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PROGRESS OF NUTRITION IN CHINA

by

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Nutrition status of people may reflex the national economic level of a nation. In poor or underdeveloped countries, malnutrition usually prevalent, especially among the children. However, in developed countries, though the national income are high and foods for people are abundant; due to the marked differences between the rich and the poor, there are still hunger and malnourished people.

China is a developing country, the level of national economy is low. Before 1949, China was a poor country. Since the establishment of new China, government implemented planned economy. Guided by the policy of develop production and ensure supply, the national economy developed steadily, living condition of people improved gradually. In the past 36 years, despite the serious natural calamities and political disturbances that the country met, the national economy still increased gradually. Take the national income of 1952 as 100, in 1984 the income was 733. Especially after the Third Plenary Session of the 11th Central Committee of Chinese Communist Party in 1978, government carried out economic innovation, the national economy continuously, steadily and rapidly develops. National income increases by 7% annually. In 1983, shortage of grain was relieved, and in 1984, grain production exceeded 400 million tons. Average amount of

grain owned by people was 400 kg per capita. People got enough to eat and wear. Recently the government announced to expect people to have well-to-do living at the end of this century. Average annual income per capita will increase from present 300 US dollars to 800. That means an increase of 5% successively each year. Though this amount is quite low as compared with developed countries, but in China, the living expenses are low and commodity prices remain stable. Income like this will keep a comfortable life.

The present paper is to introduce the changes of food production and consumption, as well as the dietaries and nutrition of Chinese. and also to discuss the future considerations.

I. AGRICULTURE

1. Natural resources: China possesses 960 millions hectares land area, about 60% of the land area are mountain, plateau and desert that can't be utilized for agriculture development. Based upon climate, about 53 % are arid or semi-arid areas. Grassland area is 319.09 million hectares, utilizable grassland is 224.34 million hectares. Fresh water area can be used for breeding aquatics is 5,030 thousand hectares. The coastline of mainland China is about 18,000 kilometers, fishing area is about 81.8 square nautical miles, can be used for breeding is 492,000 hectares. Today, the cultivated land area is about 13.4 million hectares, mostly concentrated at Southeast part. This part is also the area densely populated with better developed economy. The demand of foods and cloths of people mainly depends upon cultivated land. But the average cultivated area per capita is

very small. Reserve land (arable wasteland) is also insufficient. To fulfill people's need for a well-to-do level living, it is necessary to full utilize the cultivated land, exploit other land resources in order to increase food production.

Since the founding of new China, in addition to reclaim of about 500 million Mu* wasteland, government has developed forestry, water reservoir, grassland and improve land soil etc. and also invested in industries of fertilizer, agricultural machine, pesticide products as well as agricultural researches. Now, the Chinese people have enough to eat and wear. With 7% of world land area cultivated food to feed 25% of world population, this is a prominent achievement.

2. Food Production: The most important crops in China are grains, oil seeds and cotton. This are basic for people's foods and cloths. The "grain crops" include rice, wheat, maize, millets, soybean and also potatoes (both sweet potatoes and Irish potatoes). Oil seeds include peanut, rapeseed and sesame oil seeds, cotton, jute, tobacco, sugar cane, and beets are referred to as "economic crops". As mentioned above, the cultivated land area is about 13.4 million hectares. The sown area of grain crops is about 80% of the total cultivated land. In 1950s, the highest grain crops area reached 89%. In 1980s, decreased to below 80%, and the economic crops increased to 12-13%.

Though the sown area of grain crops decreased, but area for rice, wheat and maize were increased. The remarkable decrease of sown area was soybean. The reason is that the soybean is low yield

*Mu, Chinese land area unit. 1 Mu= 1/15 hectare.

crop and the price is low, so peasants made no profit. For oilseed crops, only the rapeseed sown area increased, no change in sown area of other oilseeds. In recent years, sunflower seeds were cultivated, sown area was about 10 million Mu, yearly yield was about 13 thousand tons. The yield per Mu is about 61 kg.

Table 1 shows the annual production of grains and oilseeds crops. Low yields in 1959-1962 was caused by severe natural calamity. In other years, production increased gradually. This increase was mainly due to the increase per unit sown area (see Table 2). From 1949 to the end of 1970s, the increase rate was about 4%, but from 1980, the implementation of household contract system, the increase rate was significant. 1982 and 1983, the increase was over 8%. Yield per unit area of rice, wheat and maize was above the world average of 1982, but lower as compared with the highest yield countries, especially wheat and maize.

Although we achieved remarkable success in agricultural development, owing to the population increased rapidly, the average amount of grains owned per capita didn't increase accordingly. This show in Table 3. Now, people realize government promote family planning policy, which is very important for improving the living standards.

Tables 4 and 5 are the production of non-staple foods in recent years, and the average amount owned per capita annually. It will be seen, though all the food products increase successively, the average per capita is still low. The rural inhabitants usually rear pigs, goats and poultry, and cultivate grains and vegetables on their private plots, but the products always sent to markets

for sale. This amount can't be counted. The sown area of vegetables was estimated about 4-4.7 million hectares.

II. POPULATION

It was estimated that the population before 1949 was 450 millions in China. The first census was carried out in July 1953, population was 601.93 millions. Second census in July 1964 was 723.07 millions. Third census in July 1982 was 1000.82 millions. By the end of 1986, population had increased to 1.06 billion.

Birth rate of Chinese was high. Before 1957, the birth rate was about 32-47 per thousand. In 1953, birth rate had reached to 37.97. Between 1959 and 1961, due to severe natural calamity, the birth rate fell below 25 per thousand, lowest was 18.02 in 1961. Next year, (1962), the birth rate increased to 37.01, and even higher in 1963, reached 43.37. Then, returned to the level of 1950s. Table 6 gives the birth rate and overall population growth rate since 1970s.

Because the government called for "one child each couple", birth rate dropped remarkably since 1976. The overall population growth rate maintained at about 12 per thousand. But there were increases in birth rate in 1981-1982. It is the government's hope that at the end of this century, total population will be limited within 1.2 billions. By this, the overall population growth rate should be controlled at 10 per thousand. In the past 10 years, the death rate of both urban and rural population were below 7 per thousand, thus, the birth rate can't exceed 17 per thousand. In cities, the birth rate already reached this limit, but in rural area it is still high. In early 80s, there was a rise again. If we can maintain the overall population growth rate at

12 per thousand, then, at the end of 1990, the total population will be 1.11 billions, and at the end of 2000 year it will be 1.25 billions. This is the plan of population in China, and this is the base for estimating the food supply and others that directly relating to the people.

III. FOOD SUPPLY

1. Supply: Chinese government implements state monopoly for purchase and marketing of important agricultural products, such as grains, oilseeds, cotton and other economic crops. This policy is important to ensure the supple of basic needs of foods and wears to the people.

After harvest, peasants pay agricultural tax in grain, sell grain according to the contract with government, and also, if there is still surplus (exceed for food, feed and seed etc.). For a long time, government purchase amount increased to 22-23 % of total yield. Vegetable oilseeds purchase kept at 60-70% of its total production. The purchased grain and oilseeds are mainly for the supply to urban inhabitants and also for reserve. Sales of grain and vegetable oil are at government-run grain shops. Each urbanite, since birth, has his/her own quota of grain, according age and nature of his/her work from 3 kg to as high as 30 kg per month. Quota of vegetable oil is 250 gm per capita per month, no distinction among ages and works. In addition, government supple also grain and vegetable oil at preferential prices, no quota llimitation for this. Peasants can sell their own grains that are not usually supplied in the government-run shops at negotiated price in markets.

Table 7 gives the yearly food supply per capita, figures were calculated based upon the statistics of government purchases and retail sales. Amount that retained by rural inhabitants were the total yield deduct government purchase, but the grain were unprocessed. This amount included seeds and feeds and reserve for other purposes. Consumption of urban inhabitants was based on government retail sales. Since 1978, peasants retained more grain, but urbanites consumed less. However, consumption of non-staple foods of urban population were increasing. For vegetable oil, the amount of retail sale was three times over oil quota (250 gm per month). Although people can buy preferential price oil, supply to restaurants and food industry should be counted. Consumption of oil in rural area was very low, but in recent years, there was significant increase. In 1984, the consumption reached 70% of urban's quota, but average consumption was only 1/4 of urban.

Meat, poultry, eggs, aquatic products, vegetables, fruits were all purchased from peasants directly and production units by various government commercial departments. Only small portion may returned to rural area. Peasants rear domestic animals was mostly for sale. Chinese consume mainly pork, beef counted only about 2%, mutton 3-4% of total meat consumed. Those non-staple foods were also supplied to restaurants and food factories.

2. Imports and Exports: China import grains, mostly wheat and maize, also import rice and soybean, but not much. Amount of sugar imported was about 1-2 million tons since 1978. We also import animal fat and vegetable oil, the purpose of import fat and oil may be not only for food consumption, so, not listed in

Table 8. In this table, the edible vegetable oil was cited from custom statistics.

China exports various foods and its products, but grain was in large amount, include rice, soybean, various legumes, and millets. We export peanut oil as well as shelled peanuts. Animal foods included live pigs, cattles and poultry, frozen pork, rabbits, poultry, eggs and vegetables, fruits and canned foods. The amount of export and import of grains, oils, meats etc. was quite low as compared with the production. But grains, especially wheat still need to be imported. Soybean is originated in China. It is very popular traditional food that people like. In the past, we export soybean. Annual export was about over one milllion tons in 1950s. In 1960s-1970s, annual export dropped to 400-600 thousand tons, and since 1976, export amount dropped sharply. Import of soybean, its statistics began from 1973, was greater than export. No figures for imported soybean in 1983 and 1984. But, we export 840 thousand tons of soybean in 1984. This may show the increase yield in recent years.

IV. PRICE, INCOME AND EXPENDITURE

1. Price: Because government monopolize the main industrial and agricultural products, the prices are regulated by government so the prices are stable. As the development of industrial production, and the changes of production costs, prices of some industrial products has been lowered and some agriculltural products increased, such as cotton goods, meat, eggs, tobacco, wine etc. Owing to the increases of price of household necessities, government pays to every urbanite certain food

subsidy to compensate the increased expenses. For peasants, government also increase the purchase prices of agricultural products. From Table 9 the overall purchase price index of agricultural products increased three times in 30 years, but the overall retail price index of industrial products in rural area didn't increase much. By this, not only promoted the agricultural production, but also improved the living standard of rural inhabitants. Though the purchase prices of agricultural products increased, the retail price of grain and oil and other basic necessities didn't increase much.

2. Income and Expenditure of Urban and Rural Inhabitants:

Table 10 presents the data of household income and expenditure survey conducted by the State Statistic Bureau. It shows that in 1950s, peasants' income was very low. Nearly all the income was used for living expenses. Since 1978, their income increased rapidly. Annual income of 1984 per capita was 5 times the income of 1957. About 85% of income were used for living expenditure before 1980, in 1984 it was 77%. Among the living expenses, that used for foods was about 60% since 1980, little less than before. Foods of peasants were mainly produced themselves, not much foods bought from market. However, pay for food purchase as percent of cost of food consumed (Table 10) was increased. This reflects their livings improved gradually.

The annual income of urban inhabitants in 1984 was also about 2.6 times more of 1957. For many years, money used for living expenses were amount 88% of their income. In 1984, it dropped to 84.6%. Living expenses used for foods purchase was 58-59%. Money used for grain dropped one-half as compared with 1950s, but used

for non-staple foods increased. This doesn't mean much changes of dietary pattern of urban inhabitants. Actually, the prices of grain, oil and sugar didn't increase much, but that of animal foods, vegetables, fruits etc. much increased.

V. FOOD CONSUMPTION

1. Household Livelihood Survey Data: State Statistic Bureau carries out urban and rural household livelihood surveys every year. Results regarding food consumption is listed in Table 11. It can be seen that the grain (unprocessed) consumption per capita per year were consistantly little more than 250 kg. Grain retained from rural inhabitants was much higher than this amount since 1978 (table 7). Perhaps, 250 kg unprocessedd grain may fulfill the need. For urban inhabitants, grain consumption was maintained at 140-145 kg since 1980. This amount was also below the average quota for urban people. Therefore, the staple foods supply for people may be more than needed. In Table 11 the vegetable consumption of both rural and urhan people are nearly the same, and for many years there didn't change much. This may be habitual amount consumed by Chinese.

2. Nationwide Nutrition Survey Data: Since the founding of new China, two nationwide nutrition surveys has been conducted. The first was in 1959. This was the first year of successive three-year natural calamity. In some district there were malnutrition, especially in the rural. The average caloric intake per capita per day was 2,060 kCal, protain intake 57 gm. Calorie from animal foods not over 8% total calorie in urban, and no animal foods in rural area during the survey. After 23 years, the

second nutrition survey was conducted in 1982 cover 27 provinces. Total number of people surveyed were about 240 thousands. The results are listed in Tables 12 and 13. In this study, the intake of foods was the actual amount by weighing and inquiry. Thus, the figures should be lower than that of livelihood survey, they used questionnaire method.

Table 13 shows the nutrients intake of both urban and rural inhabitants. We suppose the energy intake is adequate (2,485 kCal, the average of whole country). Protein and calcium intake are in the low level, riboflavin is insufficient. National average of calorie from animal foods was only 8%, for urban was 12.4%, for rural was 4.2%. Average of animal protein was 11.4%. For urban was 17%, rural was 6%. Average protein calorie was 10.8%, both urban and rural nearly the same. Average fat calorie was 18.4%, urban was 25%, rural 14%. Dietary fat from animal were: urban 46%, rural 33%.

VI. NUTRITION STATUS

1. Anthropometry: The first large scale anthropometry was carried out in 1975. Urban and suburban areas of three provinces from North, Central and South each was selected. About 270 thousand subjects from new born to 17 years of age were measured. Numbers of male and female were nearly the same. Both male and female in each age group were about 2,000 subjects. Measurements included weight, height, sitting height, head and chest circumferences. The results are illustrated in Figures 1,2,3 and 4. From the curves, it can be seen that both urban and rural boys and girls grew well, but the rural children were lower than the urban. This may due to the dietaries and nutrition difference.

Table 14 shows the weight and height of new born babies and one-year old compared with the data from foreign countries. The Chinese babies were at the high value among the Asian countries, but lower than that of European countries. It was known that the birth weight of European babies was the highest in the world. Whether the difference between them and ours are due to nutrition, ethnological or environmental reasons is unknown. In China, the body built of Southern people is smaller than the North.

In 1979, another large scale study of students from primary schools to colleges of 16 provinces was conducted. Their ages were from 7 to 25, total number were about 250 thousands. Compared with 1975 data, both urban and rural students showed better growth. Table 15 gives the measurements of body weight and height of urban male students only, for the sake of brevity. Though the expression of the two results are different, but still can be seen that since puberty, the lowest average value of certain province is nearly the same of the average of 9 provinces in 1975. Therefore, the average of 16 provinces should be higher than the average of 9 provinces of 1975.

In 1985, another anthropometry study was done from new born to 17 years of age children (the second anthropometry study). Data is still in processing. Based the results of Beijing, there are not only an increase than in 1979, but also the difference between urban and rural children became smaller.

2. Nutritional Deficiency: For a long time, the endemic goiter was prevalent in China. In severe affected areas, there

were also cretinism. Since establish of new China, government has popularized the iodized salt. At present, the incidence was much lowered, and the big tumor was rarely seen.

Rickets is also a common deficiency disease among children in China, mostly occurred in North China. Though the calcium intake was low in China, but there is not too much difference throught out in China. Obviously, the etiology of ricket in China is lack of vitamin D. As the living standard of people improved and knowledge of scientific feeding of infants popularized, the incidence was decreasing. In the 1982 nutrition survey, 1,700 of 2-3 years old children were examined, incidence was 7.9%, examination of 4,900 4-6 years old children, incidence was only 1.4 %.

It was happened in 1959 survey, there was prevalence of pellagra in South Xin-jiang Uygur Autonomous Region, but was not recognized before. It usually occurred in the Spring, the morbidity was as high as 40%. Since then, autonomous government adopted many measures to prevent and treat the disease, such as vitamin pills, add soda during cooking maize, increase production of legumes and vegetables, and also introduce hybrid maize containing more lysin and tryptophan etc. And also due to the increase of agricultural production, the morbidity of this disease decreased to 0.9% in 1980. In the 1982 survey, among the examined subjects, those diagnosed as nicotinic acid deficiency (by symptoms and urinary excretion) was 0.3 %.

In 1970s, the Chinese nutrition researchers identified the long existed endemic disease --Keshan disease, one kind of cardiomyopathy, was mainly due to selenium deficiency. This

disease was prevalent in over ten provinces. It has proved in those affected areas, selenium contents in soil, foods as well as in the hair and blood of inhabitants and patients were low. Oral administration of selenium preparation showed excellent preventive effect, thus this disease was controlled. There are another endemic disease -- Kaschin-Beck disease, one kind of bone deformity, now was supposed also to be selenium deficiency, because the disease was prevalent in those selenium deficiency areas. The problem is under investigation.

Other nutritional deficiencies observed in 1982 survey, according to symptoms and signs includes biochemical test, thiamin deficiency diagnosed was 1.1%, riboflavin deficiency 5 %, vitamin A deficiency 0.9%. From diet intake, except riboflavin was only 60% of the Chinese Recommended Dietary Allowance, other nutrients were met or over the RDA. In South China, the rice eating regions, peasants usually process rice with stone mills, more nutrients lost. It was reported in 1970s the occurrence of infantile beriberi in rural areas. The cause was the pregnant and lactating mothers habitually eat highly polished rice. The vitamin A intake in the diet met the RDA, because Chinese consume more vegetables. Carotene was about 90% of intake vitamin A. No severe eye lesions were reported.

VII. POLICIES TO ENSURE ABUNDANT FOODS SUPPLY

1. Chinese government stress agriculture production, put its development in the first place among national economic development. Government invested in construction on farmland, irrigation and water conservatories, farm chemicals and fertilizers, farming

technique etc. to increase the yields. Raise the purchase price of farm products and innovate upon rural economic structure to arouse the enthusiasm of peasants in agricultural production. Since 1978 implementating joint household contract system, the increase of grain production was obvious. From 1978 to 1984, grain production increase 100 million tons in six years. The increase of grain from 1965 to 1978 was 110 million tons in 13 years. From 1952 to 1965, in these 13 years, the increase was only 30 million tons. This is the achievement of agriculture policies.

2. Grain is the basic item of living. To ensure its supply to everyone, government control purchases and sales of grain and oil and other daily necessities. Rural inhabitants retain their basic amount of grain, urban inhabitants have their quota of cereals and oil. Price of those essential foods are controlled. Therefore, even the low income person can get the basic amount of foods.

3. Government implement planned economy. There are production targets in each five-year national economic development plan. Agricultural production is the first. In the 7th five-year plan (1986-1990), some new food items, milk and eggs, were included in addition to meat and aquatics which had been included in the past five-year plans. As premier Zhao Zi-yang indicated at the People's Congress this year: relative to our population, the farm land, grassland are less. Within a longer period, the dietary pattern can't be improved quickly, but only gradual increase of animal food consumption, such as meat, poultry and eggs etc. Targets at 1990 of grain is 425-450 million tons, oilseeds 18.25 millions, meat 22.75 million tons, milk 6.25 million tons, eggs

8.75 million tons and aquatic products 9 million tons. All have significant increases.

4. Family Planning: The decrease in China's population growth rate has shown definite results. In 1985, the average grain consumption and average national income was 365 kg and 656 yuan * respectively, a sharp rise from 293 kg and 235 yuan in 1970.

If the population had maintained the average yearly increase rate of 21 per thousand after 1973, by 1985 the total population would have reached 1.13291 billion. In that case, the average grain consumption and national income of that year would have been 8.23 per cent lower, or 334.6 kg of grain and 602 yuan respectively. The decrease in population growth rate has helped improve people's quality of life.

VIII. POINTS FOR FUTURE CONSIDERATION

As stated above, we have achieved great successes in agriculture development, but because of the large population, the average amount of food possessed each person is at low level. In general, people have enough to eat, but in certain rural areas, inhabitants are still in difficulties. The government is now trying to help those areas to eradicate the poverty.

The problems of nutrition in China, at present, is low animal foods consumption, which leads to low and poor quality of dietary protein and deficiency of riboflavin and calcium. And also, the low availability of vitamin A and many essential trace elements. This situation can be changed as animal foods consumption increases gradually.

*Yuan, chinese money unit.

It was shown in 1982 nutrition survey, there is significant difference between urban and rural inhabitants in dietary pattern and growth of children. The growth showed the nutrition inadequacy of rural children. However, there are school, and preschool children in cities over weight. Number of over weight adults are also increasing in cities. An abundant supply of tasteful foods as sweets, oily and animal foods, people tend to over eat. The nutrition in China is in dilemma. The one aspect is to increase the income of rural inhabitants, then, they can buy more expensive good quality food products to improve their nutrition status. Another aspect is to let the urban inhabitants be aware of over-eating as food supply is abundant. In achieve this, it is necessary to popularize the nutrition knowledge to the mass, that is the prime goal in our future.

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Table 1

Yearly Yield of Grain and Oil Crops
(unit: 10 thousands tons)

Year	1952	1957	1962	1965	1978
Total yield of grain	16392	19505	16000	19453	30477
among which:					
Rice	6843	8678	6299	8772	13693
Wheat	1813	2364	1667	2522	5384
Maize	1685	2144	-	2366	5595
Soybean	952	1005	651	614	757
Potatoes	1633	2192	2345	1986	3174
Total yield of oil crops	419.3	419.6	200.3	362.5	521.8
among which:					
Peanut	231.6	257.1	110.0	192.8	237.7
Rapeseed	93.2	88.8	48.8	108.9	186.6
Sesame	48.1	31.2	25.5	25.6	32.2
Sugar Cane	711.6	1039.2	344.3	1339.1	2111.6
Beet	47.9	150.1	33.9	198.4	270.2
	1980	1981	1982	1983	1984
	32056	32502	35450	38728	40731
	13991	14396	16160	16887	17826
	5521	5964	6847	8139	8782
	6260	5921	6056	6821	7341
	794	933	903	976	970
	2873	2597	2705	2925	2848
	769.1	1020.5	1181.7	1055.0	1191.0
	360.0	382.6	391.6	395.1	481.5
	238.4	406.5	565.6	428.7	420.5
	25.9	51.0	34.2	34.9	47.6
	2280.7	2966.8	3088.7	3114.1	3951.9
	630.5	636.0	671.2	918.2	928.4

Table 2

Yearly Increase of Grain and Oil Crop Production Per Unit Area
(Jin/Mu*), calculated according to sown area.

Year	1952	1957	1962	1965	1978	1980	1981	1982	1983	1984
Grain Crop Yield	176	195	175	217	337	365	377	417	453	481
among which:										
Rice	321	359	312	392	530	551	576	652	679	716
Wheat	98	114	92	136	246	252	281	327	374	396
Maize	179	191	-	201	374	410	406	435	483	528
Soybean	109	105	91	95	141	146	155	143	172	177
Potatoes	251	279	257	237	359	377	360	385	415	422
Oil Crop Yield										
among which:										
Peaunt	171	135	113	139	179	205	206	216	239	265
Rapeseed	67	51	48	80	96	112	143	183	156	164
Sesame	61	44	47	51	67	44	83	47	59	74

* 1 Jin= 0.5 kg. 1 Mu=1/15 hectare

Table 3

Increase Rate of Grain Production, Population Growth and
Average Amount of Grain Owned per Capita (level of 1952 as 100)

Year	1952	1957	1962
Increase of Grain Production	100	119	97.7
Increase of Population	100	112	117
Average Amount Owned per Capita (Jin)	576	612	481
Increase of Average Amount Owned per Capita	100	105	83

	1965	1978	1980	1981	1982	1983	1984
	118.6	185.9	195.5	199	216	235	248
	126	167	171.7	174	176	178	180
	544	637	649.5	654	703	759	791
	94	110	112.7	113	122	132	137

Table 4. Non-staple Foodstuffs Production

(ten thousands tons)

Year	1978	1979	1980	1981	1982	1983	1984
Fruits (apple, banana, grape, orange, pear)	657.0	701.5	679.3	780.1	771.3	948.7	984.5
Honey					13.6	14.3	
Meat (pork, mutton, beef)	856.3	1062.4	1205.4	1260.9	1350.8	1402.1	1540.6
Eggs (hen's, duck's)					280.8	332.3	
Milk (cow's, goat's)					198.9	221.9	259.6
Aquatic Products:							
Seafoods (include algae 6-7%)	360	319	326	323	360	362	394
Fresh water fish, shrimp	106	112	124	138	156	184	225

Table 5. Average Amount of Non-staple Foodstuffs Owned

Per Capita Per Year (Jin*)

Year	1952	1957	1962	1965	1978	1980	1981	1982	1983	1984
Meat	11.9	12.5	5.8	15.4	17.9	24.6	25.4	26.8	27.5	29.9
Eggs								5.5	6.5	
Milk								3.9	4.3	5.0
Aquatic products	5.9	9.8	6.8	8.3	9.7	9.2	9.3	10.2	10.7	12.0
Fruits	8.5	10.0	8.0	8.9	13.6	13.7	15.6	15.2	18.5	19.0
calculated value										

* 1 Jin=0.5 kg

Table 6

Birth Rate and Overall Population Growth Rate

(per thousand)

Year	• Whole Country		City		County	
	Birth Rate	Growth Rate	Birth Rate	Growth Rate	Birth Rate	Growth Rate
1971	30.65	23.33	21.30	15.95	31.86	24.29
1972	29.77	22.16	19.30	14.01	31.19	23.26
1973	27.93	20.89	17.35	12.39	29.36	22.03
1974	24.82	17.48	14.50	9.26	26.23	18.60
1975	23.01	15.69	14.71	9.32	24.17	16.58
1976	19.91	12.66	13.12	6.52	20.85	13.50
1977	18.93	12.06	13.38	7.87	19.70	12.64
1978	18.25	12.00	13.56	8.44	18.91	12.49
1979	17.82	11.61	13.67	8.60	18.43	12.04
1980	18.21	11.87	14.17	8.69	18.82	12.35
1981	20.91	14.55	16.45	11.31	21.53	15.02
1982	21.09	14.49	18.24	12.96	21.97	14.97
1983	18.82	11.54	15.99	10.07	19.89	12.20
1984	17.50	10.81	15.00	9.14	17.90	11.17
1985	17.80	11.23	14.02	8.06	19.17	12.51

✓ Table 7 Average Amount of Supply of Grain and Edible Vegetable Oil to Urban and Rural Inhabitants Per Capita Per Year (Jin*/capita)

	Average Amount Retained by Rural Population **		Average Amount Supplied to Urban Population ***			
	Grain (unprocessed)	Edible Oil	Grain	Edible Oil	Pork	Eggs
1952	539.5		814.2	21.3	47.5	3.7
1957	589.3	1.32	748.5	20.7	35.4	5.2
1962	482.7	1.10	565.2	6.7	9.0	2.2
1965	541.0	1.79	564.5	11.3	42.5	5.1
1978	663.1	2.30	551.8	10.1	54.3	5.3
1980	665.2	1.99	574.4	13.1	73.6	8.7
1981	691.5	2.16	605.5	17.1	70.4	8.2
1982	734.9	2.99	636.3	19.9	71.1	5.5
1983	770.7	3.54	588.1	21.5	66.1	9.3
1984	777.2	4.43	523.2	19.1	51.1	9.4

Calculated according to population of that year, * 1 Jin=0.5 kg

** Crop yield minus government purchase

*** Base on total volume of retail sales

Table 9 Overall Price Index of commodity (level of 1950 as 100)

	Overall retail price index	Overall price index of living expenses of staffs and workers	Overall government purchase price index of agricultural and side-line products	Overall retail price index of industrial products sales in rural areas
1950	100	100	100	100
1957	121.3	126.6	146.2	112.1
1965	134.6	139.0	187.9	118.4
1970	131.5	137.8	195.1	111.9
1978	135.9	144.7	217.4	109.8
1980	146.9	158.5	284.4	110.8
1981	150.4	162.5	301.2	111.9
1982	153.3	165.8	307.8	113.7
1983	155.6	169.1	321.3	114.8
1984	160.0	173.7	334.2	118.4

Table 8.

Food Export and Import Managed by Foreign Trade Departments

(ten thousands tons)

Export							
	Grain			Edible oil		Eggs	Live pigs (10,000 heads)
	total	rice	soybean	total	peaunt oil		
1952	152.88	33.48	86.47		4.30	2.01	77.90
1957	209.26	52.94	114.11		1.93	3.03	50.74
1962	103.9	45.79	25.92		0.42	2.08	81.79
1965	241.65	98.49	65.32		1.91	3.76	171.86
1978	187.72	143.52	12.95		1.12	4.06	246.28
1980	161.83	111.64	11.35		1.99	5.28	246.82
1981	126.08	58.33	13.60		5.64	5.51	257.42
1982	125.12	45.71	12.69	10.22*	5.47	5.43	264.96
1983	196.31	56.59	33.39	15.56*	7.08	5.41	262.06
1984	356.57	116.0*	84*	13.08*	3.82	5.27	249.24

Import					
	Grain			Edible Vegetable oil	
	total	wheat	soybean		
1952	0.01				
1957	16.68	4.99			
1962	492.30	353.56			
1965	640.52	607.27			
1978	883.25	766.73	19.03		
1980	1342.93	1097.17	53.39		
1981	1481.22	1307.01	56.47		
1982	1611.69	1353.43	33.00		
1983	1343.51	1101.91	0.02*	3.503*	
1984	1044.54	1000.0		1.436*	

* Data from customs statistics

Table 10 Average Income of Urban and Rural Households per Capita
per Annum (yuan*)

	1957	1964	1978	1979	1980	1981	1982	1983	1984	1985

Rural households		141.5								
Income (yuan)	73		134	160	191	223	270	310	355	397.0
Cost of living expenses (yuan)	70.8	97.7	116	134	162	191	220	248	274	317.4
Cost of foods consumed, as % of living expenses	65.8	68.5	67.7	63.9	61.7	59.6	60.5	59.3	59.0	52.7
Pay for food purchase, as % of cost of food consumed			24.1	25.8	31.1	36.6	38.0	40.2	39.7	41.7

Urban households										
Income (yuan)	253	243				500	535	573	660	711.7
Cost of living expenses (yuan)	222	220.7				457	471	506	559	710.2
Pay for foods purchase, as % of living expenses	58.4	59.2				56.7	58.6	59.2	58.0	61.5
Pay for staple foods, as % of living expenses	22.8	22.4				12.9	12.9	12.2	11.3	11.0
Pay for non-staple foods, as % of living expenses	26.8	28.2				30.7	32.0	32.8	32.3	30.9
Pay for other foods, as % of living expenses	4.9	5.1				7.9	8.4	8.9	8.9	8.6

* Yuan, Chinese monetary unit.

Income of rural households include the due share of farm products which is converted into money. Income of urban households include wages, bonus and subsidiaris, but deduct donations to relatives, institutions, that can't be used by family members.

Table 11 Livelihood Survey of Rural and Urban Households by the
State Statistical Bureau

Average food consumption of
rural households per capita
per annum (Jin*)

	1978	1980	1981	1982	1983	1984
Grain**	496	514	512	520	520	533
Edible oil***	3.91	4.97	6.25	6.86	7.05	7.93
Meat	11.51	15.19	17.41	18.10	19.93	21.24
Poultry	0.50	1.31	1.41	1.56	1.63	1.87
Eggs	1.59	2.39	2.50	2.85	3.14	3.68
Fish and Shrimp	1.68	2.19	2.56	2.63	3.17	3.47
Vegetable	283	254	248	264	262	280
Sugar	1.46	2.12	2.19	2.37	2.51	2.60
Wine	2.44	3.78	4.64	5.46	6.39	6.95

* 1 Jin=0.5 kg.

** In rural area, weight of grain refer to unprocessed grain.

*** Edible vegetable oil.

Average food consumption of urban
households per capita per
annum (Jin*)

	1957	1964	1982	1983	1984
	334.3	311.5	289.1	288.9	284.1
	8.40	4.44	11.50	13.08	14.16
	15.8	16.4	37.3	39.7	39.7
	2.4	0.96	4.51	5.16	5.76
	6.58	4.08	11.75	13.80	15.24
	15.24	9.36	15.33	16.20	15.60
	218.2	260.0	318.1	330.0	298.1
	2.88	3.24	5.59	5.52	5.98
	5.03	1.99	8.95	10.68	13.56

Table 12 Average Food Intakes of Rural and Urban Inhabitants,
Results of 1982 Nation-wide Nutrition Survey

	Cereals	Tubers	Legumes and its products	Vegetables	Pickles
Rural Inhabitants					
gm/capita/day	554	230	14	338	14
Jin*/capita/year	404	168	10	246	10
Urban Inhabitants					
gm/capita/day	456	62	15	353	12
Jin*/capita/year	332	46	10	258	8

Fruits	Milk	Eggs	Meat (include poultry)	Fish and Shrimps	Animal Fats	Vegetable oils	Salt
24	7	4	23	6	6	9	17
18	4	2	16	4	4	6	12
69	10	15	63	21	5	21	11
50	8	10	46	16	4	16	8

* 1 Jin = 0.5 kg

Table 13 Average Nutrients Intake of Rural and Urban Inhabitants
per Capita per Day, Results of 1982 Nation-wide Nutrition
Survey

	Energy (Kcal)	Protein (gm)	Fat (gm)	Calcium (mg)	Iron (mg)	Retinol (ug equivalent)	Thiamin (mg)
Rural inhabitants	2615	69	41	557	51	784	2.5
Urban inhabitants	2446	67	68	561	34	538	2.2

Riboflavin (mg)	Niacin (mg)	Ascorbic Acid (mg)
0.8	18.3	144
0.8	17.9	109

Table 14 Body Weight and Height at Birth and One Year of Age of Chinese, comparison with those of Asian and European countries

	Birth Weight (kg)		Birth Height (cm)	
	male	female	male	female
Chinese Children, Urban*	3.27±0.36	3.17±0.36	50.6± 1.87	50.0±1.80
Suburban*	3.22±0.38	3.15±0.37	50.2± 1.71	49.7±2.20
European Countries**	3.39-3.57	3.23-3.45	50 -51.8	51.0
Asian Countries**	3.07-3.21	2.94-3.10	-	-

Weight at 1 Year (kg)		Height at 1 Year (cm)	
male	female	male	female
9.66± 1.08	9.04± 1.02	75.6± 3.06	74.1± 2.95
8.97± 1.15	8.43± 0.98	73.7± 3.14	72.3± 3.17
9.7 -10.63	9.0 -10.0	73.1-77.2	70.0-75.6
8.0 -10.5	7.5 -10.0	69.3-75.0	66.0-74.0

* values are $\bar{X} \pm SD$
 ** values are lowest and highest mean among countries, From Phyllis B. Eveleth and J.M. Tanner: Worldwide Variation in Human Growth, appendix tables. Cambridge University Press, Cambridge, 1976

Table 15. Comparison of Average Weight and Height, Measured in 1975 and 1979, of Male Students in Urban Areas of 7-18 Years of Age

Age	Body Weight (kg)			Body Height (cm)		
	1975	1979		1975	1979	
	$\bar{X} \pm SD$	lowest average	highest average	$\bar{X} \pm SD$	lowest average	highest average
7-	21.01±2.44	20.1	22.8	120.6±5.22	119.7	123.8
8-	23.08±2.81	21.7	24.7	125.3±5.48	122.2	128.4
9-	25.33±2.98	23.7	27.5	130.6±5.60	127.1	133.9
10-	27.15±3.54	26.3	30.3	134.4±5.86	132.2	138.8
11-	30.13±3.96	28.9	32.9	139.2±6.08	137.8	143.3
12-	33.05±4.52	32.2	35.9	144.2±6.64	142.0	147.9
13-	36.90±5.89	36.5	42.3	149.8±7.98	148.0	155.9
14-	42.03±6.55	42.3	47.7	156.5±8.00	156.0	162.2
15-	46.91±6.46	46.7	53.1	162.0±7.42	160.9	166.8
16-	50.90±5.94	50.1	55.0	165.6±6.30	163.5	169.1
17-18	53.11±5.76	53.1	57.4	167.7±6.10	166.2	170.1

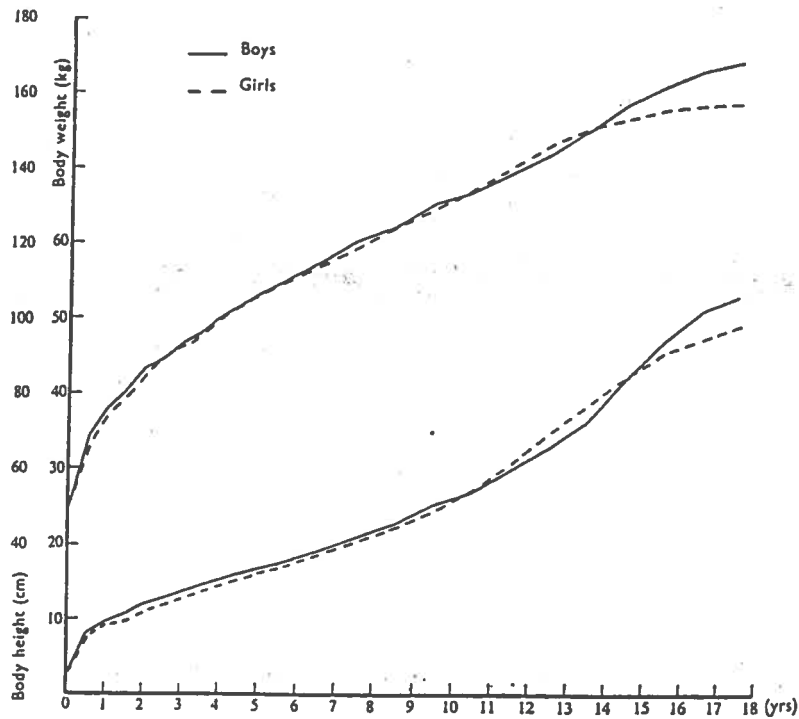


Fig. 1. Body weight and height of urban children from neonates to 17 years of age in 9 cities, 1975

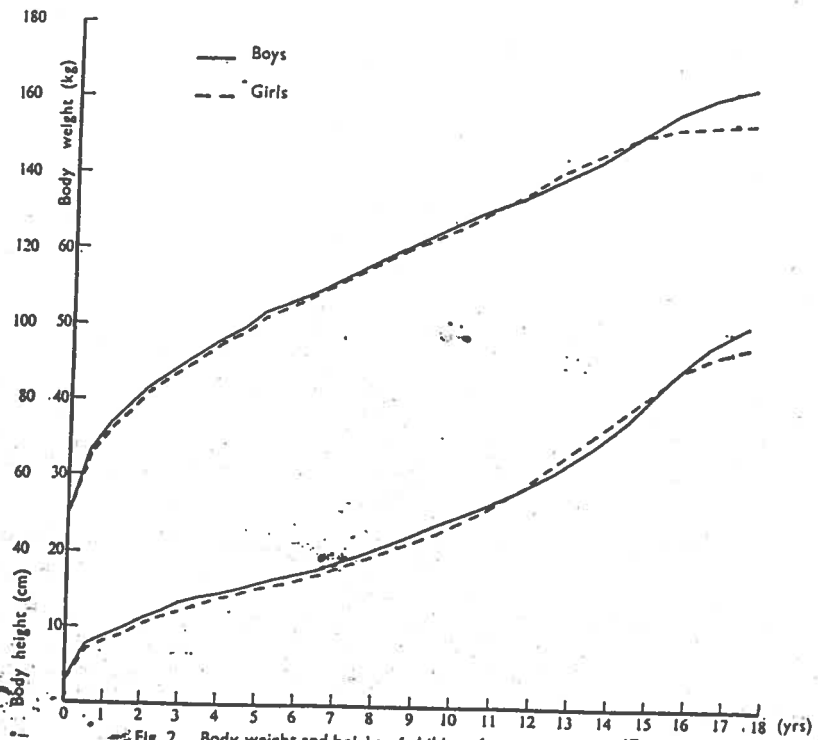


Fig. 2. Body weight and height of children from neonates to 17 years of age in suburban rural areas of 9 cities, 1975

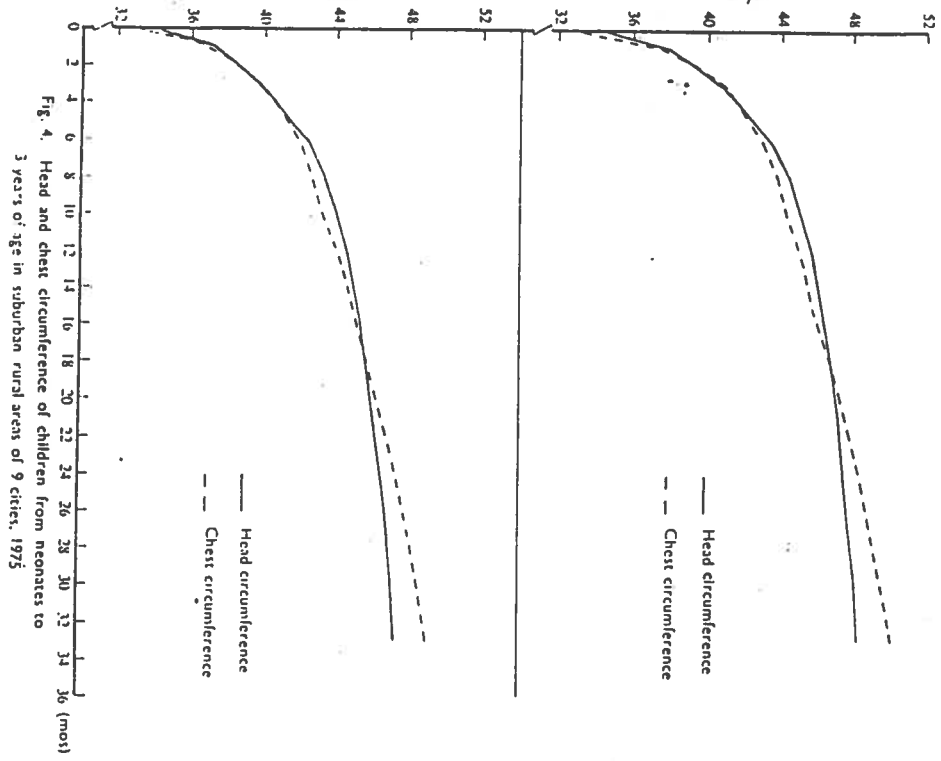


Fig. 4. Head and chest circumference of children from neonates to 3 years of age in suburban rural areas of 9 cities, 1975

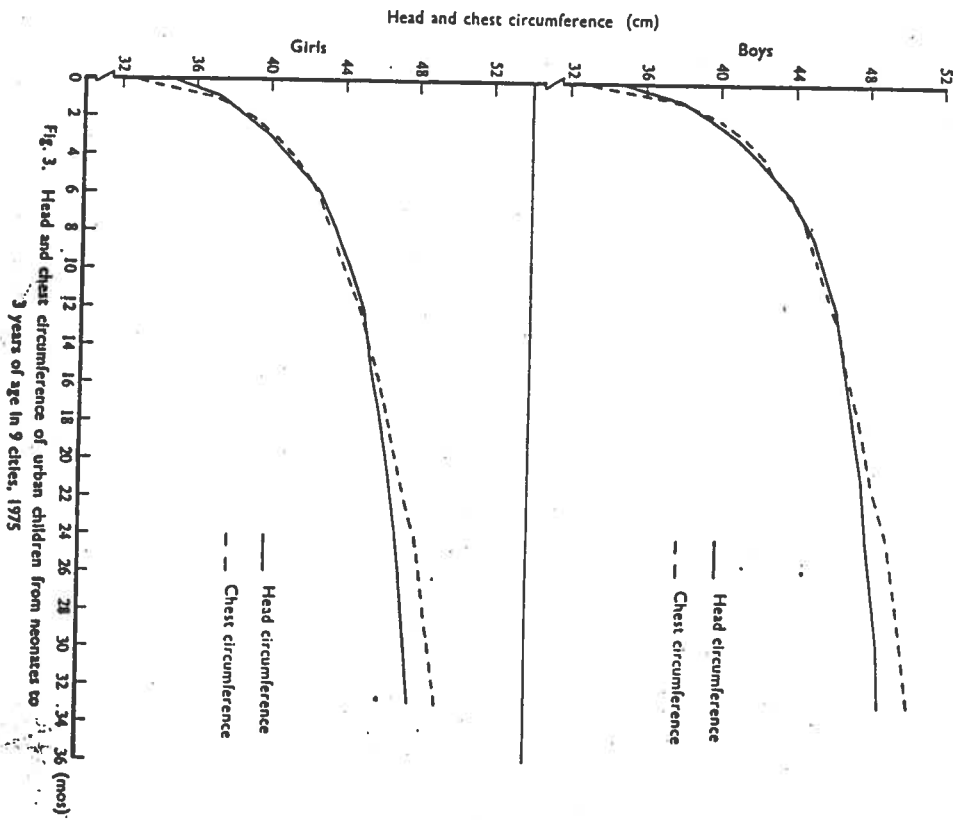


Fig. 3. Head and chest circumference of urban children from neonates to 3 years of age in 9 cities, 1975

