

**R**eal economic growth rate for 2003 is projected to be 2.6 percent and is expected to rise up to 5 percent in 2004. Higher oil prices caused by the U.S. invasion into Iraq and international anxiety about North Korean nuclear weapons weakened international incentives for investments, which lowered estimates of the growth rate in 2003. Exports did not increase sufficiently, and the trade surplus, which has been maintained since the East Asian financial crisis in 1998, finally became a deficit in the first three months of 2003. Exports are also anticipated to remain at low levels even in 2004. The CPI was revised to 3.8 percent in 2003, but is expected to stabilize at 3.3 percent in 2004. Foreign exchange reserves still recorded more than US\$120 billion as of April 2003. The exchange rate is forecast to stabilize below 1,200 Won per U.S. Dollars as long as there are no impacts from North Korean variables in 2003 and 2004.

Food prices surged by 3.1 percent in 2002. The main reason for rising food prices was the increased demand for beef and other livestock products. Food price inflation is expected to record negative numbers in 2003 and 2004. It will fall by 3.6 percent and 2.0 percent in 2003 and 2004, respectively. In addition to a declining rice price, beef and pork prices are also projected to go down as livestock imports expand in the near future. Intermittent classical swine fever (CSF) outbreaks prevented pork exports to Japan and thus pork production may decline in 2003. Increased imports of oranges lowered the price of mandarin oranges and other fruits in 2003 season. The trend of decreasing per-capita rice consumption is expected to continue in 2003 and 2004. Meat and fruit consumption has continued to substitute for consumption of rice and other grains. As income increases, most households tend to expand their expenditures for food away from home and for food safety or functional food.

### Macroeconomic Situation and Outlook

Internal and external uncertainties delayed recovery of the world economy and caused a downturn in Korean economic growth. Although exports maintained their continuous increasing trend, the deterioration of consumption and investment environments prevented national production from increasing substantially. There are two opposite outlooks on the Korean economy—positive and negative—according to both the situation of the world economy and North Korean variables. The OECD outlook anticipates a GDP growth rate of 5.2 percent and 6 percent in 2003 and 2004, respectively.

Targets of the government's economic policies include the stabilization of financial markets. In order to boost employment through activated investment, the government emphasized a deregulation policy rather than financial and monetary policies. The interest rate experienced a substantial but temporary change in the beginning of 2003, and soon resumed its downward trend. It is expected to remain at a 6.8 percent annual rate in 2003 and to stabilize at around 6.0 percent

in 2004. The general price index is expected to increase by 3.75 percent in 2003. Terms of trade, expressed as a ratio of export and import prices, dropped from 100 in 2000 to 88.3 in 2003. Consequently, there were three consecutive months of trade deficits, and foreign reserves declined slightly to US\$123.8 billion in March 2003. The unemployment rate was stable at 3.6 percent, and the agricultural sector accounted for 8.5 percent of national employment in 2003. At the outset of the war with Iraq, the exchange rate increased more than 7 percent. It is expected to stabilize below 1,200 Won per U.S. Dollars in 2003 as well as in 2004, presuming that some issues on North Korean nuclear weapons are peacefully resolved.

### Food Prices and Consumption

The food price index is forecast to fall from 107.5 in 2002 to 103.6 in 2003 because of the low prices of most fruits, vegetables, and meats. They are also projected to fall an additional 2.0 percent in 2004. The outbreak of CSF in 2002 prevented pork exports to Japan and caused domestic pork market prices to drop substantially in 2003. However, pork prices are expected to rebound by 2.8 percent by the end of 2004 because of continued increases in demand. A steep fall in the price of mandarins produced in the 2002-2003 season also contributed to the downward trend in food prices. An unexpected increase in mandarin production as well as expanded orange imports caused the price decline in 2003. It is expected to fall further in 2004.

The price of rice is expected to fall because of reduced per capita consumption and the ever-increasing import of market access (MMA) in 2003 and in 2004. The Korea Rural Economic Institute (KREI) forecasted that rice prices would fall by 12.2 percent during the period from 2002 to 2005. Long-term projections for the price of rice depend on the results of negotiations to implement Korean rice tariffs, which are supposed to be both initiated and completed in 2004. Beef prices are also expected to fall in the near future. As family income increases, consumer tastes tend to move from cheap low-quality beef to expensive high-quality beef. As a result, imports of high-quality chilled beef increase while those of frozen beef decrease. This erodes the market for high-quality domestic beef, Hanwoo, and lowers its price. KREI has estimated that the price of beef will fall between 9 and 17 percent in 2005 compared to 2002 prices.

### Food Processing and Marketing

Although the food and beverage industry has been a slowly growing sector, during the period from 1998 to 2001, its production increased by 19.4 percent, which is not significantly different from the 21.1 percent growth rate of total manufacturing production. As a result, food industry has played an important role in the national economy. The food and beverage industry value-added accounted for 9.4 percent of total manufacturing value-added in 2001, which is only 0.1 percent

lower than its 1998 value. The GDP share of the food and beverage industry also remained constant at 2.9 percent during the same period. The employment share of the food and beverage industry, however, fell from 7.3 percent to 6.8 percent of the total manufacturing sector, but its share of total employment was stable at 0.8 percent.

The scale of the food industry tends to be smaller as a result of industry restructuring after the Asian financial crisis. The number of employees per firm has decreased from 34.2 people in 1998 to 25.9 people in 2001. Per firm, tangible assets except land also decreased from US\$1.65 million in 1998 to US\$1.38 million in 2001. But labor productivity in the food and beverage industry is higher on average than in the manufacturing industry. Value added per worker in the food and beverage industry has increased from US\$63,800 in 1998 to US\$71,600 in 2001, while that of the average manufacturing firm increased from US\$49,900 to US\$52,300. By mixing both traditional and cutting-edge bioindustry technologies, the food and beverage industry is expected to grow faster than other types of manufacturing even in 2004.

The demand for processed food has grown in absolute terms as well as in terms of the relative share of family expenditure. Average monthly expenditures on processed food increased from US\$65 in 2000 to US\$88.9 in 2002. The share of total food expenditure used to purchase processed food increased from 35.5 percent to 38.2 percent during the same period. According to the projection of one private food company economic institute, production in the food and beverage industry will increase by 30 percent and exceed US\$34 billion in 2005. Demand for processed food will grow faster than demand for other manufactured products as well as agriculture in the near future.

### Agricultural Production and Trade

In 2002, the agriculture and fisheries sector employed 2.12 million people. In 2003, the number employed is projected to decline by 5.7 percent to 2.0 million, and fall by an additional 4 percent to 1.92 million in 2004. During the same period, cultivated land area is anticipated to decrease from 1,863,000 hectares to 1,848,000 and 1,834,000 hectares, respectively. Agricultural workers and cultivated land are expected to decrease even further in 2005. With these shrinking input uses, agricultural production of value-added expressed in constant 1995 prices is projected to be US\$18.2 billion in 2003 and slightly decrease to US\$18 billion in 2004. During that period, the cultivating sector is expected to decline by 2.0 percent to US\$14.6 billion while the livestock sector will increase by 0.7 percent to US\$3.1 billion.

Korea imported US\$6.9 billion of agricultural and livestock products in 2002. Imports of fruits and meats were responsible for a major part of the increment in total agricultural imports in 2002. Agricultural imports are forecast to increase by 1.0 percent to 7.0 billion in 2003. Stabilized foreign exchange rates combined with an increasing preference for high-value products support the increase in agricultural imports anticipated in the future. On the other hand, agricultural exports showed a downward trend. Food and agricultural

exports fell by 5.1 percent to US\$1.3 billion in 2002 and are forecast to decline further in 2003. Pork accounts for the recent reductions in agricultural exports.

Rice production was 4.92 million tons in 2002 and is projected to be between 4.9 and 5.1 million tons according to the 2003 harvest. It is also expected to decrease further to 4.7 million tons in 2005. Although rice production continues to fall, the level of ending stock of rice is projected to increase. Reduced per capita rice consumption and an increase in rice imports under the Minimum Market Access (MMA) to 200,000 tons in 2004 are the leading factors. The reduction in rice production is attributed to the rice cultivation area shrinking from 1,053,000 hectares in 2002 to 1,002,000 hectares in 2004. Rice yields are projected to remain constant during the 2003-2005 period.

Beef production dropped from 214,100 tons in 2000 to 146,700 tons in 2002. Beef production is expected to slightly increase to 151,500 tons and 157,300 tons in 2004 and 2005, respectively. As the Tariff Rate Quota (TRQ) on beef imports was removed in 2001, beef imports increased from 238,000 tons in 2000 to 292,000 tons in 2002. The United States account primarily for the increase in beef imports. It is expected that beef imports will continue to expand to more than 300,000 tons after 2004, but the self-sufficiency rate of beef is to be stable at 34 percent due to the increase in domestic production.

Pork production increased from 714,000 tons in 2000 to 785,000 tons in 2002. Despite the outbreak of foot-and-mouth disease in Korea, expanding domestic consumption promoted pork imports as well as domestic production. Production is forecast to increase further to 810,000 tons in 2003 and 819,000 tons in 2004. Imports are also expected to increase by 5.6 percent to 75,000 tons in 2003 and again by 13.3 percent to 85,000 tons in 2004.

### The Role of Demographics in the Korean Food System

#### INTRODUCTION

Korea has experienced drastic changes in food consumption patterns since the 1960s when it initiated its economic development plans. There were at least two turning points in food consumption trends: one for quantitative increases in food consumption and the other for qualitative upgrades of food consumed. In the increasing quantity period, per capita energy intake grew rapidly. On the other hand, the enhanced quality period shows changes in the structure of nutritional intake with reduced increases in energy intake.

At the outset, more and more food was consumed as income and population increased. But after the population arrived at the saturation point of food, consumption patterns shifted from quantity to food quality. Korea passed through that turning point in the latter part of the 1980s. Since then, the growth rate of per capita energy intake began to diminish while the costs of caloric intake have increased rapidly. Per capita daily calories supplied increased from 2,687 Kcal in 1985 to 2,994 Kcal in 2001, recording annual average growth rate of 0.7 percent. However, per capita expenditure for 1,000 Kcal intake—an indica-

tor of high-quality food—increased annually by 4.1 percent from \$0.63 to \$1.18 (in constant 1995 prices) during the same period. Rapid increases in expenditure per calorie illustrate the changes in nutritional intake structure. As an energy source, the share of grains fell from 66.9 percent in 1985 to 52.7 percent in 2001. During the same period, the share of meat expanded from 3.7 percent to 6.9 percent and dairy products' share increased from 2.5 percent to 4.8 percent. Energy distribution by nutrition has also changed. While the share of carbohydrates dropped remarkably from 69.8 percent to 61.5 percent between 1985 and 2001, the share of fat increased from 17.4 percent to 25.3 percent and that of protein increased from 12.9 percent to 13.2 percent.

Another aspect of changing food consumption patterns is the structural changes in household expenditure for food. While expenditures for food items to be consumed at home increased slightly, those for eating-out grew very quickly. The former increased at an annual average rate of 0.8 percent and the latter by 15.6 percent between 1985 and 2001. Also, expenditure for grains and vegetables declined while those for meats, dairy products, fruits, and processed food showed positive growth rates in the same period.

#### DEMOGRAPHIC FACTORS AND THEIR IMPACTS ON FOOD SYSTEM

The size of a population and its distribution by age group are factors that affect food consumption patterns. Income and income distribution, however, are considered as leading factors in most economic analyses owing to their quantitative features. The ratio of male to female, the number of family members, female employment, and the degree of urbanization are also important variables that may influence food consumption patterns. There are at least three major changes in Korea's sociodemographic variables. First is the aging of the population, which results from increasing life expectancy and declining birth rates. Usually, the number of people over 65 years in a population relative to total population can be used as an indicator of the aging of the society. Korea achieved "the aging society (the share of over-65-years exceeding 7.0 percent)" in 2000 and is expected to arrive at "the aged society (more than 14 percent)" in 2019 and "the super-aged society (more than 20 percent)" in 2026. As a result, the potential support ratio has fallen from 16.8 people in 1975 to 10 in 2000, and it is expected to drop to 2.8 people in 2030. It will take only 19 years to convert into "the aged society" from "the aging society" while it took 24 years for Japan, 40 years for Germany, and 71 years for the United States.

The second change in demographic variables is the declining average number of family members in a household. The reduction in family members of a household is likely due to the decline of large-family households and the increase in the number of small-family households, together with households without kids. The average number of family members has decreased from 4.5 people in 1980 to 3.1 people in 2000 as the share of more-than-six-person families decreased from 29.9 percent to 3.3 percent. The number of single family households has more than tripled from 382,000 in 1980 to 2,224,000 in 2000. Their share also increased to 15.5 percent from 4.8 percent during the same period.

The third change is an increase in the ratio of female participation

in economic activity. Although it is still low when compared to males in Korea or females in other countries, female labor participation increased from 42.8 percent in 1985 to 48.3 percent in 2000. One survey showed that female labor participation ratios in Korea were higher in cases where women possessed many years of schooling or relatively little schooling.

As the society is aging rapidly, food safety and nutrition have become more important. Various types of functional food and health food with reliable brands are able to maintain their aged customers, regardless of price levels. The demand for processed foods is expected to increase continually, especially among working female heads of household and single-person or small-family households. Such households also tend to consume more instant food as well as small package food materials. Expenditures for eating out are also expected to increase in the future. In the meantime, consumption of grains and vegetables tends to fall or increase slowly while expenditures for meats, fisheries products, and fruits increase.

#### References

- Choi J.H. and Lee K.I., "Food Consumption Analysis Using Engel Equation in Korea" *Journal of Rural Development*, Vol. 23, No.2, Korea Rural Economic Institute, 2000.
- Kim D.S., Park S.T., and Eun, K.S., *Population in Korea*, KNSO, 2001.
- Korea Rural Economic Institute, *Food Balance Sheet*, 2002.
- Korea National Statistics Office, *2001 Annual Report on the Household Income and Expenditure Survey*, 2002.
- -----, *Population Projections by Provinces: 2000-2030*, 2002.
- -----, *April of 2003 Consumer Price Trends*, 2003.
- Lee, Jung-Hwan, ed. *Agricultural Outlook 2003* (in Korean). Korea Rural Economic Institute, 2003.
- Ministry of Agriculture and Forestry, *Major Statistics on Agriculture and Forestry*, 2002.
- Ministry of Finance and Economy, *Major Economic Indicators*, April 2003.
- OECD, *Economic Outlook for the 1st Half of 2003*, 2003.

## KOREA

	Units	1999	2000	2001	2002	2003 <sup>F</sup>	2004 <sup>E</sup>
<b>FOOD CONSUMPTION PATTERNS</b>							
Per capita caloric intake	cal/day	2,968	3,010	2,994	2,983	2,997	3,011
From animal products	cal/day	442	431	469	460	474.0	488
From vegetable products	cal/day	2,526	2,529	2,524	2,524	2,523	2,523
Protein (% of calories)	%	13.2	13.1	13.2	13.2	13.3	13.4
Fat (% of calories)	%	25.0	25.5	25.3	26.6	27.1	27.6
Carbohydrates (% of calories)	%	61.8	61.4	61.5	60.2	59.6	59.0
<b>INCOME AND FOOD PRICES</b>							
Per capita income	US\$/capita	8,595	9,770	9,000	10,013	10,474	11,039
% of disposable income spent on food	%	27.7	27.5	26.5	26.3	25.7	25.2
% of disposable income spent on eating out	%	9.9	10.8	10.8	11.3	11.3	11.7
Food price index	2000=100	99.1	100.0	103.5	107.5	103.6	101.6
General price index (CPI)	2000=100	97.8	100.0	104.1	106.8	110.8	114.5
<b>POPULATION*</b>							
Total population	Million	46.6	47.0	47.3	47.6	47.9	48.5
Urban	Million	42.2	43.0	43.4	44.0	44.4	45.2
Non-urban	Million	4.4	4.0	3.9	3.6	3.5	3.3
Share of population by age groups							
0~4 years	%	7.2	6.9	6.7	6.4	6.2	5.8
5~14 years	%	14.2	14.1	14.1	13.8	13.8	13.9
15~19 years	%	8.6	8.2	7.7	7.8	7.4	6.4
20~44 years	%	44.3	44.1	44.0	43.9	43.8	42.2
45~64 years	%	18.8	19.4	20.0	20.3	20.9	22.8
65~79 years	%	5.9	6.2	6.5	6.7	7.0	7.6
80 and over	%	1.0	1.0	1.1	1.1	1.2	1.4
Median age of population	Years	31.6	31.8	32.3	32.9	33.4	34.0
Female labor force participation	%	47.6	48.6	49.2	49.7	50.4	51.2
<b>LIFE EXPECTANCY</b>							
Males	Years	71.7	72.1	73.4	74.0	74.2	74.4
Females	Years	79.2	79.5	79.9	80.4	80.8	81.2
<b>FOOD INFRASTRUCTURE</b>							
Trade capacity							
Grain imports	1,000 ton	14,596	15,455	15,276	16,036	16,376	16,695
Total food and agricultural exports	Million \$	1,411	1,277	1,377	1,307	1,290	1,294
Perishable products	Million \$	200	231	218	248	257	266
Fishery exports	Million \$	1,521	1,505	1,384	1,378	1,310	1,250
Total food and agricultural imports	Million \$	5,927	6,783	6,792	6,900	6,960	7,020
Perishable products	Million \$	461	537	478	478	512	548
Fishery imports	Million \$	1,179	1,411	1,406	1,479	1,593	1,660
Port capacity	1000 ton	345,595	359,959	375,054	390,532	405,262	420,000
Road access	km	87,543	88,775	93,174	93,912	96,728	98,000
Rail access	km	6,667	6,706	6,744	6,785	6,824	6,900
Telecommunications	1,000 lines	24,464	25,605	26,112	26,621	27,445	28,000
Power generation	Million Kwh	239,324	266,399	272,708	285,874	302,566	303,000
Percent of population with refrigerator	%	100.0	100.0	100.0	100.0	100.0	100.0
<b>ROLE OF AGRICULTURE AND TRADE IN THE ECONOMY</b>							
Agriculture share of GDP	%	5.2	5.1	4.6	4.5	4.2	4.0
Self-sufficiency in grains	%	31.4	29.4	29.7	28.5	27.7	27.5
<b>MACROECONOMIC INDICATORS</b>							
GDP growth rates	%	10.9	9.3	3.1	6.3	2.6	5.0
Interest rates1)	%	8.9	9.3	7.0	6.6	6.8	6.0
Exchange rate2)	Won/\$	1,145.4	1,259.7	1,326.1	1,200.4	1,205.0	1,220.0

Population projected by age group data for 2005

1) Rate of returns from 3-year bond

2) End-of-year rates