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# ON THE FIXING OF A STANDARD OF THE PRICE OF RICE

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## CHAPTER 1.

### DEFECTS OF THE RICE LAW AND THE MEANING OF THE STANDARD OF THE PRICE OF RICE

It is a matter of course that a standard should be fixed for the price of rice in order to ensure a fair operation of the Rice Law. It is now reported that the Department of Agriculture and Forestry has practically finished its work of drawing up a draft measure in this connection and proposes to lay it before the forthcoming session of the Diet with a view to revising the existing Rice Law. In the present article, I intend to deal at some length with the problem of fixing the standard of the price of rice, in the belief that it may be of some use to those who are interested in the study of this problem.

The quantity of rice produced in Japan varies according to the harvest of the year, but there is a tendency for it to increase year by year. In recent years, the total production has been in the neighbourhood of 60,000,000 koku for a

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normal year. The total value of the rice produced in 1927 amounted to ¥1,764,400,000, or about three times the total value of the cotton yarn and cotton goods, which are among the most important Japanese manufactures, produced in the same year, for the total value of these goods was estimated at ¥546,320,000.<sup>1)</sup> Of course, the whole of the rice produced is not put on the market, but even conceding that about one half is put on the market, the aggregate value must still reach an enormous figure. Such being the case, it is impossible to ignore the important part played by rice in the national economy. Japanese rice is consumed at home almost exclusively, and the fact that the market for this commodity is limited to Japan renders the effects of the fluctuations in its price on both the producers and consumers very far-reaching. Fluctuations in the price of rice are due to various causes, such as the state of the rice harvest, the plenitude or shortage of the supply, fluctuations in the prices of other commodities, and the occurrence of unforeseen events. The quality peculiar to Japanese rice and the strong predilection of the Japanese for it helps to make fluctuations all the greater. To give the standard quotations for unhulled rice of medium quality in the Fukagawa rice market in Tokyo, for instance, the price which stood at ¥23.29 per koku in July, 1912, fell to ¥11.31 in October, 1915, but rose to ¥44.41 in October, 1918. It again declined to ¥37.16 in March, 1919, but advanced to ¥54.63 in January, 1920, to come down again to ¥26.31 in December of the same year.

It is, however, after 1912 that sharp rises and falls in the price of rice exerted a disastrous influence on the general public. The rice riot of 1918 caused by the very high price of rice ruling then and movement for the prevention of dumpings launched by the Imperial Agricultural Society and prefectural agricultural societies are notable examples of the serious effects of violent fluctuations. In view of the very

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1) The figures are taken from the 48th edition of the Imperial Statistical Year Book.

disastrous effects produced by violent fluctuations in the price of rice on the public mind, the Rice Law was enacted on April 2nd, 1921, as Law No. 36, with the object of ensuring the security of the national life. Under this law, the Government is empowered to purchase rice and keep it in stock, when the price of rice witnesses a big fall, in order to force it up, while when there occurs a sharp rise in the price, it is entitled to put its holdings on the market with a view to forcing down the price. This object of the law is set forth in the following Article:—

Article 1. When the Government deems it necessary for the regulation of the demand and supply of rice, it can purchase, sell, exchange, work up or store rice.

Although the regulation of the demand and supply of rice is given as the main object of the law, the drafters of the law by no means left the regulation of the price entirely out of consideration. They evidently took the view that the Rice Law should not be applied where the price of rice fluctuated in accord with changes in the prices of commodities in general, but that it should be applied only where fluctuations were due to causes inherent in rice, namely, a rich or poor harvest, and the state of demand and supply, so that by the regulation of the demand and supply the price of rice could be regulated indirectly.

By the general public, however, the regulation of the demand and supply of rice was interpreted as meaning the regulation of the quantity of rice in the market. It was thus generally believed that the law had the regulation of the excessive or scant supply of rice for its sole objective, and consequently it was criticised as ineffective for maintaining the market price of rice at the proper level. This criticism led to its revision by Law 36 promulgated on March 30th, 1925, so that the regulation of the market price of rice was included in the objects of the law, as the following revised Article 1 indicates:—

Article 1. When the Government deems it necessary for the regulation of the quantity or market price of rice, it can purchase, sell, exchange, work

up or stock rice.

The inclusion of the regulation of the market price, besides that of demand and supply, in the objects of the law was based on the following grounds:—

(1) Although the market price of rice can be regulated indirectly by the regulation of the demand and supply of rice, there is a fear of violent fluctuations in the price being caused by speculative operations indulged in by some people in the between-seasons period, in anticipation of a rich or poor harvest. Inasmuch as it is in about February of the following year that more or less accurate figures regarding the quantity of rice produced each year can be obtained, the Government cannot put the law in operation until then, so long as the law has for its object the regulation of the quantity of rice on the market.

(2) Economically speaking, the price of rice finds its natural level according to the state of demand and supply, but it often happens that it witnesses violent fluctuations upwards or downwards in consequence of artificial or speculative manipulations. As such sharp rises or falls are injurious to the interests of both producers and consumers, it is necessary to prevent such fluctuations so that the price of rice may be kept at the proper level. To this end, the regulation of the market price by law is called for.

The inclusion of the regulation of the market price among the objects of the law has invested the law with some measure of positiveness, and it is hardly necessary to say that when the Government proceeds to take the positive action of regulating the price of rice, it must have a certain fixed standard. With regard to the prices at which the Government makes purchases or sales of rice, the Rice Law carries the following stipulation:—

Article 3. When the Government intends to make purchases or sales of rice in Japanese territory under Article 1, it shall announce the price of purchase or sale .... The price mentioned in the foregoing paragraph shall be fixed in accordance with the ruling market price.

In the absence of a definite standard by which the

Government can fix the price of purchase or of sale, such prices are fixed by the Government authorities concerned at their discretion on the basis of the ruling market price. It is nevertheless clear from a summary of the operation of the Rice Law published by the Department of Agriculture and Forestry in the early days of the enforcement of the law, that despite the lack of a legal standard of the price, the authorities had a sort of standard in their minds' eye. However, the fact that the law lacked a provision for objectifying such a standard as they had in view was one cause of the adverse criticisms levelled against the law. As it was left entirely to the discretion of the Government authorities to choose the time for making purchases or sales of rice under the law, the people generally were left absolutely in the dark as to when the Government would decide either to buy or to sell rice, with the result that they were in a state of constant uneasiness. Moreover, there arose a hostile criticism that the smooth distribution of rice was seriously impeded or that the Rice Law was exploited by political parties for the furtherance of their own selfish ends.

In such circumstances, the Government made a careful study of the problem, and at the first plenary meeting of the Rice Commission in June, 1929, it sought the views of the Commission on the proper measures to be taken for the regulation of the demand and supply and the price of rice. After deliberate consideration in the special committee and sub-committees, the Commission drafted its recommendations of five counts, which were formally adopted at a plenary meeting on March 20th this year. With regard to the standard price of rice, which should be taken as the objective of the operation of the Rice Law, the following recommendation was made:—

“We deem it of urgent necessity to create a standard price for rice. The Government should, therefore, make inquiries without delay and fix the highest and lowest standard prices necessary for the operation of the Rice Law.”

In explanation of this recommendation, it is stated:—

"We deem it very important for the purpose of ensuring the fair and efficient operation of the Rice Law that the highest and lowest standards of price should be fixed as the guide for the application of the Rice Law. Several plans have been produced in the present Commission, such as (1) a plan based on the index number of the prices of commodities, (2) one based on the cost of production and the cost of living, and (3) one based on the general course of the price of rice as well as the index number of the prices of commodities, but these deserve further study in their relation to various circumstances. The Government should, therefore, make endeavours to draw up some concrete plans speedily."

Thus, the Rice Commission left the task of fixing the standard prices to the Government.

It is, no doubt, very proper that the objective standards which are to serve as guides should be created in order to prevent an abuse of the Rice Law. The most desirable thing is to bring the market price of rice into perfect accord with the standard price, but this is impossible in existing circumstances, as the production and distribution of rice is now ruled by an economic system in which the profit-making consideration is dominant; nothing short of the introduction of a system under which the production and distribution of rice is kept under perfect control by the State can achieve this. The mere operation of the Rice Law can hardly be expected to accomplish such a feat. In existing circumstances, the most that we can do is to keep the market price within a certain range of the standard prices by applying the Rice Law when the market price of rice shows a tendency to stray either upwards or downwards far beyond the standard prices. But there is a question which deserves a good deal of study, and that is, what amount of deviation from the standard prices should be allowed for. If the margin of allowance is made large, the object of the regulation of the price of rice will defeat itself, while too small a margin will necessitate the frequent application of the Rice Law, which entailing heavy expenditure, will render the policy of regulating the price of rice a failure. Granting that the Government wishes to check the rise or fall of the price of rice at a certain fixed point, it will sometimes be

found to be conducive to the object either to buy or to sell rice before this point is reached, so it will, no doubt, be very helpful to an effectual regulation of its price to draw two lines on each side of the standard prices, so that when the price rises or falls beyond the first line the Government starts regulating the price, provided it deems the circumstances then prevailing make such a step necessary, while if it reaches the second line, it puts the Rice Law into operation without fail in order to put an effectual check to its rise or fall beyond it. Again, it is inadvisable to leave the standard prices unchanged for several years. They may require revision with each harvest.

The question is how to fix the standard prices for the purpose of regulation, and this is admittedly a very difficult problem. The various proposals put forward in the special committee of the Rice Commission are all too abstract and vague. The draft plan of the Department of Agriculture and Forestry, reported in the Press of late, is to fix the highest standard price of rice with special regard to the cost of living of the consumer of the lowest class, and the lowest standard price to the cost of the production of rice. In each cases, it is proposed that the index number of the prices of commodities and other economic conditions should be taken into due consideration. At any rate, no concrete plans have yet been published regarding methods of fixing the standard prices. I now propose to make some comment on the various proposals hitherto formulated and examine them as concretely as possible.

## CHAPTER 2.

### PLAN BASED ON THE INDEX NUMBER OF THE PRICES OF COMMODITIES

Two ways of fixing the standard prices of rice by the index number of prices are conceivable. One is to adopt the fixed standard index number, as, for instance, the index number of prices compiled by the Bank of Japan, as is the



common practice, and the other is to make use of a chain index number, which is prepared by taking the prices of the preceding month or year as the standard of calculation, and contrast it with that of the actual price of rice. I shall first study the former method and then the latter.

(1) WHERE THE FIXED STANDARD INDEX  
NUMBER OF PRICES IS ADOPTED

The theory of regulating the price of rice by the standard prices laid down on the basis of the fixed standard index number of prices has been set forth in Japan for many years. For instance, Dr. Toda made public years ago his opinion that a margin of 25 per cent. should be allowed above and below the index number of the prices of commodities and that the authorities should see to it that the price of rice did not go beyond the limit of this margin.<sup>1)</sup> A proposal brought forward by Mr. Kamiyama at a meeting of the Rice Commission the other day follows closely on the lines of Dr. Toda's view. Mr. Kamiyama urged that when the price of rice fell 20 per cent. below the index number of the prices of commodities, the rice should be purchased by the Government, and when it went up by the same percentage above the index number, the Government holdings should be put on the market. The same member of the Commission further contended that the prices ruling in October, 1900, as given out by the Bank of Japan, and the price of rice ruling at the same date should be taken as the standards for working out the index numbers of the prices of commodities and the price of rice for each year. The index numbers of the prices of commodities and the price of rice, worked out with the prices ruling in October, 1900, and the percentage of the price of rice (which means the quotient obtained by dividing the index number

1) Dr. Toda's article on the standard of the operation of the *joheiso* system (*Keizai Ronso* Vol. 12, No. 2, p. 307).

of the price of rice by that of the prices of commodities, or the index number of the price of rice from which the fluctuations of the prices of commodities have been excluded) as the standard, for various rice years (from November of the preceding year until October of the current year) are given in the following table<sup>1)</sup> :—

Rice year	Index number of prices of commodities	Index number of price of rice	Percentage of price of rice
1901	96.78	103.25	1.067
1902	96.22	104.83	1.090
1903	102.43	124.67	1.217
1904	106.86	111.25	1.041
1905	115.20	107.50	0.933
1906	119.00	122.75	1.032
1907	127.90	137.92	1.078
1908	126.58	138.33	1.093
1909	119.19	116.92	0.981
1910	119.45	107.17	0.897
1911	123.95	144.58	1.166
1912	130.87	169.42	1.295
1913	132.66	183.83	1.386
1914	128.18	148.75	1.161
1915	124.97	110.50	0.884
1916	149.08	111.92	0.751
1917	187.07	157.08	0.840
1918	244.30	252.75	1.035
1919	295.64	371.33	1.256
1920	358.77	409.67	1.142
1921	265.47	249.58	0.940
1922	264.82	311.75	1.177
1923	257.98	267.92	1.039
1924	272.40	319.17	1.172
1925	270.86	356.17	1.315
1926	242.20	325.00	1.342

1) The index number of the prices of commodities and that of the price of rice are taken from the 1930 edition of the Rice Manual p. 19, compiled by the Department of Agriculture and Forestry.

Rice year	Index number of prices of commodities	Index number of price of rice	Percentage of price of rice
1927	225.15	302.83	1.345
1928	224.96	265.17	1.179
1929	223.39	246.00	1.101

As will be seen from the above table, the index number of the price of rice exceeds that of the prices of commodities in most cases. Only in seven years out of twenty-nine, the opposite is true. While the index number of the price of rice was more than 20 per cent. higher than that of the prices of commodities in seven years, it was in one single year that it was more than 20 per cent. lower as compared with that of the prices of commodities. Of course, this shows a comparison of the annual averages, but even when the monthly averages are compared, it is clearly demonstrated that cases were far more numerous where the index number of the price of rice was more than 20 per cent. higher than that of the prices of commodities than where the former was lower than the latter. Thus, if the index number of the prices of commodities had been taken as the sole standard, the Government would frequently have had to put its holdings of rice on the market for the purpose of bringing down the price of rice. The following table shows a comparison of the index number of the price of rice with that of the prices of commodities in recent months:—

	Index number of prices of commodities	Index number of price of rice	Percentage of price of rice
November, 1929	211	253	1.20
December, 1929	205	236	1.15
January, 1930	201	229	1.14
February, 1930	200	231	1.16
March, 1930	196	231	1.18
April, 1930	193	229	1.19
May, 1930	189	231	1.22

The percentage given in the above table confirms the view of Mr. Kamiyama, a member of the Rice Commission, that as the price of rice exceeds the index number of the prices of commodities by nearly 20 per cent., it is time for the Government to put its holdings of rice on the market in order to bring it down. But in view of the present very depressed state of agrarian communities, it is absolutely impossible for the Government to take such a course. It is, of course, difficult to say whether the index number of the price of rice will always be higher than that of the prices of commodities hereafter, but so long as the index number, which is based on the prices ruling in October, 1900, is adopted, it is very unlikely that it will fall below the index number of the prices of commodities in the near future and be kept there for a long time, if the special quality of Japanese rice and other circumstances, to which I will refer later on, are taken into due consideration. Such being the case, before fixing the standard prices of rice on the basis of this index number of the prices of commodities, it is very important to ascertain the causes responsible for the fact that the index number of the price of rice was above that of the prices of commodities. It is also necessary to investigate whether the percentage of the price of rice has a tendency to show a gradual increase or, if it has, what causes such a tendency. Allowing somewhat for technical drawbacks connected with the compilation of statistics, the circumstances described below deserve attention in this connection:—

1. Whereas, in industrial production, no limit can be set to the progress of economic technical skill, in organic production like the production of rice, the increase of output is conditioned by a disproportionately high percentage of labour and capital, provided all other circumstances are the same. The intensive production of rice was brought about only by a relative rise in the exchange value of rice. All this seems to account for the fact that the index number of the price of rice has been higher than that of the average

price of commodities.

2. Again, if under dynamic conditions, the law of diminishing returns does not operate in the rice crop because of the progress of agricultural technique, the tendency for the percentage of the price of rice to rise by degrees, which has been observable since 1901, may be attributed to the fact that improvement in the technique of rice-production has been slow as compared with that of the technique of producing commodities in general (industrial goods in particular) since that year. Owing to the relatively slow increase of productivity in the production of rice, the price of rice has been on a relatively higher level than the prices of industrial goods, with the result that its index number has been higher than that of the prices of commodities including industrial goods.

3. What with the strong liking which the Japanese people have for Japanese rice and with the increased demand for rice both due to the increase of Japan's population and the elevation of the standard of living for Japanese generally in recent years, which naturally increases the quantity of rice consumed per head, the index number of the price of rice has been relatively higher than that of the prices of commodities in general.

It is difficult to see exactly how far each of these causes has been responsible for bringing the index number of the price of rice up to a level higher than that of the prices of commodities, but it is nevertheless important that these factors should be duly studied, if the index number based on the prices ruling in October, 1900, is to be adopted as the criterion by which to regulate the price of rice, in order to see whether it is just and proper for agricultural economy, nay, for public economy, to make it the criterion for such a purpose.

Some people advocate the adoption of the Bank of Japan's index number of prices for seven years from 1908 to 1914 as the criterion, but seeing that the index number during this period witnessed only slight changes upwards or downwards, so much so that it remained almost stationary, as a

whole, while, in respect of the price of rice, this period includes the years of 1912 and 1913, when it rose violently, it cannot necessarily be regarded as a really suitable standard period.

Lastly, there is room for some consideration regarding the adoption of the Bank of Japan's index number of prices as the standard. The basic commodities and brands in this index number, the standard period, and the averages and weights constituting the process for working out the index number of the prices of commodities, furnish many debatable points. As the index number in question represents the arithmetic mean for commodities of 56 varieties, it may at first sight appear that the influence which rice exerts on it is only one-fifty-sixth, but as rice is a factor which still retains much importance in the economic life of the nation, there is no doubt that fluctuations in the price of rice produces by no means negligible effects on other commodities. Inasmuch, however, as it is impossible to make an accurate estimate of the measure of effect it produces on them, this point remains unavoidably undecided.

(2) WHERE THE INDEX NUMBER OF THE PRICES OF  
COMMODITIES AND THAT OF THE PRICE OF  
RICE BASED ON THE FIGURES FOR THE  
PREVIOUS YEAR ARE CONTRASTED

As already explained, the price of rice in Japan fluctuates violently. This is partly because a necessary of life like rice lacks elasticity of demand, and partly because the supply of rice is beyond artificial control as it depends on a rich or poor harvest, for which the weather conditions are responsible. Such being the case, it is natural that the index number of the price of rice should be subject to greater changes than the index number of the prices of commodities generally, which include many commodities with comparatively high elasticity of demand and supply. The following table gives the standard deviation and the coefficient of

variability (Variabilitätskoeffizient), obtained by converting the index number of the prices of commodities and that of the price of rice into the index number based on the prices ruling in the preceding year :

Rice year	Index number of prices of commodities based on the figures of the preceding year	Index number of price of rice based on the figures of the preceding year
1902	99.42	101.53
1903	106.45	118.92
1904	104.32	89.23
1905	107.80	96.63
1906	103.30	114.19
1907	107.48	112.36
1908	98.97	100.30
1909	94.16	84.52
1910	100.22	91.66
1911	103.77	134.91
1912	105.58	117.18
1913	101.37	108.51
1914	96.62	80.92
1915	97.50	74.29
1916	119.29	101.29
1917	125.48	140.35
1918	130.59	160.91
1919	121.02	146.92
1920	121.35	110.33
1921	73.99	60.92
1922	99.76	124.91
1923	97.42	85.94
1924	105.59	119.13
1925	99.43	111.59
1926	89.42	91.25
1927	92.96	93.18
1928	99.92	87.56
1929	99.30	92.77
Arithmetic mean .....	<b>103.66</b>	<b>105.44</b>
Standard deviation.....	<b>11.41</b>	<b>22.17</b>
Coefficient of variability	<b>11.01</b>	<b>21.03</b>

From the above table it will be seen that whereas the coefficient of variability of the prices of commodities is only 11.01 per cent., that of the price of rice is 21.03 per cent., which shows that the yearly fluctuations in the price of rice are far larger than those in the prices of commodities. Judging from the coefficient of variability of both during the twenty-eight years, viz., from 1902 to 1929, it may be fair to conclude that the prices of commodities and the price of rice maintain the normal percentage, if yearly fluctuations in the index number of the price of rice are less than 21.03 per cent., while those in the index number of commodities are 11.01 per cent. (taking the figure for the preceding year as 100). If not, the fluctuations occurring in the price of rice may be regarded as abnormal, and regulation is called for. Judged by this standard, in the one sole year of 1915 during the past 28 years, the price of rice ought to have been forced up by the purchase of rice by the Government, while in the years 1911, 1918, 1919, and 1922, it ought to have been forced down by the sale of the Government rice. The price of rice ruling at present is at a level which does not call for any regulation.

It is, however, necessary to point out that (1) it is somewhat hazardous to judge the future by the coefficient of variability in the index number of the prices of commodities and the price of rice in the past. Even if due revision be made every year, this danger remains, especially in view of the tendency which has been observable in recent years for the price of rice in Japan to be influenced by the importation of Formosan rice in the between-seasons period. (2) Whether it is just and fair both to the producers and to the consumers to allow the above-mentioned margin in the price of rice and the prices of commodities is another question for careful study. This point must be further studied from the point of view of the power of bearing the cost of rice on the part of the consumers (the working classes in particular) and the cost of the production of rice on the part of the former.



CHAPTER 3.  
PLAN IN WHICH THE TREND OF THE PRICE OF RICE  
IS DULY CONSIDERED IN CONJUNCTION WITH  
THE INDEX NUMBER OF PRICES

If the Bank of Japan's index number of the prices of commodities, which is based on the prices ruling in October, 1900, is adopted as the standard by which to regulate the price of rice, it will be seen that as in many years in the past the index number of the price of rice was above that of the prices of commodities in general, the necessity of lowering the price of rice will arise too often, to the detriment of the interests of rice producers, provided the regulation limits for the price of rice are set at 20 per cent. above and below the Bank of Japan's index number of the prices of commodities. In view of this drawback, another plan was evolved in which it is urged that the tendency upward or downward of the price of rice should be considered in conjunction with the index number of prices. I have no means of ascertaining what a plan of this kind laid before the Rice Commission was like, but the secular trend of the price of rice can easily be found by the method of least squares. Take 1915 as the original point, for instance, and fit a straight line ( $y = 1.101897 + 0.005366 x$ ) to percentages of price of rice from 1901 to 1929. Then the value of the trend of the percentage of the price of rice will be found as shown in the following table. In order to work out the standard price of rice for each year, in which the trend of the price of rice is duly considered in conjunction with the index number of prices, we have only to multiply ¥11.81—the average price of rice for October, 1900, which has been chosen for correlative study with the Bank of Japan's index number of prices—by the index number of prices for each year, and then multiply each product obtained by the value of the tendency of the price of rice for each year.

Rice year	Percentage of price of rice	Value of the trend of the percentage of price of rice <sup>1)</sup>	Price of rice (in Yen)	Price of rice in which the trend of the percentage of the price of rice is considered in conjunction with the index number of prices (in Yen)
1901	1.067	1.027	12.15	11.74
1902	1.090	1.032	12.39	11.73
1903	1.217	1.038	14.70	12.56
1904	1.041	1.043	13.14	13.16
1905	0.933	1.048	12.68	14.26
1906	1.032	1.054	14.46	14.81
1907	1.078	1.059	16.37	16.00
1908	1.093	1.064	16.24	15.91
1909	0.981	1.070	13.69	15.06
1910	0.897	1.075	12.63	15.17
1911	1.166	1.080	17.07	15.81
1912	1.295	1.086	× 20.15	16.78
1913	1.386	1.091	× 21.58	17.09
1914	1.161	1.097	17.39	16.61
1915	0.884	1.102	13.02	16.26
1916	0.751	1.107	○ 13.21	19.49
1917	0.840	1.113	○ 18.57	24.59
1918	1.035	1.118	30.01	32.26
1919	1.256	1.123	43.89	39.21
1920	1.142	1.129	48.56	47.84
1921	0.940	1.134	29.20	35.55
1922	1.177	1.139	36.85	35.62
1923	1.039	1.145	31.57	34.89
1924	1.172	1.150	37.64	37.00
1925	1.315	1.156	41.95	36.98
1926	1.342	1.161	38.44	33.21
1927	1.345	1.166	35.93	31.00
1928	1.179	1.172	31.38	31.14
1929	1.101	1.177	29.19	31.05

1) The price of rice represents the standard quotation of unhulled Japanese rice of medium quality per koku in the Fukagawa rice market in Tokyo.

Note:— The mark × in the above table indicates the year in which the price of rice was more than 20 per cent. higher than the standard price of rice, while the mark ○ shows the year in which it was more than 20 per cent. lower than the standard price.

Let us suppose that a price fixed by considering the trend of the percentage of the price of rice in conjunction with the index number of prices is adopted as the standard price of rice, and that the actual price of rice is regulated in cases where it has risen or fallen 20 per cent. above or below that standard price. Then, it will be seen that in two years out of the 29 years referred to, the actual price of rice was more than 20 per cent. above the standard price of rice, and that in two years it was more than 20 per cent. below the standard price. Again, supposing that the price of rice for 1929, in which the value of the trend of the price of rice is considered in conjunction with the index number of prices, viz. ¥31.05 per koku, is taken as the standard price of rice for 1930, and that the margin of 20 per cent. is allowed both above and below it for the regulation of the price of rice, the Government will have to purchase rice when the price has fallen to ¥24.84. As the average price of rice from November, 1929, up to May this year was ¥27.59, it will be seen that there was no warrant for regulating the price up to this present. As to whether the price of rice for the rice year of 1929, namely, ¥30.84, is proper as the standard of price of rice for the following rice year, however, deserves further study in the light of the cost of producing rice and the power of bearing the burden of rice price on the part of consumers of the lowest class.

Another point deserving consideration is the seasonal or monthly fluctuations in the price of rice. The price of rice develops a tendency to rise, as the between-seasons period approaches, because as the between-seasons period draws nearer, the cost of preserving rice, that is, a cost arising from the rate of interest, storage and various other incidentals, increases. It seems to be more rational to fix the standard price of rice for each month at proper rates by taking into careful consideration an equitable amount for the cost of preservation and the monthly variation in the price of rice. In these days when agricultural warehouses are not available in sufficient numbers throughout the country, it is usual for

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farmers of small means to show undue haste in disposing of their rice, with the result that it is the landowners of comparatively large means who keep their stocks of rice for a relatively long period. In such circumstances, from the point of view of protecting small farmers also, it is necessary to give this point due attention.

It is doubtful in this instance also whether the general tendency of the price of rice for many years past will be of much value as material for the regulation of the future price of rice, even if the standard price may be revised every year, for the various factors responsible for this tendency in the past are liable to weaken or go out of existence with the lapse of time. As in the case of the prices of commodities generally, fluctuations in the price of rice are of various kinds. Some have a tendency to be permanent, some cyclic, some seasonal, and some quite unexpected. These fluctuations are caused by changes in the value of the currency, the condition of the harvest, changes in the amount of the demand for rice per head due to changes in the standard of living consequent upon increase or decrease of population and the prosperity or depression of business, increase of the supply owing to improvements in the technique of raising rice, the quantity of foreign rice and Korean and Formosan rice imported, speculative dealings, outbreak of war, and other exigencies. Of these various causes, the effect produced by changes in the value of the currency may be removed by dividing the price of rice by the index number of the prices of commodities, but this method can hardly be described as perfect, as applied to rice in which the inertia of the purchasing power of the currency seems to be remarkable. The influence of the condition of the rice harvest and changes in the amount of demand may be gauged by means of the statistical figures available, but there may still be many factors which cannot be measured exactly. Such being the case, it is impossible to judge the future accurately by means of the past price of rice and other related circumstances. In America, the study

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of price forecasting in respect of agricultural products is in great vogue,<sup>1)</sup> but in spite of copious statistical materials available and the great progress so far made in the statistical methods, no complete results are yet forthcoming, and much controversy is actually taking place there in this connection. Especially in the matter of creating the standard price of rice, it is not enough to forecast the future course of the price of rice, but an equitable price both for the producers and for the consumers must be worked out in consideration of the past price and other circumstances. This adds to the difficulty of the problem.

#### CHAPTER 4.

#### THE PLAN BASED ON THE COST OF PRODUCTION AND THE COST OF LIVING

There is quite a large body of opinion urging the fixing of the standard price of rice on the basis of the cost of production and the cost of living. The predominant view in this respect is that the cost of production should mark the lowest limit of the standard price of rice, and the cost of living the highest limit. It seems that the Department of Agriculture and Forestry is inclined to fix the standard price of rice in accordance with this plan.

#### (1) PLAN TO BASE THE STANDARD PRICE ON THE COST OF PRODUCTION

There is much doubt as to what costs of production should be taken as the basis or whether the absolute cost of production can be accurately and fairly worked out. Political economy teaches us that in regard to commodities like agricultural products, the production of which cannot be increased infinitely unless the cost of production is gradually increased, their prices are determined by the marginal cost

<sup>1)</sup> E. J. Working, Evaluation of methods used in price forecasting (Journal of Farm Economics. Vol. XII, No. 1, p. 119. 1930.).

of production. It must, however, be noted that this marginal cost of production differs according to cases where rice is produced as a commodity in accordance with capitalistic principles and where farmers produce it in unfavourable circumstances chiefly for the purpose of obtaining rice for their own consumption. In the latter case, if there is no chance of their labour being more profitably employed, the cultivation of rice must be made more intensively than reasonable in order to maintain their living, with the natural result that the cost of production will become much higher than in the former case. And as it is fair to conclude that the quantity of rice put on the market determines the market price of rice, there is a tendency for the market price to settle down to the marginal cost of producing the rice which is put on the market. In Japan, a very large proportion of farmers run their farms on a small scale. They do not produce rice as a commodity merely. In most cases, it is produced at once for sale as a commodity and for their own consumption. Such being the case, it is absolutely impossible to decide which cost of production can properly be regarded as the marginal cost of production for the rice in the market. There is, in such circumstances, no alternative but to choose the ordinary costs of producing rice in typical rice-producing districts and regard the average of such costs as approximately embodying the average of the cost of producing the rice which is put on the market. There are three kinds of materials made public as the result of inquiries made into the cost of production throughout the country regarding Japanese rice. The first refers to the economic inquiry into rice fields conducted by the agricultural societies all over the country during the three years of 1899, 1900 and 1901. The second embodies the results of the investigation made by the Temporary Industrial Inquiry Bureau in 1918 of ninety odd agricultural families into the cost of rice production for the previous year by sending officials to twenty-four prefectures. The others is the investigation into the cost of the production of rice on the registry plan, which has been going on since

1922 by the hands of the Imperial Agricultural Society. In all cases, the results of inquiries merely show the average cost of production as regards the agricultural families looked into. Besides these, there are the results of investigation on the "inquiry on the spot" plan (which, it is said, will be altered to the registry plan from the present year) conducted by the Department of Agriculture and Forestry, but as these have not been made public, we cannot make use of them. In the present article, therefore, I shall utilise the results of the latest investigation made into the cost of producing rice by the Imperial Agricultural Society. According to the figures for 1927, made public by the Society quite recently, the cost of rice production per *tan* (about 0.245 acres) and that per *koku* of unhulled rice are as follows:—

	Peasant proprietors	Peasant proprietors who are also tenant farmers	Tenant farmers		
Cost of production per <i>tan</i> .....	¥87.33	¥85.39	¥79.51		
Cost of production per <i>koku</i> of rice.....	29.76	29.71	28.23		
Details of the cost of production per <i>tan</i>					
Direct cost of production	Seeds .....	0.72	0.72	0.77	
	Fertiliser {	Self-supplied .....	7.88	6.46	3.82
		Purchased .....	8.23	7.75	8.15
	Various materials.....	1.64	1.74	1.77	
	Wages {	for family labour ...	20.79	26.22	25.55
		for employed labour	5.78	2.93	2.85
Animal power cost .. .....	3.00	2.94	2.52		
Indirect cost of production	Agricultural implements.....	1.75	1.66	1.62	
	Farm sheds.....	1.71	1.14	1.27	
	Public levies .. .....	11.03	—	0.12	
	Interest on land capital .....	24.80	33.83	31.07	
	(4 per cent. per annum)		Interest on land capital and farm rent	(Farm rent)	

1) Taken from the figures published by the Imperial Agricultural Society regarding the cost of producing rice for 1927.

As will be seen from the above table, the cost of production consists largely of family wages, farm rent, interest on land capital and public levies. Some scholars take the view that in the case of such families, it is more proper to give annual wages for labour, but as family labour employed in the cultivation of rice is engaged for only a part of the year, and as, moreover, labour in rice growing is attended with a good deal of pain, I think it advisable to give wages for temporarily employed labour. Again, although the irrigation cost, etc. included in public levies embody the cost of technical production, taxation does not, strictly speaking, form any part of the cost of production; it is rather what is imposed on the profit left after the cost of production has been met. So, it does not seem entirely correct to include them in the cost of production. So long as the present-day economy based on capitalism obtains, it is only fair to recognise a fair amount of yield for the land, but one point deserving most careful attention is the method of appraising the value of land, which represents the amount of capital. In working out the above-mentioned cost of production, the Imperial Agricultural Society put the value of land at ¥620 per *tan*, which is a little higher than the price of ordinary paddy fields per *tan* of the whole country (exclusive of Hokkaido and the Luchus) for 1927, as given in the document compiled by the Japan Hypothec Bank as the result of its inquiries into the market value of farm lands and the farm rent, for in this document it is given as ¥570. The market price of farm lands does not necessarily rise in proportion to the increase of productivity. Either due to a fall in the interest rate, or in order to give landowners a comparatively high social position, or owing to speculative operations, it often exceeds its productive value. This being so, it is necessary to use special care in assessing the value of land for the purpose of fixing the cost of producing rice. Otherwise, there will be a danger of the cost of production being appraised too high.

The following table shows the cost of production per



koku of unhulled rice for from 1922 to 1927, as given in the figures made public by the Imperial Agricultural Society, as compared with the price of rice for the same period (the standard quotation for Japanese unhulled rice of medium quality per koku in the Fukagawa rice market):—

Cost of production per koku of unhulled rice.  
(Interest on land capital being put at 4 per cent.)

Year	Peasant proprietors	Peasant proprietors who are also tenant farmers	Tenant farmers	Average	Price of rice
1922	¥37.63	—	¥35.17	¥36.40	¥36.85
1923	37.72	—	38.85	38.29	31.57
1924	36.98	—	39.13	38.06	37.64
1925	32.52	¥34.96	35.33	34.27	41.95
1926	33.67	33.91	33.84	33.81	38.44
1927	29.76	29.71	28.23	29.23	35.93

As the above table shows, the cost of production had exceeded the price of rice up to 1924, but after 1925 it fell far below the price of rice then ruling. The average cost of production for the three years from 1925 was ¥32.44, which is far in excess of the price of rice to-day. The above table shows a comparison of the cost of producing rice with the standard quotation for rice of medium quality in the Fukagawa market, and as the price at which farmers sell their rice ought to be lower than the market price in urban districts by the cost of the carriage to the market place and the commission that goes into the pockets of rice merchants, the cost of production will become higher, if the carriage, and other charges and commission are added to the above-mentioned cost of production. Such being the case, if the cost of producing rice during the last several years, as given by the Imperial Agricultural Society, is taken as the standard, it must constitute the upper limit rather than the lower limit for the regulation of the price of rice.

One thing worthy of attention in this connection is that

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as the value of land and the cost of producing goods have witnessed a gradual decline since 1927, it is conceivable that the cost of production after that year has somewhat fallen. Granting, therefore, that the cost of production hitherto published by the Imperial Agricultural Society to be correct, it is not proper to take it as the standard of the price of rice without some modification. It will have to be lowered to a considerable extent by taking the various circumstances prevailing since 1927 into due consideration. Again, if we estimate the interest on land capital at 3 per cent. or less and deduct taxes and other public imposts from the cost of production, the cost of production will have to be fixed much lower. Accordingly, the farmers' cost of producing rice which forms the lower limit of the standard will have to be fixed at a figure much lower than hitherto by making allowances for the circumstances referred to. In days when agrarian communities are depressed, however, great care must be taken in fixing the cost of production constituting the lower limit. If it be fixed too low, it will tend to aggravate the prevailing distress of agrarian communities.

## (2) PLAN BASED ON THE COST OF LIVING

Lastly, when fixing the upper limit of the standard of the price of rice on the basis of the cost of living, it seems proper to choose a figure which accords with the capacity of the lowest class of consumers of rice for bearing the cost of rice, which should be judged by a close investigation into the cost of living of such people. It is nevertheless a debatable point which of the two, labourers or salaried men, should be chosen as the consumers of the lowest class, for the percentage of the rice expense in the total outlays of these two classes varies. According to the report of the Statistical Bureau of the Cabinet on the inquiries made into family budgets which were held from September 1926 to August 1927, the percentage of the rice expense in the total outlays of these two classes and that of rice in the total expenses

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on food and drink are as follows<sup>1)</sup> :—

Monthly revenue of one family	Percentage of cost of rice to total outlay of the salaried man	Percentage of cost of rice to total outlay of the labourer	Percentage of cost of rice to total expenditure on food and drink of salaried man	Percentage of cost of rice to total expenditure on food and drink of the labourer
Les than ¥60	19.80	23.04	45.71	45.87
Les than ¥80	15.19	19.54	40.03	43.47
Les than ¥100	13.61	16.90	37.11	40.25
Les than ¥120	11.95	14.73	34.03	38.61
Les than ¥140	11.04	13.69	33.02	37.05
Les than ¥160	10.05	12.87	30.96	35.39
Les than ¥180	9.83	11.88	31.28	34.75
Les than ¥200	8.73	10.23	29.05	32.13
Over ¥200 inclusive	7.86	10.75	27.84	33.22

The figures in the above table show that Engel's Law applies admirably in this case. It will be seen that the rice expense forms the highest percentage in the cost of living in a class of labourers who get less than ¥60 a month. In case the cost of living for the consumers of the lowest class is taken as the standard, it is only proper that the cost of living for labourers with a monthly income of less than ¥60 should be adopted as such.

Even when the cost of living for labourers with a monthly income of less than ¥60 is taken as the standard, there is still a question to be solved. Is it right to assume under Engel's Law that the price of rice is on the normal level when the percentage of the rice expense to the total expenditure of the class of labourers referred to is 23.04 per cent., and to regulate the price of rice when it rises to a higher percentage, or is it right to regard the price as normal when the percentage of the rice expense to the total outlay of these labourers on food and drink is 45.87 per cent., and

1) Report of the Statistical Bureau of the Cabinet on the inquiries into family budgets for 1926 and 1927, Vol. 2, pp. 316 and 317.

to regulate the price when its percentage rises above it?

No matter which standard may be adopted, it must needs be on the assumption that the price of rice from September, 1926, to August, 1927, maintained the right proportion to the revenues of the class of labourers in question; that is to say, the price of rice then ruling was quite reasonable, in view of the cost of living of labourers getting a monthly revenue of less than ¥60. Whether it was really so is a question which demands further study. In order to make this point clear, let me examine the average monthly revenue accruing to a family of labourers from labour in the light of the actual monthly expenditure. The examination reveals the fact that in the case of a family whose monthly revenue falls short of ¥60, there is a deficit of ¥2.59. The actual revenue is, however, 34 sen in excess of the actual expenditure. Supposing that the prices of necessaries other than rice are equitable for the revenue of such labourers, that the items of expenditure other than rice are quite warranted, and that the outlays are also quite reasonable, the price of rice ruling in the period mentioned was a little too high, considering the revenue from labour, and quite fair when considered from the point of view of the actual revenue.

Thus, many doubts inevitably arise regarding the cost of living to be adopted as the standard, as we pursue our study into the cost of living. Conceding that the price of rice at the time was proper in the light of the cost of living for labourers with a monthly revenue of less than ¥60, it must be said that it was at the upper limit of their power of bearing the burden of the rice expense. As the demand for a daily necessary like rice does not easily decline even when the actual revenue of its consumers suffers a decline, there is no doubt that the poor consumers will suffer a great deal, unless, in the days when the actual revenue witnesses a big decrease owing to business depression, the price of rice falls proportionately.

Such being the case, when taking the cost of living of labourers as the standard, it is necessary to take due note

of the high proportion of the rice expense to the total outlay and to judge the percentage which the price of rice ought to have to the prices of other necessities of life (including house-rent), if the standard of living for the working classes is to be maintained. But as the wages and subsidiary incomes, which form the actual revenue of labourers, and the prices of rice and other general necessities of life (including house-rent) constituting the total outlay do not rise or fall at the same rate, it is necessary to take the percentage of the falls or rises in all these items into careful consideration in working out the standard of the price of rice on the basis of the cost of living. To this end, it is necessary to have the index number of the cost of living. (We have no such index number in Japan. We have, therefore, no choice but to infer it from the index number of retail prices.) Not until this index number is completed can we form a correct estimate of the rise or fall of actual wages. In existing circumstances, therefore, it is very difficult to judge the power of bearing the burden of the rice expense on the part of the working classes from the family budgets of labourers and fluctuations in currency wages only (even if the retail prices may be taken due note of), thereby accurately fixing the standard which forms the upper limit for the regulation of the price of rice.

## CHAPTER 5.

### CONCLUSION

In the previous chapters, I have endeavoured to make clear the meaning of the standard of the price of rice and dealt with the various standards by which it is suggested the standard price should be fixed. I have also pointed out the supreme difficulty attending the fixing of the standard on a really equitable basis. All have their merits and demerits. It is, therefore, necessary that, in fixing the official standard, the merits of all these plans should be adopted so that as perfect a measure as possible, an eclectic measure, as it were,

may be formulated on their basis. The draft plan of the Department of Agriculture and Forestry made public in the Press recently seems to aim, as already mentioned, at working out the upper limit of the standard on the basis of the cost of living for consumers of the lowest class and the lower limit on the basis of the cost of production for farmers, taking into consideration, at the same time, the index number of the prices of commodities and other economic conditions. In my opinion, the general course of the price of rice must be taken into account also. Needless to say, a compound standard will be found more rational than a simple standard. Even if a compound standard may be adopted, however, there are many difficulties in the way of fixing a really perfect standard, as will be clear from what I have already stated.

So long as the absolute necessity of the regulation of the price of rice for the security of the national life is recognised, it is, of course, important to create the standard of the price of rice. While it is just and proper that the standard to be chosen should be quite fair both for consumers and producers, it is obvious that there can be no price of rice which can give entire satisfaction to both. So, it is inevitable that the national policy should somewhat influence the fixing of the standard of the price of rice. If the national policy to be pursued attaches special importance to the commercial and industrial development of the country, the standard to be chosen will necessarily be one favourable to consumers. On the other hand, if the maintenance of agrarian interests is deemed important for the national economy and the national policy is framed accordingly, a standard favourable to producers of rice will be chosen. Even in the days of the agricultural panic in Europe in the last century, which was caused by the importation of cheap cereals from abroad, Britain resolutely pursued the policy of basing the country's prosperity on commerce and industry. In pursuit of this policy, she strove to develop commerce and industry through free trade in cereals. On the other

hand, Germany and France adopted a policy of forcing up the prices of cereals at home by imposing protective Customs duties. Denmark, which desisted from such a policy of protecting agriculture, succeeded in tiding over the crisis by diversifying agricultural management and improving the distribution system through the creation of the expedient of co-operation. All these different policies were all appropriate considering the peculiar conditions prevailing in these countries at the time.

One thing which deserves consideration is that the present inactivity of the rice raising business in this country is due partly to the importation of cheap Formosan and Korean rice and the difficulty of accommodating agriculture to the capitalistic economy. But the peculiar quality of Japanese rice and a intense predilection of the Japanese people for it is one strong point of the Japanese rice raising business. Owing to this attribute of Japanese rice, the foreign rice market produces comparatively insignificant effects on Japanese rice, and the demand for Japanese rice increases with the growth in population and the elevation of the standard of living. In such circumstances, the difficulties attending the rice raising business in Japan at present are far inferior to those which faced the agriculture of various European countries in the last century. It is, therefore, necessary that, side by side with the Government policy of regulating the price of rice by fixing the standard price of rice, farmers should by their own efforts try to reform the methods of operating their farms, in short, improving the rice-producing technique, in order to reduce the cost of producing rice and to improve the marketing system by developing agricultural warehouses and co-operative marketing associations, so that rice producing economics may be developed. They should not rely merely on the Government policy of forcing up the price of rice.

YOSHINOSUKE YAGI

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