

A COMPARISON OF REAL CONSUMPTION LEVEL
BETWEEN JAPAN AND PEOPLE'S REPUBLIC OF CHINA
—THE FIRST APPROACH OF APPLICATION OF
ICP METHOD TO CHINESE DATA—

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I. *Introduction*

It has been one of major topics in economics to compare the real level of GDP or its components including the real consumption expenditures. These are closely related not only to the comparison of the standard of livings but also to the level of real production. Two kinds of difficulties are found in these attempts: (1) adjustments between various countries of statistics in nominal values on the unified standard and (2) calculations of exchange rates of currencies reflecting the price differences between countries.

The International Comparison Project (ICP) opened a way to these problems. Owing to the international cooperation supported by the Statistical Office of the United Nations, the nominal values of national accounts have been adjusted on the standard form. The exchange rates (PPP) are also calculated for the detailed items of GDP using the price information provided by many countries. The development of methods by Geary-Khamis made it possible to make multi-national comparison of real GDP in a consistent way.

These approaches have given various impacts. OECD has published PPP's for its member countries every year since 1970 [see OECD (1987)]. In Asia many countries or area have joined to the ICP and we expect the figures of real GDP could be obtained in the 1985 level for major Asian countries in the near future [see ESCAP-MCAGJ (1984)]. However, there remains a huge lack of information: we cannot obtain the figures on the People's Republic of China, which has occupied an important position in Asian economy. In the ICP Seminar held in Sapporo in October 16-22, 1984, the delegation from China expressed their great interests in the ICP Project, but China did not join the 1985 project.¹

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¹ This sentence was written in the responsible of Mizoguchi, who was the chairman of the seminar.

We then decided to try to make tentative calculations between Japan and China following after the ICP project as a private research. This decision depended on the past experiences. When the first ICP Project started, the US-Japan comparison was made by the private research group as to the Japanese side, but the research provided a basis for more comprehensive works by the Government of Japan after the third ICP Project.²

As we started the work as a private research group, there are many restrictions to obtain the appropriate data. We are forced to rely mainly on the published data and cannot expect to carry out a new survey for this purpose. However, a remarkable increase of data has been found in Chinese official statistics. We have also tried to get the cooperation of statistical offices in both countries. This paper is the first report on these attempts regarding the personal consumption expenditures.

In order to compare the consumption level in the context of the ordinal ICP we need to use the national accounts statistics. If the accounts are made using the commodity flow methods, we can evaluate these by prices in both countries. But this method cannot be applied for our case because China adopted the MPS system and the detailed basic data for MPS have not been published. On the other hand, we can find relatively abundant data on the family budgets in China, which inform us not only the expenditures by category of households but also the quantities consumed for the major consumption goods. Further, we can obtain some price data in Shanghai in 1988 which can be used to infer the prices in 1985 with some adjustments.

Considering these situations, we decided to follow an indirect approach to compare the real personal consumption level. This is

- (1) to calculate the Purchasing Power Parities (PPP) between Japan and China using family budgets data and consumer's price data,
- (2) to compare the real per capita consumption level based on the family budgets data,
- (3) to adjust the MPS of China to the SNA using the macro level data, and then
- (4) to compare the real per capita consumption level in the ICP standard.

According to the experiences of Japan-US comparisons in the early stages of ICP, this indirect method had been useful. Further, we can compare these results to the previous comparisons based on 1950s Japanese and Chinese family budgets data shown in Mizoguchi (1969). This paper aims to complete (1) and (2), and the remaining topics are done as a preliminary work.

The basic data for the work (1) are the results of family budgets for overall countries in both countries. In order to link the recent ICP project, we adopt 1985 in our comparison. As a reference we also adopt 1960 for Japan, because we feel the consumption pattern of 1960 is similar to that of 1985 China judging from the composition of consumption expenditures. Further, we also try to use the data on Shanghai because one of those authors living in Shanghai. These figures are shown in the following publications:

- (1) State Statistical Bureau, People's Republic of China, <Zhongguo Tongji Nianjian (Statistical Yearbook of People's Republic of China), 1986>
- (2) —, <Monthly Bulletin of Statistics—China>

² The group was organized by Professor Yuzo Yamada, and the member of the group was Professors Sanori Nagayama, Tsutomu Noda and T. Mizoguchi. See JSPS (1971).

- (3) —, <A Survey of Income and Household Conditions in China> New World Press, 1985.
- (4) Statistics Bureau of Shanghai, <Shanghai Tongji Nijian (Statistical Year Book of Shanghai), 1986>
- (5) Statistics Bureau, Government of Japan, <Annual Report on Family Income and Expenditures, 1960, 1985>
- (6) Economic Planning Agency, Government of Japan, <Annual Report of National Accounts Statistics 1985>

To save our space, we shall refer these data as Data (1) and so on in the following descriptions.

To calculate the PPP, we need to classify the items of consumption expenditures into some categories. Because of the relative abundance of information for Japanese side which enables to adjust items into any categories, we adopt the classification scheme used in China, which divides household consumption expenditures into those for goods or materials and services and then classify them into more detailed categories. They are 17 categories as is

TABLE 1. PER CAPITA YEARLY EXPENDITURES BY GROUP OF COMMODITY IN JAPAN'S AND CHINA'S DATA

	Chinese Data (1985) [yuan]			Japanese Non-farm H.H. [yen]	
	All H.H.	Non-farm H.H.	Shanghai Employee	1985	1960
Expenditure on Materials	398.03	666.24	896.16	567,442	68,484
Food	242.37	390.36	516.96	339,923	44,553
Cereals	66.46	62.28	58.20	39,908	11,459
Subsidiary food	115.56	226.92	315.48	148,872	17,945
Tobacco and Drinks	34.89	38.03	39.60	53,054	6,750
Other Food	18.72	43.12	53.68	50,750	5,589
Eating Out	6.74	20.02	50.00	47,339	2,810
Clothing	52.67	112.32	150.00	74,879	8,883
Daily Goods	50.34	81.48	119.18	72,293	5,221
Goods for Culture & Recreation	29.03	54.84	85.18	32,327	3,576
Newspaper and Magazines	3.05	6.96	10.68	16,336	1,938
Medical Good	2.81	5.52	3.96	11,618	1,106
Fuel	15.94	10.08	5.52	16,396	1,853
Repairs of Houses	1.82	4.68	4.68	3,670	1,354
Expenditure for Services	36.82	71.59	112.74	547,815	30,741
Rent	2.09	7.92	13.08	91,860	8,830
Electricity Gass and Water	4.45	8.52	19.32	69,110	3,390
Trans- & Communication	3.11	9.24	25.08	44,250	1,905
Medical	9.00	16.03	19.24	132,300	4,383
Education and Nursing	12.10	17.28	15.16	107,353	5,566
Culture and Recreation	1.00	2.64	4.56	51,006	3,965
Other Services	5.07	9.96	17.52	59,910	2,702
Total	434.85	737.83	1,008.90	1,115,257	99,225

Note: Japanese data are obtained by reclassifying figures at the item level.

shown in Table 1, in which we can also find the weights of these categories in the total consumption by data used.

As far as we know, there has not been published detailed explanations on the standard of classification scheme of consumption in Chinese family budgets data. But we can follow up this by the survey manuals published by State Statistical Bureau.³ The detailed information on these classification will be shown by category-wise in the following sections.

Now let us define variables. $QC(i, j)$ and $QJ(i, j)$ indicate the quantities consumed in Chinese and Japanese households which belong to i -th category of the number j -th item. Correspondingly the average prices are shown as $PC(i, j)$ and $PJ(i, j)$. The total expenditures for i -th category are noted as $XC(i)$ and $XJ(i)$. Since we can get the data for quantities or prices only in major items, the sum of $PJ(i, j)QJ(i, j)$ over all j , or $VJ(i)$, does not necessarily coincide with $XJ(i)$. The ratio of $VJ(i)$ to $XJ(i)$ is called as the indicator of coverage, $CJ(i)$. The notations for Chinese side, $VC(i)$ and $CC(i)$, can be defined in the same formula.

It is also convenient to define the sums of quantities with the weights of prices in counterpart countries. Let us define

$$WJ(i) = \text{Sum of } PC(i, j)QJ(i, j) \text{ for } j,$$

$$WC(i) = \text{Sum of } PJ(i, j)QC(i, j) \text{ for } J.$$

When $CJ(i)$ or $CC(i)$ equals 100%, we can define the real expenditure index based on Japan expenditure for i -th categories as

$$REJ(i) = WC(i)/VJ(i) \text{ and}$$

$$REC(i) = VC(i)/WJ(i).$$

REJ is the comparison by Japanese price weights and REC by Chinese. PPP is also defined as

$$PPPJ(i) = WJ(i)/VJ(i)$$

$$PPPC(i) = VC(i)/WC(i)$$

We can easily obtain the relations between RE and PPP , but since the adjustments are done when the coverages are not 100%, the relations are not valid for the calculated results. These calculations are shown in Section (II), (III) and (IV).

There is a good guideline for the conversion from the MPS to SNA or vice versa prepared by UN (1981). While State Statistical Bureau of China has adopted the MPS we can broadly convert it to SNA with use of official information as is done by Kosai (1984). However, when we compare the consumption level between socialist and non-socialist countries, we need to adopt broader concepts than usual SNA regarding educational and medical expenses: we include the government expenses for formal education and medical cares as a part of personal consumption expenditure in order to avoid the downward biases of real consumption level of socialist countries where nearly all these expenses have been supported by governments. These adjustments are also adopted in the ICP project.

³ These manuals were collected by Matsuda during his visits to China in 1985 as a member of delegation from Institute of Developing Economies.

II. *Comparison of Real Food Consumption*

In the Japan-China comparison of real consumption level, the role of food consumption is very important because the food expenditure occupied a large share in total Chinese household expenditures: the share was 53% in overall non-farm Chinese households in 1985. Fortunately we can find relatively abundant data for this purpose.

The family budget surveys in China have been done both for farmer's and non-farm households. The overall average for both groups have been published by State Statistical Bureau. The consumption defined here includes not only commodities or services purchased but also those produced by households.⁴ We can obtain the national average if we calculate the weighted mean for these two groups. The Family Income and Expenditure Survey in Japan covers non-farm households with two or more family members. Since the farm households occupies small share in the total number of households and there are few differences in the consumption pattern between farm and non-farm households in Japan we can safely use the FIES data to represent the Japanese consumption level.

According to the survey manuals mentioned in the previous section, food category is reclassified into (a) Cereal, (b) Subsidiary food including vegetables, meat, edible oil, eggs and condiment, (c) Tobacco and alcoholic beverage and tea, (d) Other food including fruits and confectionary and (e) Expenses for 'Eating Out.' Total amount of expenditures are shown by these categories for Chinese family budgets. We can also obtain the corresponding values for Japanese data through the re-classification of Reports by commodity base.

The quantities consumed and amounts of expenditures for major commodities are available for the food categories in both Japanese and Chinese data. From these we can obtain the 'average' unit prices for these commodities, which can be used for the price comparisons between Japan and China. As to the Chinese data a supplementary comment might need. In Chinese market we can find three kinds of prices: State Controlled Prices and Semi-controlled Prices prevailing in State Owned shops and Free Prices in the so-called free markets. Since both quantities and expenses are defined as the total sum, the average prices reflect consumer's behavior on the selection of markets. In this sense these prices have some advantage to the usual price data.

In Chinese data cereals consumed are shown both in quantities and expenditures. The major components of cereals are rice, wheat flour and miscellaneous cereals. While we can assume that composition varies by region, it is very interesting that the average prices are relatively similar for non-farm households in different cities.⁵ The same is found between farmer's households in different regions. The average prices are different between non-farm and farm households because the quantities for the latter are defined in raw cereals. However, the differences can be explained if we suppose that 1 kg of raw cereals correspond to 0.85 kg of edible cereals as was suggested by Matsuda (1965).⁶ Thus we can use the

⁴ Regarding the detail analysis of the scope and methods of this survey, see Matsuda (1986).

⁵ The results of family budgets surveys in local area have been published in <Statistical Yearbook> by local governments or some Chinese Journal like <Consumption Economics>.

⁶ More precisely, 1 kg raw cereals corresponds to 0.70 kg edible cereals for rice, 0.85 kg for wheat flour, 1 kg for soybean and corn and 0.15 for potato.

average prices of cereals in total non-farm households to represent Chinese retail price of cereals.

The corresponding Japanese data are the "cereals" items in the FIES, which are composed of rice, noodles, bread and the others including wheat flour and miscellaneous cereals. Since the last occupies a small share in the cereal expenditure, it is enough to investigate three subgroups of commodities. As the average prices per kg are different in these three subgroups, we cannot use the total average unit prices. Thus, we use preliminarily the rice price to represent the cereal relative price.

The results of comparison are shown in the cereal line of Table 2. We should note that the price comparisons in Chinese weights are the counterparts of the real consumption level comparisons by Japanese prices. The ratio of average prices is shown for six versions: i.e. for three alternatives of Chinese data and two for Japanese data. Among Chinese versions, TC (values for total Chinese households) is the most useful for our analytical purpose, but this includes some margin of errors because we have less amounts of information on farmer's households than on the non-farm households as to Chinese data. Especially, the evaluation is generally difficult for the consumption of self-produced agricultural products. The NFC figures (values for national average of non-farm households) are more reliable than TC. S (values of Shanghai employee households) is also shown for our reference, because we shall use Shanghai prices when there are no data for total average in the following study. We should note that the official exchange rate in 1985 was about 12.5, so the Chinese prices are very low for cereal products.

We can also make a comparison for the real consumption level of cereals by deflating the per capita consumption expenditures for both countries. Since the share of rice expenditures in those of cereals was about 60% in 1985 Japan, the figure may include some biases. However, this also has some meaning because Japanese selected the composite of cereal consumption through free markets. The Chinese level of cereal real consumption was much higher than that of Japan. This may come from the fact that Chinese took their major nutrition from cereals but Japanese had shifted their consumption from cereals to other items.

As to the subsidiary food category we can obtain quantities consumed in both non-farm and farm households only for vegetables, beef, pork, chicken, eggs, fish, edible oil and sugar. The expenditures as a whole are also shown for non-farm households. As this total expenditure for the category is shown for non-farm households, we can estimate expenditures for other commodities belonging to this category. These commodities not specified separately occupied a relatively large share in the sub-food expenditure in Chinese non-farm households: the share was about 80%.

For farm households the expenditures are not shown and so we cannot calculate the average prices. This would be partially related to the difficulties of pricing the self-produced products. We assumed here that the prices for farm are 75% of urban prices for farm products and that they are same for industrial products. Fortunately, the assumption is consistent with the weights of consumption for food in farm households.

Since we have Japanese data by commodity level, we reclassify them into groups of commodities corresponding to Chinese data. For example, while data are available only for major vegetables by commodity level, we sum up both quantities and expenditures to overall vegetables. The coverage for Japanese data is much lower than the Chinese one

TABLE 2. COMAPRISONS OF FOOD PRICES AND REAL EXPENDITURES

	Price Comparison (Yuan/1000 Yen)					
	In Chinese Weight					
	NFC/60J	TC/60J	S/60J	NFC/85J	TC/85J	S/85J
Cereals	5.920	3.971	8.311	1.896	1.355	2.837
Subsidiary Food	9.627	7.629	11.020	1.793	1.447	2.062
Tobacco, A.B. and Tea	7.262	9.593	7.056	3.743	2.669	2.432
Other Food	8.213	7.003	8.213	1.482	1.264	1.482
Eating Out	8.308	5.899	8.951	1.787	1.553	1.956
Total Food	8.308	5.899	8.951	1.782	1.553	1.956
	In Japanese Weight					
	NFC/60J	TC/60J	S/60J	NFC/85J	TC/85J	S/85J
	Cereals	4.628	3.830	5.124	1.478	1.309
Subsidiary Food	19.671	13.952	19.680	2.202	1.915	2.202
Tobacco, A.B. and Tea	6.469	7.434	7.976	2.634	2.154	1.610
Other Food	8.280	7.037	8.280	1.984	1.686	1.984
Eating Out	10.903	9.175	10.611	2.149	1.733	2.129
Total Food	10.903	9.175	10.611	2.149	1.733	2.129
	Real Expenditure Comparison (Japan Level=100)					
	By Japanese Prices					
	NFC/60J	TC/60J	S/60J	NFC/85J	TC/85J	S/85J
Cereals	102.3	162.8	110.3	100.1	149.4	101.3
Subsidiary Food	146.4	95.2	177.7	103.4	66.4	125.0
Tobacco, A.B. and Tea	81.0	99.1	86.8	40.3	48.1	34.2
Other Food	73.0	53.3	130.3	70.0	44.2	93.1
Eating Out	21.3	10.1	221.5	7.8	3.0	65.7
Total Food	116.3	101.7	143.0	77.2	55.0	93.2
	By Chinese Prices					
	NFC/60J	TC/60J	S/60J	NFC/85J	TC/85J	S/85J
	Cereals	130.8	168.7	178.7	128.4	154.1
Sunsidiary Food	88.0	52.3	122.3	84.2	43.6	117.4
Tobacco, A.B. and Tea	57.7	68.3	76.7	57.3	44.7	84.1
Other Food	103.8	53.0	51.7	76.2	26.6	64.8
Eating Out	72.8	29.1	185.7	24.1	10.9	60.8
Total Food	88.6	65.4	120.0	64.0	49.3	85.6

Note: NFC: Non-farm households of China, TC: Total households in China, S: Employee households in Shanghai, J60: non-farm households in 1960 Japan and 85J: Non-farm households in 1985 Japan.

because the expenditures for processed food occupied a large share in Japanese consumption. After calculating the real level of expenditures evaluated in prices of both countries for the comparable commodities, we inflate the values by the coverage. Thus, the relative price indicators are calculated only for the comparable commodities.

The results shown in Table 2 indicate that the real expenditure level of Chinese non-farm households was nearly equal to 1960 Japanese level if we take the geometrical mean between the figures by Japanese prices and Chinese prices. The PPP's are similar to the values of other food categories except the 1960 values by the Japanese weights. This originated from the differences in the relative prices between meat and vegetables.

The tobacco, A.B. (Alcoholic Beverage) and Tea corresponds to the Japanese classification on Tobacco, Alcoholic Beverage and Non-alcoholic Beverage. It is well known that FIES's tobacco expenditures have downward biases,⁷ so we use the adjusted figures from the supply side data. We can also infer some biases in Chinese data because the average quantities consumed in non-farm households were much lower than the average quantities for overall countries estimated from the supply side data. But since the check is rather preliminary, we adopt the original figures for Non-farm households, but the supply side figures for overall households.

Since there are various kinds of alcoholic beverage, the results would be influenced by the definition. Considering Chinese customs, we consider the A.B. to cover Chinese or Japanese Wine and Beer. While Japanese took various kinds of non-alcoholic beverage, we are forced to restrict our comparison only to tea because of lack of data.

The "other food" includes fruits, cakes and dairy products. The quantity and expenditure data are available for total fresh fruits, cakes and milk for China's non-farm households. We suppose that the consumption level of farm households is 70% of non-farm households. We then calculate the real expenditure and the PPP with adjustments by coverage. Since we have no reliable data for Eating Out we suppose that the PPP for total food can be applied to this categories.

According to Table 2, the Chinese real expenditure in these three categories was low. The real total food expenditure of 1985 China was as high as that of 1960 Japan and about 70% of 1985 Japan. The overall households' level of food real consumption expenditures was lower than Japanese level: about 80% of 1960 and about half of 1985 Japan. The PPP of 1985 for food was about 2 which was about 8% of the exchange rate of foreign trade. As far as the total food level, the PPP's are not much different between Chinese and Japanese weight system, so we can safely use it to convert the macro expenditure data like the national accounts from one to other country.

III. *Comparison of Real Expenditures for Other Commodities*

Among non-food expenditures, the clothings are one of major items. In Chinese data, the expenditures are classified into (i) cloth, (ii) occidental clothings, (iii) shirts including

⁷ Since the family book keeping is usually done by household wives, it is difficult to catch all expenses by husbands like tobacco. In fact, the per capita consumption to tobacco shown in Japanese family budgets data are only 30% of Tobacco production in Japan.

TABLE 3. COMPARISONS OF COMMODITY PRICES AND REAL EXPENDITURES

	Price Comparison (Yuan/1000 Yen)					
	In Chinese Weight					
	NFC/60J	TC/60J	S/60J	NFC/85J	TC/85J	S/85J
Food	8.308	5.899	8.951	1.782	1.553	1.956
Clothings	11.090	13.042	11.187	2.649	3.065	2.693
Daily Goods	15.051	14.413	15.051	9.205	12.709	5.859
Culture & Recreation	17.942	17.561	18.376	13.673	12.198	15.234
Newspaper & Magazine	12.500	12.500	12.500	2.273	2.273	2.273
Medical care	20.360	20.360	20.360	3.504	3.504	3.504
Fuel	3.004	3.314	3.004	0.756	0.730	0.756
Repair of Accomodation	13.600	13.600	13.600	1.831	1.831	1.831
Other Commodities	9.529	7.376	10.308	2.265	2.006	2.478
Total	9.529	7.376	10.308	2.265	2.006	2.478
	In Japanese Weight					
Food	9.572	9.193	10.679	2.172	1.762	2.157
Clothings	9.860	9.860	9.860	2.846	2.846	2.846
Daily Goods	17.354	17.354	17.354	6.105	6.105	6.105
Culture & Recreation	14.141	14.141	14.141	13.057	13.057	13.057
Newspaper & Magazine	12.500	12.500	12.500	2.273	2.273	2.273
Medical care	20.360	20.360	20.360	3.504	3.504	3.504
Fuel	6.359	6.359	6.359	4.020	4.020	4.020
Repair of Accomodation	13.600	13.600	13.600	1.861	1.831	1.831
Other Commodities	—	—	—	—	—	—
Total	10.719	10.472	11.438	3.456	3.190	3.447
	Real Expenditure Comparison (Japan Level=100)					
	By Japanese Prices					
Food	105.5	92.2	129.6	65.2	46.5	78.7
Clothings	118.6	55.6	158.3	55.7	22.9	74.4
Daily Goods	103.7	66.9	151.7	12.2	5.5	28.2
Culture & Recreation	85.5	46.2	129.6	12.4	7.4	17.3
Newspaper & Magazine	28.7	12.6	44.1	18.7	8.2	28.8
Medical care	24.5	12.6	17.5	13.6	8.2	9.7
Fuel	170.5	274.5	99.2	81.3	138.3	44.5
Repair of Accomodation	25.4	9.8	25.4	69.6	27.1	69.6
Other Commodities	—	—	—	—	—	—
Total	102.0	81.5	126.9	52.2	36.5	64.2
	By Chinese Prices					
Food	91.5	59.2	112.9	53.5	42.7	71.4
Clothings	124.8	54.9	116.7	52.7	24.7	70.4
Daily Goods	89.9	55.6	131.6	18.5	11.4	27.0
Culture & Recreation	108.4	57.9	168.4	12.6	6.9	20.2
Newspaper & Magazine	28.7	13.1	44.1	18.7	8.2	28.8
Medical care	24.5	12.3	17.3	13.6	6.9	9.7
Fuel	91.5	135.2	46.8	15.2	24.1	8.3
Repair of Accomodation	25.4	9.8	25.4	69.6	27.1	69.6
Other Commodities	—	—	—	—	—	—
Total	90.7	57.4	114.3	34.2	22.9	46.2

Note: See notes in Table 2.

sweaters and underwear, (iv) footwears and (v) other clothings. The major expenditures in Chinese data are (i) and (ii), and we can obtain both expenditures and quantities consumed for these two categories for non-farm households. The farm households data also show the quantities of cloth consumed, but it is noted that these include the consumption of ready-made clothings. We have also relatively good data on the footwear consumption: i.e. quantities and expenditures by type of footwears. Because we have corresponding figures in Japanese data, we can compare with the average prices by both data in supplementing the relative prices from price data for category (iii). Since we have such price data only for overall non-farm households, we assume the prices are the same for farm households and for employee households in Shanghai. However, when we compare the values with the actual prices in Shanghai in 1987, the average prices seem to have some downward biases even if we take in consideration of the rise of prices from 1985 to 1987.

The results in Table 3 show that the real consumption of total clothings of Chinese non-farm households is relatively high. This is especially true for clothings and footwears. The former can be related to the different patterns of clothing expenditures. In 1985 Japan, nearly all clothings were bought as ready-made clothings because the shops supplied various kinds of forms. The cloth is used only for very particular purpose. This was also true in 1960 Japan although there remained the traditional ways of life to make clothings from cloth. We cannot explain why the level of footwear in China was so high. The relative price level of clothings is little higher than that for foods but the average rate was much lower than the exchange rates for the foreign trade.⁸

The expenditures for daily goods are composed of those for (a) personal effects, (b) toilet articles and miscellaneous non-durable goods, (c) domestic utensils, (d) furniture and (e) consumer durables excluding amusement uses. While the average prices obtained from family budgets data are restricted only for soap and washing powder, we take various kinds of prices in Shanghai for categories (a), (b) and (c). The average prices of consumer durables can be obtained from Data (3).⁹ While it is very difficult to compare the quality of consumer durables, we take the price of most familiar types for the Japan side. When we calculate the average PPP for each category, the values are different significantly between (a)-(c), (d) and (e). Though we use the common price data for overall China, the average values of daily goods differ very much owing to the difference of weights in three groups of Chinese households. Generally speaking, the real consumption level of urban China is as high or little higher than 1960's Japan. However, Chinese levels are very low in comparison with 1985's Japan because the real expenditures for consumer durables rose significantly after 1960s.

The expenditures of goods for culture and amusement uses include (a) stationary, (b) toys and sports goods and (c) TV, radio, camera and musical instruments. The Chinese average prices for (c) are found in Data (3). Again, large differences can be found in the

⁸ The relative price of cloth may have some downward biases if we consider the quality of clothes. For example, when we compare the high quality business suits between Tokyo and Shanghai, the Shanghai price is much higher than the ratio shown in this table.

⁹ One of difficulties is that we cannot find the price of personal cars in China, although the expenditure for personal cars is one of important items in 1985 Japan's consumption. We suppose that the relative price of motor cycles could be used as an approximate rate, but this would have a downward biases in China-Japan price ratio.

relative prices between (a)-(b) and (c). Owing to the same reason for daily goods, the Chinese real level is much lower than 1985 Japan although it is relatively high in comparison with 1960's Japan.¹⁰ Since we estimate the expenditures in Chinese rural case using the stock data of consumer durables, the amounts become much lower than the urban. The low figure for overall China can be explained by this method.

As to the fuel expenditures we should note that those for electricity and gas are treated as a kind of services. Thus, the fuel expenditures are large in the rural area in China. In the case of Japan, gasoline expenditures for cars are included in this category. In order to compare the real level we need to sum up the real amounts of electricity and gas shown in the next section. Because we have no comparable price data as to medical materials, we adopted preliminarily the relative price of drugs for cold.

IV. *Comparison on Service Expenditures*

The comparisons on the service expenditures are much more difficult than the case of materials or goods. Firstly, the data are scarce for the comparison of service. We can obtain the expenditure figures by category shown in Table 1 for urban households, but surveys on agricultural households show only total amounts on the service expenditures. Therefore, we divide it into categories using various information including the family budgets surveys on Chinese agricultural households before the Second World War. The figures for overall households are obtained as the average of this estimates and published data for urban households. Secondly, there are no publications on prices of service in China. Thus, we are forced to adopt the information collected in Shanghai City. This would have some upward biases when we use them as the national average. But since we cannot get the information for the degree of biases, we use the figures without any adjustments. Thirdly, the quality of services would differ between Japan and China, and this would cause some biases. This is one of the difficulties often found in the international comparisons of service prices.

Another problem concerning the public services is that in both countries a large portion of educational and medical expenditures are covered by the public sector (including social securities for medical services in Japan). Owing to the formula of the ICP the consumption expenditures of these categories by the public sector are added to the expenditures by the household sector. We can obtain the detailed figures on the expenditures for Japan, but we find only the expenditures covering both investments and total current expenditures for China. We assume preliminarily 80% of total expenditures as the consumption. Since we have not obtained the detailed information for the budgets of local government, we assume 80% level of per capita values of the Shanghai City Government for the overall average.¹¹ Regarding the rent, we include the imputed rent for Japan. While we obtain the rent data

¹⁰ This can be partially explained by the technological developments in household consumer durable goods. In 1960s Japan, we can find only black and white TV.

¹¹ Professor Shigeto Sonoda, University of Tokyo, suggests us that 80% level would induce the upward biases for the national average of per capita expenditures by local governments. This will be examined in the future. However, since the bias concerns only the educational expenditure in this paper, the biases would not alter much implications of our conclusion.

TABLE 4. COMPARISONS OF SERVICE PRICES AND REAL EXPENDITURES

Price Comparison (Yuan/1000 Yen)						
In Chinese Weight						
	NFC/60J	TC/60J	S/60J	NFC/85J	TC/85J	S/85J
Accommodation	2.336	0.326	3.716	0.333	0.046	0.529
Electricity & Gas	5.794	8.583	3.338	1.785	2.816	2.273
Trans- & Communication	3.807	3.846	3.742	0.371	0.374	0.361
Education & Nursing	19.172	9.416	21.474	1.176	0.140	0.430
Medical Service	19.513	19.513	19.513	0.932	0.932	0.932
Culture & Recreation	3.010	2.225	3.883	0.367	0.326	0.430
Other Service	9.227	9.227	9.227	0.590	0.590	0.590
Service Total	9.806	9.318	6.308	0.813	0.829	0.670
Material Total	9.529	7.376	10.308	2.265	2.006	2.478
Overall Total	9.604	7.503	9.630	1.930	1.796	1.902
In Japanese Weight						
Accommodation	2.336	0.326	3.716	0.333	0.046	0.529
Electricity & Gas	9.468	9.468	9.468	4.046	4.046	4.046
Trans- & Communication	12.257	12.257	12.257	2.159	2.159	2.159
Education & Nursing	19.172	9.416	21.474	1.176	0.140	0.430
Medical Service	19.513	19.513	19.513	0.932	0.932	0.932
Culture & Recreation	5.755	5.755	5.755	0.722	0.722	0.722
Other Service	9.227	9.227	9.227	0.590	0.590	0.590
Service Total	14.102	15.920	13.009	1.583	1.607	1.532
Material Total	10.719	10.472	11.438	3.456	3.190	3.447
Overall Total	11.578	11.814	11.331	2.558	2.443	2.529
Real Expenditure Comparison (Japan Level=100)						
By Japanese Prices						
Accommodation	40.7	76.9	42.3	25.9	49.0	26.9
Electricity & Gas	43.4	15.3	170.7	6.9	2.3	25.4
Trans- & Communication	127.4	42.5	351.8	56.3	18.8	156.8
Education & Nursing	11.6	4.4	19.9	13.7	8.1	18.4
Medical Service	18.6	10.7	22.3	13.0	9.3	15.6
Culture & Recreation	22.1	11.3	29.6	14.1	6.0	20.8
Other Service	52.4	26.5	91.7	11.9	6.1	21.0
Service Total	39.5	22.0	95.5	18.2	9.0	38.6
Material Total	102.0	81.5	126.9	52.2	36.5	64.2
Overall Total	89.1	68.7	120.4	38.4	25.3	53.8
By Chinese Prices						
Accommodation	40.7	76.9	42.3	25.9	49.0	26.9
Electricity & Gas	26.5	13.9	60.2	24.1	8.0	43.3
Trans- & Communication	39.6	13.2	108.3	8.3	2.8	22.5
Education & Nursing	17.0	12.7	23.4	13.7	8.1	18.4
Medical Service	18.6	10.7	22.3	13.0	7.3	15.6
Culture & Recreation	11.6	4.4	19.9	5.1	2.6	11.3
Other Service	52.1	26.5	91.7	11.9	6.1	21.0
Service Total	22.7	12.4	32.8	8.7	4.4	14.4
Material Total	90.7	57.4	114.3	34.2	22.9	46.2
Overall Total	70.2	42.8	89.4	26.6	18.1	37.0

Note: See notes in Table 2.

for non-farm households in China, we could not know the rent for agricultural households. Since we hear that the rent for agricultural households is negligible, the free rent is assumed for agricultural households.

Now let us explain the calculations shown in Table 4. Since we have figures of expenditures for rent, what we should do is to make indicators on the level of accommodation. As is well known, these indicators are very complex in its nature.¹² We adopted here the simplest one, i.e., per capita residential space. Since this does not reflect the quality of accommodation there arise many problems. For example, the level of agricultural households in China is much higher than that of the urban.¹³ As we are planning to revise our calculation our calculation shown here would be used for our broad comparison for a while.

The real level of the electricity and gas is calculated using the relative prices between Tokyo and Shanghai. The composition of transportation and communication is very different between Japan and China. While the transportation expenditures are composed of those for within and between regional ones in Japan, they are occupied mainly by the within regional ones in China. The share of telephone expenditures is significantly different between Japan and China. Because of the weight of bus transportation, of which relative price is very low, the real level of the category became very high in Japanese price evaluation. We feel that the reexamination would be necessary regarding this category.

It is very difficult to find suitable price data for the category of culture and entertainments. We adopted here the fees of cinema and hotels are used. Regarding the other services, the prices of barbers and beauty shops and the average wages of service industry.

To obtain the educational real expenditures we used the so-called input approach. The number of teachers per population is used to compare the real level. While we did not give any weight by the level of the education, our preliminary check proves that the introduction of a weight system using the average wages of teachers does not effect much our conclusion. The Japanese medical service has been mainly covered by social health insurance system although individuals have to pay by themselves for some special treatments. The Ministry of Health and Welfare has published the estimates on total medical expenditures. The medical expenditures of Chinese side is estimated by the medical and health expenditures by urban state firms and collective firms in the rural. We can also obtain the number of doctors per 1000 population in both countries which can be used to indicate the relative real medical services. By these we calculate the real medical service expenditures which induce the relative prices of medical services. The relative prices are backed up by the direct price comparisons for some specific medical services such as X-ray examinations.

The results for total material expenditures indicate that the consumption level of urban households in 1985 China is a little higher than that of 1960 Japan, but the average level of overall households in China has not attained to the 1960's Japan, which can be considered the minimum level of cultural livings. In comparison to 1985 Japan it is interesting that PPP's are around 3 which is much lower than the official exchange rate, i.e., about 25. In other words, Japan's price level is about eight times higher than the Chinese level.

¹² In the case of Japan and US comparison regression methods were used to adjust the quality of accommodation. See JSPS (1971).

¹³ Most of agricultural households are house-owners.

According to Table 4, the Chinese relative prices are lower in the service expenditures than the goods. The real expenditures are also generally low except for the transportation. As the results the real consumption level of non-farm households is little lower than the 1960 Japanese households in the overall total.

V. *A Preliminary Comparison in the National Accounts Basis*

The above comparison is based on the family budgets data while the ICP comparison should be done on the national accounts basis. To do this we need to convert the Chinese accounts into the form of national accounts. The first attempts were done by the World Bank. Professor Kosai (1984) tried to improve this and to get the detailed items for the GDE. While we are trying to re-examine his attempt for 1985 data, we can follow his method in so far as the household consumption expenditure is concerned. After aggregating the per capita consumption expenditures shown in the family budgets data for both urban and rural households, we add subsidies by state firms and collective units in the rural. Our estimate of the per capita household consumption expenditure was 593.94 Yuan. On the other hand National Accounts Statistics by Economic Planning Agency of Japan indicates that the per capita consumption in Japan was 1,529,471 Yen. If we use conversion rates of the currency both for the foreign trade and those obtained in above sections, the real levels of household consumption between Japan and China in 1985 are shown in Table 5. This results are not much different from the conclusions obtained from family budgets data.

TABLE 5. COMPARISON OF PER CAPITA HOUSEHOLD CONSUMPTION EXPENDITURE IN THE NATIONAL ACCOUNTS BASIS (Japanese Yen)

Converted by	Rate (Yen/Yuan)	China (Yen)	Japan (Yen)	Ratio (%)
Exchange rate for Foreign Trade	80.47	47,784	1,529,471	3.12
PPP in Japanese Weight	553.75	328,882	1,529,471	21.50
PPP in Chinese Weight	403.33	239,553	1,529,471	15.66

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