cooperative Channels" was also on an upward trend until the early 1970s. This nearly leveled off between the early 1970s and mid-1980s and has followed a downward trend ever since.

Estimates of agricultural cooperatives' share of the agricultural outputs market

Keizaikeisan provides the MAFF's estimates for the total value of agricultural products. The data are available not only for the aggregate agricultural products category but also for rice and 12 other categories of agricultural products. *Keizaikeisan* also provides the MAFF's estimates for the total value of farmers' self-consumption (only for all agricultural products combined). By subtracting the total value of self-consumption from that of agricultural products, we can obtain the total value of agricultural products sold.

Agricultural cooperatives' joint shipments of agricultural products are referred to as "Marketing business" in SAC. SAC categorizes agricultural products into eight groups. For each, it provides three types of data: "Amount marketed and handled," "Portion of this marketed through cooperative channels," and "Marketing commissions (including marketing

profit).” “Amount marketed and handled” refers to the total amount of money that agricultural cooperatives earned from their joint shipments of agricultural products. If the cooperatives used *Keizairen* or *Zen-noh* for these joint shipments, the resulting money is included within “Portion of this Marketed through Cooperative Channels.” SAC defines the ratio of “Portion of this marketed through cooperative channels” to “Amount Marketed and Handled” as “Percentage utilization of cooperative channels.” As was the case for “Purchasing business,” “Percentage utilization of cooperative channels” can be seen as an indicator for measuring the solidarity of the JA Group: the larger the ratio, the stronger its business solidarity.

This paper calculates the following two ratios as indicators of agricultural cooperatives’ shares of the agricultural output market.

Ratio O-A = (1)/(2) (in percentage terms)

Ratio O-B = (1)/(3) (in percentage terms)

where:

(1) = the total “Amount marketed and handled” for all agricultural commodities (data from SAC);

(2) = the total value of agricultural products (data from *Keizaikeisan*); and

(3) = the total value of agricultural products sold (data from *Keizaikeisan*).

The results are shown in Table 2 and Fig. 3 and Fig 4. As can be seen, Ratio O-A followed an upward trend until the end of the 1980s and a downward trend ever since. Ratio O-B was on an upward trend until the end of the 1990s and a downward trend ever since. The gap between the two ratios narrowed over the estimation period. Similarly, “Percentage Utilization of Cooperative Channels” was on an upward trend until the mid-1990s and on a sharp downward trend ever since.

Rice is the staple food for Japanese consumers, and its distribution was formerly treated specially by the MAFF. Under the Food Control Law (FCL), which was effective until 1995, agricultural cooperatives were given the privilege of marketing rice at a stable margin guaranteed by the MAFF⁵.

Keizaikeisan and *SAC* provide enough information to calculate Ratio O-A and “Percentage utilization of cooperative channels” for rice and others goods separately. The results are shown in Table 3 and Figures 5 and 6. The percentage of rice in the total value of agricultural products and in “Amount Marketed and Handled” (for all agricultural products together) declined over the period examined (Figure 7).

Table 3 and Figures 5, 6, and 7 imply that agricultural cooperatives had an advantage in distributing rice under the FCL: agricultural cooperatives showed especially strong solidarity and enjoyed a large market share for rice until 1995. However, this advantage has disappeared. In recent years, there has been no significant difference between rice and other commodities in terms of Ratio O-A or “Percentage Utilization of Cooperative Channels.”

CONCLUSION

This paper’s estimates imply that the JA Group enjoys strong market power as a unified economic group. Agricultural cooperatives’ share of the agricultural input market is now nearly as high as 30%. Agricultural cooperatives rely heavily on *Keizairen* and *Zen-noh* (nearly 70%) to obtain new stocks of agricultural materials. The cooperatives’ share in the agricultural output market (considering all agricultural products jointly) is currently nearly

80%, and nearly 80% of agricultural cooperatives' joint shipments are routed through *Keizairen* or *Zen-noh*.

However, this paper's estimates also show that the JA Group's market share and solidarity have been gradually declining since the mid.1990s. Japanese markets have undergone various revolutions since this time, with market competition becoming fiercer for many types of commodities. This paper's analysis has indicated that agricultural inputs and outputs markets are no exceptions to this general trend.

Footnotes

1. An overview of Japanese agricultural cooperatives is given by http://ap.fftc.agnet.org/ap_db.php?id=248.
2. There are two types of agricultural cooperative membership: regular membership for farmers and associate membership for non-farmers. Details of the difference between the two types are discussed in http://ap.fftc.agnet.org/ap_db.php?id=264.
3. There are three types of agricultural cooperatives: multifunctional cooperative, special cooperative, and agricultural producers' cooperative corporation. Among them, multifunctional cooperatives are the most common, with 728 nationwide. More information on special cooperatives and agricultural producers' cooperative corporations are given at http://ap.fftc.agnet.org/ap_db.php?id=248 and http://ap.fftc.agnet.org/ap_db.php?id=380.
4. The latest version of SAC reports that an accounting year is the same as a Japanese fiscal year for 54.0% of agricultural cooperatives (see <http://www.e-stat.go.jp/SG1/estat/List.do?lid=000001119700>).
5. Details of the Food Control Law are given at http://ap.fftc.agnet.org/ap_db.php?id=107.

Table 1 Agricultural cooperatives' share of farming inputs						
Fiscal year	Total value of inputs for farming ^a			Agricultural cooperatives' share of the value of inputs for farming		Percentage of Coop. Channel Utilization ^d
	(of which, from Nokyo)			Ratio I-A	Ratio I-B	
	Sales of inputs ^b	Charges for contract farming and joint-use facilities ^c				
	(1)	(2)	(3)	(4)=(2)+(3)/(1)	(5)=(2)/(1)	
billion yen						
%						
1960	808	213	9	27.5	26.4	74.2
1961	956	266	10	28.9	27.8	74.9
1962	1,078	304	10	29.1	28.2	74.2
1963	1,149	350	11	31.4	30.5	75.4
1964	1,303	372	12	29.5	28.6	77.4
1965	1,490	434	15	30.1	29.1	77.5
1966	1,649	527	17	33.0	31.9	77.9
1967	1,813	594	22	34.0	32.8	78.9
1968	2,017	663	28	34.2	32.9	80.1
1969	2,299	726	34	33.0	31.6	80.2
1970	2,477	812	38	34.3	32.8	81.1
1971	2,559	873	36	35.5	34.1	81.2
1972	2,786	943	37	35.2	33.9	80.5
1973	3,631	1,260	42	35.9	34.7	79.6
1974	4,730	1,695	54	37.0	35.8	80.3
1975	5,344	1,796	70	34.9	33.6	80.1
1976	6,062	1,973	83	33.9	32.6	79.8
1977	6,554	2,133	96	34.0	32.5	79.4
1978	6,514	2,094	111	33.9	32.1	78.9
1979	7,086	2,243	132	33.5	31.7	78.7
1980	7,458	2,450	146	34.8	32.9	79.8
1981	7,602	2,502	158	35.0	32.9	80.1
1982	7,420	2,449	166	35.2	33.0	79.8
1983	7,567	2,494	167	35.2	33.0	80.0
1984	7,897	2,559	166	34.5	32.4	79.7
1985	7,791	2,511	182	34.6	32.2	79.8
1986	7,548	2,373	196	34.0	31.4	78.7
1987	7,032	2,233	199	34.6	31.8	78.5
1988	7,002	2,288	209	35.7	32.7	77.4
1989	7,037	2,171	213	33.9	30.9	77.5
1990	7,195	2,252	221	34.4	31.3	76.9
1991	7,311	2,289	229	34.4	31.3	76.3
1992	7,195	2,277	242	35.0	31.7	75.7
1993	6,952	2,218	235	35.3	31.9	75.7
1994	7,010	2,180	252	34.7	31.1	73.8
1995	7,050	2,117	266	33.8	30.0	73.5
1996	7,041	2,257	271	35.9	32.1	71.3
1997	7,004	2,051	270	33.1	29.3	71.3
1998	6,718	1,968	263	33.2	29.3	70.5
1999	6,695	1,892	262	32.2	28.3	69.2
2000	6,595	1,833	255	31.7	27.8	68.5
2001	6,428	1,782	266	31.9	27.7	67.1
2002	6,560	1,711	267	30.1	26.1	67.4
2003	6,294	1,675	267	30.9	26.6	67.0
2004	6,207	1,668	271	31.2	26.9	65.5
2005	6,208	1,625	289	30.8	26.2	65.1
2006	6,115	1,579	279	30.4	25.8	64.6
2007	6,115	1,613	274	30.9	26.4	64.5
2008	6,379	1,718	283	31.4	26.9	64.6
2009	6,311	1,626	277	30.2	25.8	67.1
2010	6,128	1,549	269	29.7	25.3	66.2
2011	6,098	1,548	270	29.8	25.4	65.9

Notes a. The sum of expenditures on nondurable agricultural inputs, agricultural machinery, and agricultural buildings (data from Ministry of Agriculture Forestry and Fisheries, *Nogyo Shokuryo Kanrensangyo no Keizaikeisan*)

b. The sum of 'Value of Current Supplies' for 'Fertilizer,' 'Agricultural Chemicals,' 'Feed,' 'Agricultural Machinery,' and 'Other' in 'Production Materials' (data from Ministry of Agriculture, Forestry, and Fisheries, *Statistics of Agricultural Cooperatives*)

c. The sum of 'Earnings from Warehousing Business' and 'Earnings from Utilization Business' (data from Ministry of Agriculture, Forestry, and Fisheries, *Statistics of Agricultural Cooperatives*)

d. The ratio between 'Portion of this Purchased through Coop. Channels' and 'Value of Current Supplies Procured' for farming materials (data from Ministry of Agriculture, Forestry, and Fisheries, *Statistics of Agricultural Cooperatives*)

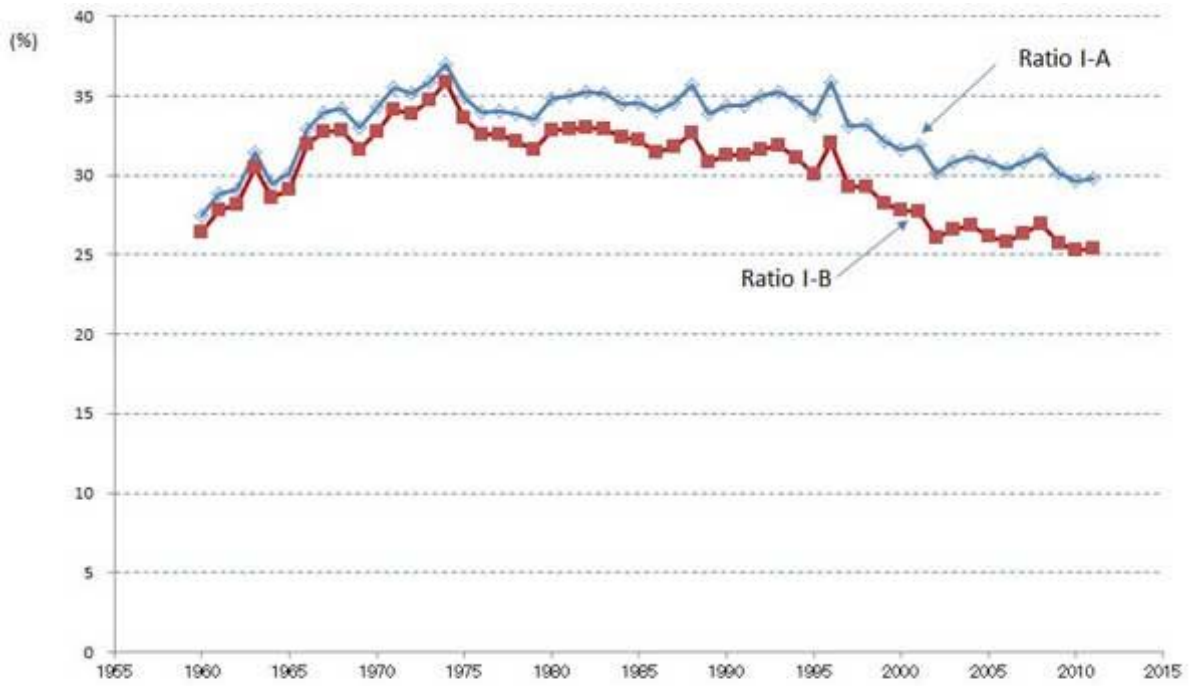


Figure 1 Agricultural cooperatives' share in the market for inputs for farming

Source: Table 1.

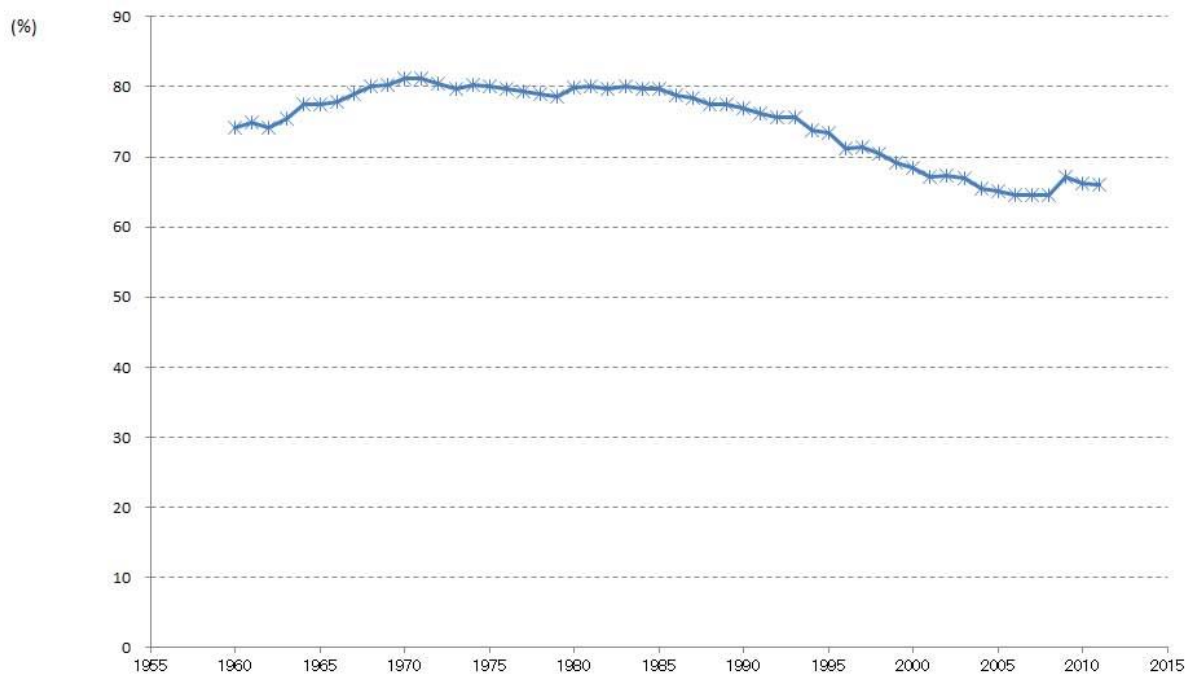


Figure 2 Percentage Utilization of Coop. Channel for agricultural cooperatives' supply of inputs for

Source: Table 1

Table 2. Agricultural cooperatives' share of the distribution of agricultural products (including all agricultural products)

Fiscal year	Total production ^a		Portion sold through agricultural cooperatives ^c	Agricultural cooperatives' share in the distribution of agricultural products		Percentage of Coop. Channel Utilization ^d
	Total sales ^b			Ratio O-A	Ratio O-B	
	(1)	(2)	(3)	(4)=(3)/(1)	(5)=(3)/(2)	(6)
 billion yen.....		 %.....		
1960	2,117	1,404	560	26.4	39.9	90.1
1961	2,353	1,576	706	30.0	44.8	90.0
1962	2,685	1,934	845	31.5	43.7	90.3
1963	2,827	2,067	918	32.5	44.4	89.4
1964	3,140	2,329	1,025	32.6	44.0	91.3
1965	3,492	2,626	1,242	35.6	47.3	91.1
1966	3,870	2,974	1,490	38.5	50.1	91.6
1967	4,484	3,521	1,903	42.5	54.1	91.3
1968	4,705	3,683	2,090	44.4	56.7	91.2
1969	4,993	3,971	2,131	42.7	53.7	91.3
1970	5,012	4,020	2,109	42.1	52.5	90.3
1971	4,991	4,018	2,042	40.9	50.8	89.2
1972	5,596	4,529	2,391	42.7	52.8	89.3
1973	6,765	5,461	3,018	44.6	55.3	90.0
1974	8,451	6,996	3,772	44.6	53.9	91.1
1975	9,816	8,258	4,517	46.0	54.7	91.3
1976	10,203	8,475	4,879	47.8	57.6	91.8
1977	11,078	9,272	5,317	48.0	57.3	91.7
1978	11,380	9,550	5,528	48.6	57.9	91.6
1979	11,716	9,823	5,759	49.2	58.6	91.6
1980	11,574	9,641	5,501	47.5	57.1	91.8
1981	11,955	9,987	5,605	46.9	56.1	92.0
1982	11,952	10,062	5,814	48.6	57.8	92.0
1983	12,242	10,369	6,069	49.6	58.5	92.4
1984	12,979	11,083	6,524	50.3	58.9	92.9
1985	13,003	11,157	6,696	51.5	60.0	93.1
1986	12,704	10,763	6,573	51.7	61.1	93.3
1987	11,951	10,053	6,204	51.9	61.7	93.0
1988	11,889	10,167	6,126	51.5	60.3	93.1
1989	12,520	10,673	6,221	49.7	58.3	92.7
1990	12,968	11,175	6,411	49.4	57.4	92.8
1991	12,769	11,109	6,349	49.7	57.2	92.7
1992	12,377	10,867	6,212	50.2	57.2	93.3
1993	11,573	10,122	5,934	51.3	58.6	92.9
1994	12,378	11,016	6,012	48.6	54.6	93.4
1995	11,570	10,237	5,905	51.0	57.7	92.7
1996	11,198	10,012	5,916	52.8	59.1	91.2
1997	10,796	9,655	5,708	52.9	59.1	90.6
1998	10,798	9,691	5,430	50.3	56.0	90.4
1999	10,199	9,162	5,150	50.5	56.2	90.1
2000	9,948	8,911	4,951	49.8	55.6	89.1
2001	9,574	8,632	4,711	49.2	54.6	87.2
2002	9,685	8,792	4,735	48.9	53.9	88.9
2003	9,664	8,638	4,692	48.5	54.3	87.1
2004	9,581	8,607	4,603	48.0	53.5	86.6
2005	9,271	8,302	4,515	48.7	54.4	85.9
2006	9,145	8,167	4,502	49.2	55.1	84.6
2007	9,089	8,131	4,348	47.8	53.5	82.1
2008	9,229	8,318	4,379	47.4	52.6	80.6
2009	8,965	8,125	4,231	47.2	52.1	82.6
2010	8,837	8,054	4,226	47.8	52.5	81.7
2011	8,914	8,061	4,226	47.4	52.4	82.0

Notes a. The total value of agricultural products (data from Ministry of Agriculture Forestry and Fisheries, *Nogyo Shokuryo Kanrensangyo no Keizaikeisan*)

b. The total value of agricultural products excluding farmers' self-consumption (data from Ministry of Agriculture Forestry and Fisheries, *Nogyo Shokuryo Kanrensangyo no Keizaikeisan*)

c. Agricultural cooperatives' 'Amount of Marketed and Handled' (data from Ministry of Agriculture Forestry and Fisheries, *Statistics of Agricultural Cooperatives*)

d. The ratio of 'Portion of this Marketed through Coop. Channel' to 'Amount Marketed and Handled' (data from Ministry of Agriculture Forestry and Fisheries, *Statistics of Agricultural Cooperatives*)



Figure 3. Agricultural cooperatives' share in the distribution of agricultural products (including all agricultural products)

Source: Table 2



Figure 4 Percentage Utilization of Coop. Channel in agricultural cooperatives' distribution of agricultural products (including all agricultural products)

Source: Table 2

Table 3 Agricultural cooperatives' share in the distribution of rice and other agricultural products

Fiscal year	Rice				Agricultural products other than rice			
	Total production ^a	Portion of this Produced through agricultural cooperatives ^b	Agricultural cooperatives' share in the distribution of rice	Percentage of Coop. Channel Utilization ^c	Total production ^a	Portion of this Produced through agricultural cooperatives ^b	Agricultural cooperatives' share in the distribution of rice	Percentage of Coop. Channel Utilization ^c
	(1)		(3)=(2)/(1)	(4)	(5)		(6)	(7)=(6)/(5)
	billion yen		%		billion yen		%	
1960	985	366	37.2	99.1	1,132	194	17.1	73.2
1961	999	412	41.2	99.5	1,354	295	21.8	76.7
1962	1,146	500	43.6	99.3	1,540	346	22.5	77.4
1963	1,216	555	45.7	98.8	1,612	363	22.5	75.1
1964	1,354	614	45.4	99.3	1,786	411	23.0	79.4
1965	1,452	735	50.6	99.1	2,040	508	24.9	79.6
1966	1,620	883	54.5	99.1	2,250	608	27.0	80.7
1967	1,998	1,190	59.6	100.0	2,486	713	28.7	76.8
1968	2,105	1,296	61.6	99.3	2,600	794	30.5	77.8
1969	2,060	1,233	59.8	99.6	2,933	899	30.6	79.9
1970	1,844	1,081	58.6	99.6	3,168	1,028	32.4	80.5
1971	1,646	902	54.8	99.7	3,345	1,140	34.1	81.0
1972	1,895	1,071	56.5	99.6	3,700	1,320	35.7	80.9
1973	2,235	1,324	59.2	99.8	4,530	1,694	37.4	82.3
1974	2,958	1,787	60.4	99.9	5,494	1,985	36.1	83.2
1975	3,608	2,184	60.5	99.9	6,208	2,333	37.6	83.3
1976	3,527	2,285	64.8	99.9	6,676	2,594	38.8	84.6
1977	4,081	2,518	61.7	99.9	6,998	2,799	40.0	84.4
1978	3,996	2,424	60.7	99.9	7,384	3,104	42.0	85.1
1979	3,780	2,392	63.3	99.9	7,936	3,367	42.4	85.8
1980	3,272	1,977	60.4	99.8	8,302	3,524	42.5	87.3
1981	3,507	1,959	55.8	99.8	8,448	3,646	43.2	87.8
1982	3,470	2,060	59.4	99.8	8,482	3,754	44.3	87.7
1983	3,540	2,155	60.9	99.8	8,702	3,914	45.0	88.3
1984	4,101	2,526	61.6	99.9	8,878	3,998	45.0	88.6
1985	3,980	2,589	65.1	99.8	9,024	4,107	45.5	88.8
1986	3,883	2,577	66.4	99.9	8,822	3,997	45.3	89.1
1987	3,402	2,196	64.6	99.8	8,550	4,007	46.9	89.2
1988	3,139	1,981	63.1	99.7	8,749	4,145	47.4	89.9
1989	3,349	1,965	58.7	99.9	9,171	4,256	46.4	89.3
1990	3,312	2,003	60.5	99.8	9,657	4,409	45.7	89.6
1991	3,018	1,889	62.6	100.0	9,751	4,460	45.7	89.7
1992	3,508	2,013	57.4	99.7	8,869	4,199	47.4	90.2
1993	2,937	1,761	59.9	99.4	8,636	4,173	48.3	90.2
1994	3,954	2,000	50.6	99.7	8,424	4,011	47.6	90.3
1995	3,312	1,969	59.5	98.8	8,259	3,935	47.7	89.6
1996	3,172	1,790	56.5	98.2	8,026	4,125	51.4	88.2
1997	2,889	1,644	56.9	97.7	7,907	4,063	51.4	87.7
1998	2,614	1,379	52.8	96.3	8,184	4,051	49.5	88.4
1999	2,473	1,281	51.8	96.3	7,726	3,869	50.1	88.1
2000	2,418	1,207	49.9	94.9	7,531	3,744	49.7	87.2
2001	2,316	1,172	50.6	93.7	7,258	3,539	48.8	85.0
2002	2,257	1,137	50.4	94.9	7,429	3,598	48.4	87.0
2003	2,418	1,172	48.5	93.6	7,245	3,519	48.6	84.9
2004	2,071	1,024	49.5	91.3	7,511	3,579	47.6	85.3
2005	2,029	1,027	50.6	89.4	7,242	3,488	48.2	84.9
2006	1,887	1,022	54.2	86.8	7,258	3,480	47.9	84.0
2007	1,862	945	50.8	83.9	7,228	3,403	47.1	81.6
2008	1,977	978	49.5	81.2	7,252	3,401	46.9	80.5
2009	1,867	933	50.0	80.1	7,098	3,298	46.5	83.3
2010	1,618	841	52.0	78.7	7,219	3,385	46.9	82.5
2011	1,929	905	46.9	77.4	6,985	3,321	47.5	83.3

Notes a. The total value of agricultural products (data from Ministry of Agriculture Forestry and Fisheries, *Nogyo Shokuryo Kawansangyo no Keizaikeisan*)b. Agricultural cooperatives' 'Amount Marketed and Handled' (data from Ministry of Agriculture Forestry and Fisheries, *Statistics of Agricultural Cooperatives*)c. The ratio of 'Portion of this Marketed through Coop. Channel' to 'Amount Marketed and Handled' (data from Ministry of Agriculture Forestry and Fisheries, *Statistics of Agricultural Cooperatives*)

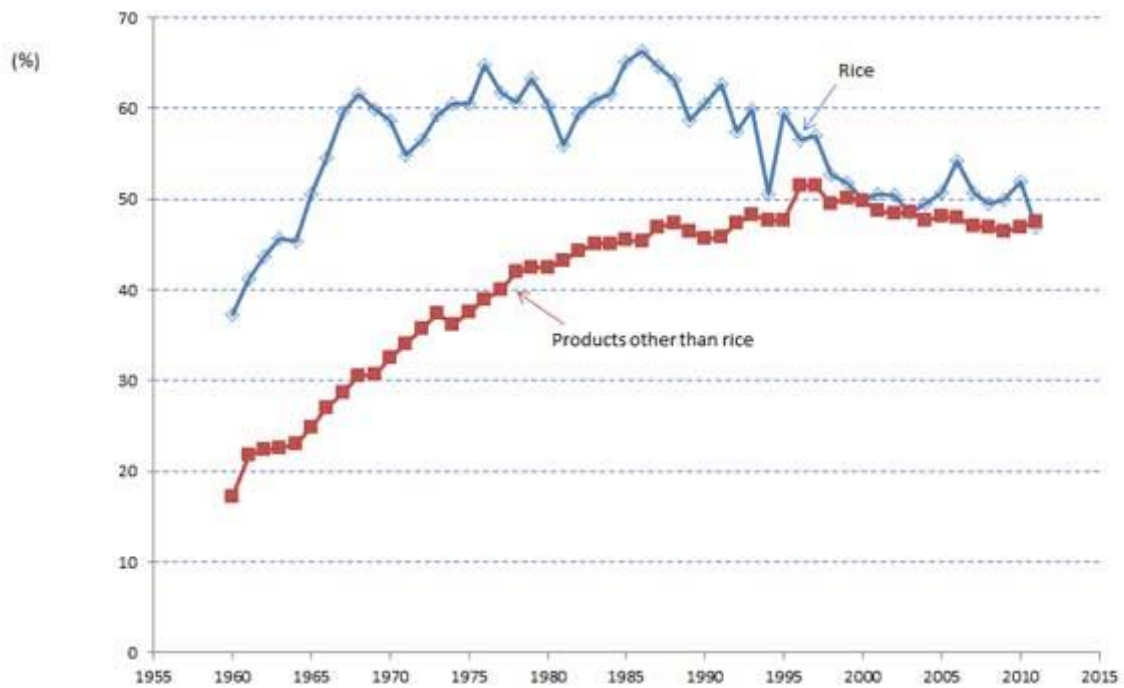


Figure 5 Agricultural cooperatives' share in the distribution of rice and other agricultural products

Source: Table 3

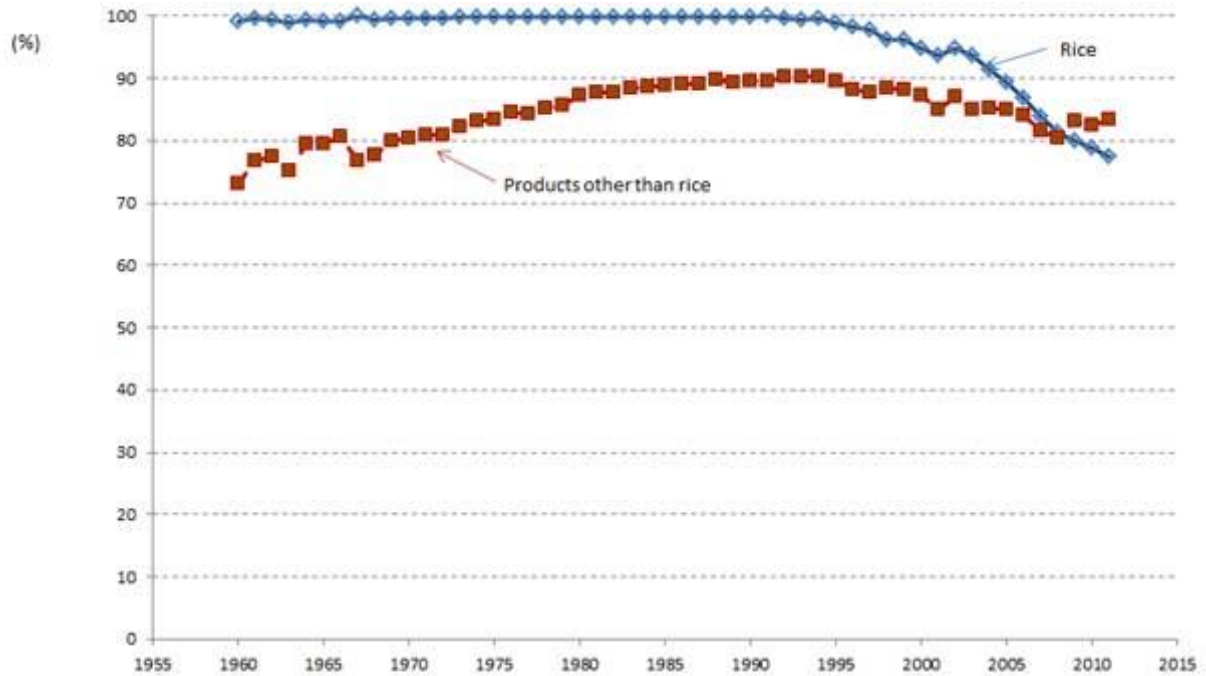


Figure 6 Percentage Utilization of Coop. Channel for rice and other agricultural products

Source: Table 3

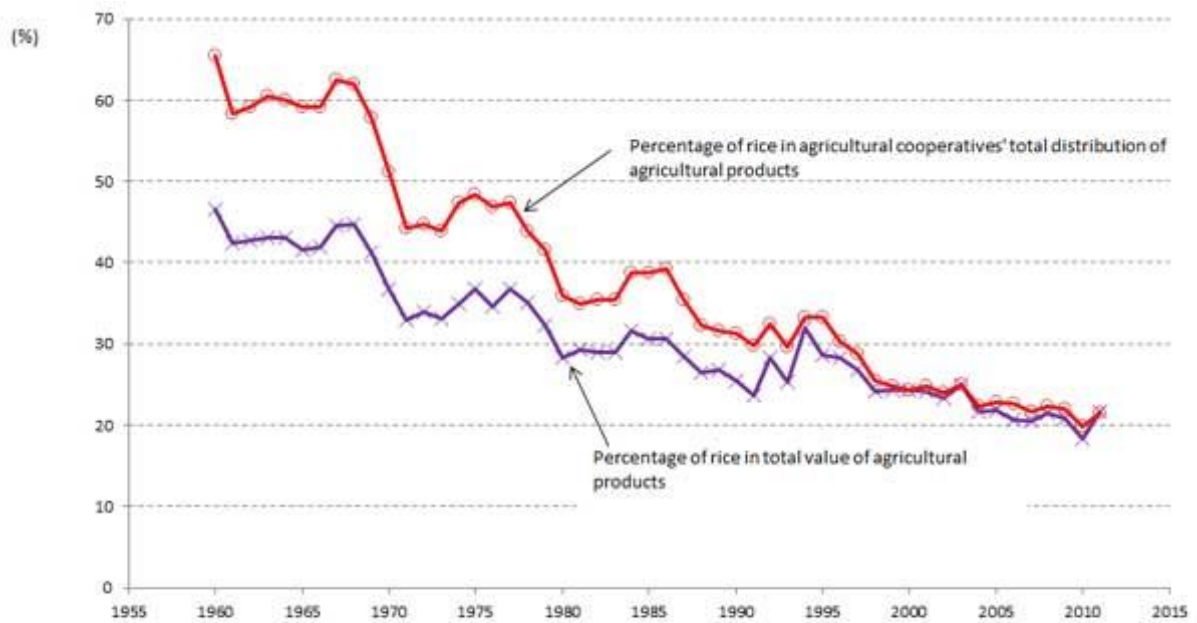


Figure 7 Percentage of rice in the total value of agricultural products and in agricultural cooperatives' total distribution of agricultural products

Sources: Ministry of Agriculture, Forestry and Fisheries, *Statistics of Agricultural Cooperatives*; Ministry of Agriculture, Forestry and Fisheries, *Nogyo Shokuryo Kanrensangyo no Keizaikeisan*.

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