

KOREA: ESTIMATES OF SUPPORT TO AGRICULTURE

Contact person: Hyunchul JEONG

Email: hyunchul.jeong@oecd.org

Tel: + 33 (0)1 45 24 86 88

Fax: + 33 (0)1 44 30 61 01

DEFINITIONS AND SOURCES

Table 1. Agricultural Support Estimates / Total Transfers contains country Total Support Estimate (TSE) and derived indicators, which cover all agricultural production, i.e. all agricultural commodities produced in the country. Definitions of basic data sets refer to the specific programmes applied in the country. For the Producer Support Estimate (PSE) and Consumer Support Estimate (CSE), each policy measure is classified according to implementation criteria, which include: the *transfer basis* of support (output, input, area/animal numbers/receipts/income, and non-commodity criteria); whether support is based on *current or non-current basis*; whether *production is required or not* to receive payment. Each policy measure is also assigned several “labels” indicating additional implementation criteria. "MPS commodities", which vary across countries, are those for which the market price support is explicitly calculated in Tables 4.1 – 4.12.

Table 2. Breakdown of PSE by Commodity and Other Transfers provides a breakdown of the total PSE into four categories reflecting the flexibility given to farmers regarding which commodity to produce within the various policy measures. These categories are: Single Commodity Transfers (SCT); Group Commodity Transfers (GCT); All Commodity Transfers (ACT); and Other Transfers to Producers (OTP). All data sets in Table 2 come from Tables 1 and 3.1. – 3.12. where definitions are included.

Tables 3.1 – 3.11 Producer Single Commodity Transfers contain producer SCT by commodity, which are calculated for Korea for the following commodities : other grains (barley), rice, soybean, milk, beef and veal, pig meat, poultry meat, eggs, garlic, red pepper and Chinese cabbage(Tables 3.1-3.11) provided that the value of production of that commodity exceeds 1% of the total value of production. In addition, SCT for “other commodities” is also calculated (Table 3.12), which covers transfers *to single commodities other than MPS commodities*. All data sets in the calculation of producer SCT by commodity come from Tables 1 and 4.1-4.12 where definitions are included.

Tables 4.1 – 4.12 contain **Market Price Support (MPS)** and **Consumer Single Commodity Transfers** (consumer SCT) by commodity, calculated for the same set of commodities as **Tables 3.1 to 3.12**. Definitions are provided only for basic data sets from which all the other data sets in this table are derived.

Definitions of the indicators, criteria for classification of policy transfers included in support estimation, and methods of calculation are contained in the PSE Manual (*OECD's Producer Support Estimate and Related indicators of Agricultural Support: Concepts, Calculations, Interpretation and Use*) [<http://www.oecd.org/tad/support/psecse>].

TABLE 1: Korea: Total Support Estimate

Definitions:

I. Total value of production (at farm gate): Total agricultural production valued at farm gate prices, i.e. value (at farm gate) of all agricultural commodities produced in the country [1].

I.1. Of which share of MPS commodities (%): Share of commodities for which MPS is explicitly calculated (in Tables 4.1-4.12) in the total value of agricultural production.

II. Total value of consumption (at farm gate): Consumption of all commodities domestically produced valued at farm gate prices, and estimated by increasing the value of consumption (at farm gate) of the MPS commodities according to their share in the total value of agricultural production [$(II.1) / (I.1) \times 100$].

II.1. Of which MPS commodities: Sum of the value of consumption (at farm gate prices) of the MPS commodities as indicated in Tables 4.1-4.12.

III.1 Producer Support Estimate (PSE): Associated with total agricultural production, i.e. for all commodities domestically produced [Sum of A to G; when negative, the amounts represent an implicit or explicit tax on producers].

A. Support based on commodity outputs

A.1. Market Price Support: On quantities domestically produced (excluding on-farm feed use -- excess feed cost) of all agricultural commodities, estimated by increasing the MPS for the MPS commodities (sum of the MPS for the MPS commodities listed in the rows) according to their share in the total value of agricultural production [$(\sum \text{MPS commodities}) / (I.1) \times 100$].

A.2. Payments based on output:

Deficiency payment programme for wine grapes (1989-1992): Payment per tonne calculated as the difference between the government-administered price and the international price at which producers sell grapes to wine manufacturers. It applied to all sales to manufacturers. These transfers are included in the other (*wine*) SCT (Table 3.12).

Use of labels: Production limits: NO; Variable payment rates: YES; Input constraints: NO.

B. Payments based on input use

B.1. Variable input use

Credit concessions (from 1986): Budget expenditures on grants and loans with reduced interest rates from the Livestock Industry Development Fund (LIDF) to help livestock farmers to buy inputs such as animals and feed, or to reclaim and establish pastures and to help them to produce grass efficiently. These transfers are included in the all livestock GCT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: NO

Payments to fertiliser and pesticide use (from 1989): Budget expenditures from the General Account to compensate the NACF for its losses in selling fertilisers at a subsidised price and in handling and selling pesticides to farmers.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: NO

Payments to irrigation (from 1987): Half of the budget expenditures from the General Account to support the operational cost of the former Farmland Improvement Association (merged into Korean Agricultural and Rural Infrastructure Corporation in Jan. 2000) which was in charge of operating and maintaining larger irrigation facilities (see also IV.K Infrastructure).

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.

Payments to seeds (from 1986): Budget expenditures from the General Account to producers' group to install collective seedling facilities for rice and vegetables. Net losses of the seed projects of the Rural Development Administration (RDA) in producing and distributing certified seeds. These transfers are included in the all crop GCT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: NO

Soil conservation programme (from 1986): Budget expenditures to provide lime and silicic acid to farmers to reclaim damaged soils. These transfers are included in the all crop GCT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: NO

Interest subsidy for natural disasters (from 1986): Half of the budget expenditures for providing reduced interest rate of loans to low-income farmers who suffered losses from the natural disaster. These transfers are included in the ACT.

Use of labels: Production and payment limits: NO; Variable payment rates: YES; Input constraints: NO

B.2 Fixed capital formation

Credit concessions (from 1986): Budget expenditures on grants and loans to farmers with reduced interest rates:

- from the LIDF to promote farm-level structural adjustment. This is allocated to livestock products according to their share in the total value of livestock production;
- from the General Account, the Agriculture and Fisheries Development Fund and the Special Account for Agro-Fisheries and Rural Structure Improvement to develop mechanisation in Korean agriculture, to increase the size of farms, to promote investments in farming equipment and facilities, to improve farm land structures and to restore damaged farmland. It also includes specific preferential loans to help young farmers to start business. These transfers are included in the ACT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: NO

Management of livestock wastes programme (from 1990): Budget expenditures on grants and preferential loans to livestock producers to install purification facilities. These transfers are included in the all livestock GCT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: YES (the environmental effects should be considered when making purification facilities).

Creation of model towns of environment-friendly farming (from 1999): Budget expenditures on grants to farmers of a village who are practicing environmentally friendly farming by a village unit. These transfers are included in the ACT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: YES (the use of chemical fertiliser is controlled).

Direct payment for environmentally-friendly livestock practice (from 2004-6): Direct payment to livestock farmers who undertake environmentally-friendly practices including recycling a certain amount of livestock manure and decreasing raising density of pigs and chicken. Antibiotics are prohibited for a certain period before slaughtering. These transfers are included in the all livestock GCT.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: YES (the use of antibiotics and chemical fertiliser is controlled and the recycling of livestock manure is promoted).

Support for the losses from natural disasters(from 1986): Half of budget expenditures for providing reduced interest rate of loans to low-income farmers who suffered losses from the natural disaster. These transfers are included in the ACT.

Use of labels: Production and payment limits: NO; Variable payment rates: YES; Input constraints: NO

B.3. Based on use of on-farm services

Extension services (from 1986): Budget expenditures to provide technical assistance to livestock breeders (financed by the LIDF) and for the development of region-specific technologies (financed by the Special Account for Agro-Fisheries and Rural Structure Improvement and the RDA). Non-commodity specific LIDF expenditures are allocated to individual livestock products based on their share in the value of total livestock production. These transfers are included in the ACT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: NO

Pest and disease control (from 1986): Budget expenditures of the NACF to provide manufacturers with agro-chemicals in case of pest outbreak, and budget expenditures to prevent and control outbreaks of "black stem blight" through spraying pesticides. These transfers are included in the all crops GCT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: NO

Animal reproduction (from 1986): Budget expenditures on programmes financed by the LIDF to improve livestock quality. They include artificial insemination, productivity tests and the provision of imported high quality breeds. Support for the provision of silk eggs to farmers. These transfers are included in the beef and milk GCT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: NO

C. Payments based on current area planted/animal numbers/revenues/incomes

Milk reduction programme (1990, 1998, 2003): Payments per head of dairy cattle provided to dairy farmers who reduced their milk production. These transfers are included in the *Milk* SCT (Table 3.4).

Use of labels: Production and payment limits: YES (Payments are to reduce milk production); Variable payment rates: NO; Input constraints: NO.

Variable payment for paddy-field (from 2005): Payments per hectare on paddy fields which are used to produce rice in the current year. These transfers are included in the *Rice* SCT (Table 3.2).

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: NO

Meat quality enhancement programmes (Beef, pig meat) (1988 and from 1993): Payments per head of animal to encourage beef production (before 1984) and to encourage high quality beef and pig meat production (from 1993). These transfers are included in the beef and pig meat GCT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: NO

Payment for set-aside (2003-2005): Payments per hectare to farmers who set aside paddy rice field or cease to plant paddy rice or any marketable crops for the next three years. These transfers are included in the all crops GCT.

Use of labels: Production and payment limits: YES (Payments are to retire land from production for three years); Variable payment rates: NO; Input constraints: NO.

Direct payment for environment-friendly farming practices (from 1999): Payments per hectare to farmers who conform to environmentally friendly farming practices. The scheme has been differentiated between low chemical, chemical-free and organic products since 2003. These transfers are included in the all crops GCT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: YES (the use of chemical fertiliser is controlled).

Paddy-field environmental conservation payment (2001-2004): Payments per hectare to farmers who had cultivated paddy fields for the past three years and conformed to good environmental practices. These transfers are included in the all crops GCT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: YES (the use of chemical fertiliser is controlled).

Direct payment for landscape conservation (from 2005): Payments per hectare to farmers who cultivate plants for aesthetic purposes to preserve traditional landscape in selected villages. These transfers are included in the all crops GCT.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: NO

Disaster payments (from 1986): Income support to low-income farmers who suffered losses from natural disasters in the form of food aid or lump sum payments.

Use of labels: Production and payment limits: NO; Variable payment rates: YES (Payment rates vary according to the severity of damage by natural disasters); Input constraints: NO.

Social programmes (from 1986): Income support from the General Account to low-income, small farmers' and fishermen's households to reduce their debt burden; government contribution through the Special Account for Agro-Fisheries and Rural Structure Improvement to an insurance scheme for farmers related to working accidents; government contribution to commodity-based agricultural insurance programs.

Use of labels: Production and payment limits: NO; Variable payment rates: NO; Input constraints: NO

D. Payments based on non-current area planted/animal numbers/revenues/incomes – production required

E. Payments based on non-current area planted/animal numbers/revenues/incomes – production not required

Payment for less favoured areas (from 2004): Payments per hectare to farmers who actually reside and cultivate a land in the past 3 years in the naturally disadvantageous villages in "remote rural areas". The eligible villages are selected, where the share of arable land is below 22% and the land gradient is over 14%.

Use of labels: Variable payment rates: YES; Input constraints: NO; Commodity exceptions: NO.

Fixed payment for paddy-field (from 2005): Payments per hectare on paddy fields cultivated during the period of 1998-2000. There are no restrictions on current production. The land may be used to produce agricultural products or placed in set-aside.

Use of labels: Variable payment rates: YES; Input constraints: NO; Commodity exceptions: NO.

F. Payments based on non-commodity criteria

F.1. Long-term resource retirement

Fruit acreage reduction programmes (from 1990): Payments per hectare to farmers who abandoned wine grapes production (1990-1993), peach production (1991-1993) and mandarin production (1997)

F.2. Specific non-commodity output

F.3. Other non-commodity criteria

G. Miscellaneous payments

III.2 Percentage PSE $[100 \times (\text{III.1}) / ((\text{I}) + (\text{Sum of A2 to G}))]$

III.3 Producer NPC: For all agricultural commodities the Producer NPC is estimated as a weighted average of the producer NPC calculated for the individual MPS commodities and shown in Table 4. For each commodity Producer NPC = [domestic price received by producers (at the farm gate) + unit payments based on output] / border price (also at the farm gate).

III.4 Producer NAC $[1 / (100 - (\text{III.2})) \times 100]$

IV. General Services Support Estimate (GSSE): total budgetary expenditure to support general services provided to agriculture [Sum of H to N].

H. Research and development

Budget expenditures on research programmes financed by the General Account of the RDA, the Special Account for Agro-Fisheries and Rural Structure Improvement, and the LIDF.

I. Agricultural schools

Budget expenditures to finance facilities, equipment and operational cost of agricultural schools and colleges, to retrain young full-time farmers and farmers enrolled in an early-retirement programme, and to disseminate information and new technologies.

J. Inspection services

Budget expenditures on inspection services of agricultural products (financed by the General Account or the Special Account for Agro-Fisheries and Rural Structure Improvement), of agricultural chemicals and machinery (financed by the General Account) and of mixed feed (by the LIDF); plus budget expenditures on plant and animal quarantine services. Budget expenditures of local governments to support and execute the air spraying of pesticides in order to control pests.

K. Infrastructure

Budget expenditures from the General Account and the Special Account for Agro-Fisheries and Rural Structure Improvement to:

- reclaim, restore and reorganize land,
- develop irrigation and drainage, to improve water supply (See E.1. Payments based on use of variable inputs)
- build farm roads,
- build educational facilities;
- support the construction of equipment and facilities for upstream industries (e.g. feed, machinery) and downstream industries (RPCs, wholesale markets, marketing); and
- support local governments installing equipment and facilities necessary to establish and improve environmentally friendly agriculture zones.

L. Marketing and promotion

Budget expenditures on domestic and export promotion programmes for various agricultural products such as wheat, fruits and vegetables, flowers and processed traditional products.

M. Public stockholding

Net budget expenditures of the Special Account for Food grain Management, the Food grain Management Fund and the Food grain Stock Management Fund for the handling and the storage of crops by the Government or the NACF.

N. Miscellaneous

1. National expenditure

2. Sub-national expenditure

V.1 Consumer Support Estimate (CSE): Associated with agricultural production, i.e. for the quantities of commodities domestically produced, excluding the quantities used on-farm as feed -- excess feed cost. [Sum of O to R; when negative, the amounts represent an implicit tax on consumers].

O. Transfers to producers from consumers: Associated with market price support on all domestically produced commodities, estimated by increasing the transfers calculated for the MPS commodities according to their share in the total value of production $[(O.1) / (I.1) \times 100]$.

O.1. Of which MPS commodities: Sum of the values of transfers from consumers to producers associated with market price support for the MPS commodities as calculated in Table 4.

P. Other transfers from consumers: Transfers to the budget associated with market price support on the quantities imported of domestically produced commodities, estimated by increasing the transfers calculated for the MPS commodities according to their share in the total value of production $[(P.1) / (I.1) \times 100]$.

P.1. Of which MPS commodities: Sum of the transfers to the budget associated with market price support on the quantities imported of the MPS commodities as calculated in Table 4.

Q. Transfers to consumers from taxpayers

Q.1. Commodity specific transfers to consumers: Sum of commodity specific transfers from taxpayers to consumers (farm gate level) from commodity MPS tables (Table 4). The descriptions of policies providing commodity specific transfers are provided below:

School milk scheme (from 1981): Students from low income household are eligible to receive government subsidy for the daily milk consumption at school. The target group has been expanded gradually from elementary school to middle and high school since 2005. The government support 70% of the price and around 374 000 students were supported in 2007.

Q.2. Non-commodity specific transfers to consumers: Sum of non-commodity specific transfers from taxpayers to consumers (farm gate level). The descriptions of policies inducing non-commodity specific transfers are provided below:

Payments to processors (from 1986): Budget expenditures to cover part of operational costs of co-operatives and/or downstream companies and to compensate them for purchasing most agricultural products at a higher price than they sell them in order to operate price stabilisation programmes. It is financed by the LIDF for livestock products; by the Agriculture and Fisheries Development Fund, the Special Account for Agro-Fisheries and Rural Structure Improvement for corn, soybeans and rapeseed; and by the Food grain Management Fund or the Special Account for Food grain Management for cereals.

R. Excess Feed Cost: Associated with market price support on quantities domestically produced and used on-farm as feed as calculated in Table 4. [Sum of excess feed costs in the MPS tables (Table 4) for feed crops.]

V.2 Percentage CSE $[100 \times (V.1) / ((II) + (Q))]$

V.3 Consumer NPC: For all agricultural commodities the Consumer NPC is estimated as a weighted average of the consumer NPC calculated for the individual MPS commodities and shown in Table 4. For each commodity Consumer NPC = domestic price paid by consumers (at the farm gate)/ border price (also at the farm gate).

V.4 Consumer NAC $[(1 / (100 - (V.2)) \times 100]$

VI. Total Support Estimate $[(III.1) + (IV) + (Q)]$ and $[(S) + (T) - (U)]$

S. Transfers from consumers $[(O)+(P)]$

T. Transfers from taxpayers $[(III.1)-(O)+(IV)+(Q)]$

U. Budget revenues $[(P)]$

Sources: Korean Ministry for Food, Agriculture, Forestry and Fishery.

TABLE 2. Korea: Breakdown of PSE by commodity specificity and other transfers

All data sets in Table 2 come from Tables 1 and 3.1 to 3.12 where definitions are included.

Definitions:

I. Producer Single Commodity Transfers (producer SCT): the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm level, arising from policy measures directly linked to the production of a single commodity such that the producer must produce the designated commodity in order to receive the payment. This includes policies where payments are specified on a per-commodity basis [Sum of SCTs for individual commodities from Tables 3.1-3.12].

Percentage producer SCT: is the commodity SCT expressed as a share of gross farm receipts for the specific commodities (including support in the denominator). This indicator can be expressed for the total SCT (Table 2), or for a specific commodity (Table 3.1 to 3.12).

$$\%SCT = 100 * SCT / (\text{Value of production}_{COM} + A.2_{COM} + B_{COM} + C_{COM} + D_{COM})$$

Share in Total PSE (%): $SCT_{SHARE} = 100 * SCT / PSE$

II. Group commodity transfers (GCT): the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures whose payments are made on the basis that one or more of a designated list of commodities is produced. That is, a producer may produce from a set of allowable commodities and receive a transfer that does not vary with respect to this decision $[GCT = B_{GROUP} + C_{GROUP} + D_{GROUP}]$.

Share in Total PSE (%): $GCT_{SHARE} = 100 * GCT / PSE$

Transfers to specific groups of commodities: the GCT indicator is calculated for Korea for the following groups of commodities: all crops, all livestock, beef and milk and beef and pig meat.

III. All commodity transfers (ACT): the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures that place no restrictions on the commodity produced but require the recipient to produce some commodity of their choice $[ACT = C_{ALL} + B_{ALL} + D_{ALL}]$.

Share in Total PSE (%): $ACT_{SHARE} = 100 * ACT / PSE$

IV. Other Transfers to Producers (OTP): the annual monetary value of gross transfers made under policies that do not fall in the above three cases (SCT, GCT, ACT). That is, payments that do not require any commodity production at all. [OTP = E + F + G]

Share in Total PSE (%): $OTP_{\text{SHARE}} = 100 * OTP / PSE$

V. Total PSE: $PSE = A + B + C + D + E + F + G = SCT + GCT + ACT + OTP$

Percentage PSE: $\%PSE = 100 * PSE / (\text{Total Value of Production at farm gate} + A.2. + B + C + D + E + F + G)$

TABLE 3. Korea: Producer Single Commodity Transfers (by commodity)

Tables 3.1 to 3.12, provide information on Producer Single Commodity Transfers (PSCT) for the following commodities: barley, rice, soybean, milk, beef and veal, pig meat, poultry meat, eggs, garlic, red pepper, Chinese cabbage and “other commodities”. All data sets in the calculation SCT by commodity come from Tables 1 and 4.1 – 4.11 where definitions are included.

Definitions:

I. Level of production: Data from respective commodity Tables 4.1 – 4.11 (Market Price Support tables)

II. Value of production (at farm gate): Data for respective commodity Tables 4.1 – 4.11 (Market Price Support tables)

III. Producer Single Commodity Transfers: Sum of transfers to respective single commodity in categories A, B, C and D.

A. Support based on commodity output

A1. Market Price Support [Data for respective commodity from Table 4]

A2. Payments based on output

Payments based on output (A.2) provided to respective single commodity [Data from Table 1]

B. Payments based on input use, single commodity [B.1_{COM} + B.2_{COM} + B.3_{COM}]

B1. Based on variable input use

Payments based on variable input use (B.1_{COM}) provided to respective single commodity [Data from Table 1].

B2. Based on Fixed capital formation

Payments based on fixed capital formation (B.2_{COM}) provided to respective single commodity [Data from Table 1].

B3. Based on on-farm services

Payments based on on-farm services (B.3_{COM}) provided to respective single commodity [Data from Table 1].

C. Payments based on current A/An/R/I, production required, single commodity

Payments based on current A/An/R/I (C_{COM}) provided to respective single commodity [Data from Table 1].

D. Payments based on non-current A/An/R/I, production required, single commodity

Payments based on non-current A/An/R/I, production required (D_{COM}) provided to respective single commodity [Data from Table 1].

$$\text{IV. Percentage producer SCT : } \%SCT = 100 * (III) / ((II) + (A.2) + (B_{COM}) + (C_{COM}) + (D_{COM}))$$

TABLE 4. Korea: Market Price Support and Consumer Single Commodity Transfers

Tables 4.1 to 4.12, contain calculation of the Market Price Support (MPS) and Consumer Single Commodity Transfers (consumer SCT) for the following commodities: barley, rice, soyabean, milk, beef, pigmeat, poultry, eggs, Chinese cabbage, garlic, red pepper and “other commodities”. The data sets used in calculation of the MPS and consumer SCT by commodity are described below.

Definitions:

I. Level of production

Barley: Total production of unhulled barley, naked barley and malting barley in unhulled barley equivalent [1]

Rice [paddy]: Rice production in husked rice equivalent [1].

Soybeans: Total production [1].

Milk: Domestic production of raw milk [2].

Beef and veal, and pig meat: Domestic production in carcass weight equivalent [2].

Poultry meat: Domestic production of chicken meat in carcass weight equivalent [2].

Eggs: Domestic production of eggs in shell, converted in tonnes using the coefficient 1 egg = 55 grams [2].

Garlic, red pepper, and Chinese cabbage: Total production [1].

II. Producer price

Barley: Weighted average of government purchase prices (unhulled and naked barley), government administered price (malting barley) and voluntarily marketed farm gate price of barley [3].

Rice and soybeans: Weighted average of government purchase prices [3] and voluntarily marketed farm gate price [4].

Milk: Producer price of raw milk at farm gate [2].

Beef and veal: Average auction price of beef in wholesale markets in Korea, in carcass weight equivalent [2] adjusted for by-product value, and slaughtering and transportation costs (around 3 per cent) to convert it to a farm gate price [5].

Pigmeat: Average auction price of pigmeat in wholesale markets, in carcass weight equivalent [2] adjusted for by-product value, and slaughtering and transportation costs (5-8 per cent) to convert it to a farm gate price [5].

Poultrymeat: Delivery price of chicken meat to wholesale markets in carcass weight equivalent [2] adjusted for slaughtering and transportation costs (15-20 per cent) to convert it to a farm gate price [5].

Eggs: Price of large size eggs received by farmers [2].

Garlic, red pepper, Chinese cabbage: Value of production divided by level of production [1].

IV. Level of consumption

Barley: Total domestic consumption of barley for food, feed and malting use [6].

Rice: Total consumption in husked rice equivalent [6].

Soybeans: Total consumption of soybeans [6].

Milk: Total domestic consumption of cow milk in raw milk equivalent [6].

Beef and veal, and pigmeat: Total domestic consumption in carcass weight equivalent [6].

Poultrymeat: Total domestic consumption of chicken meat in carcass weight equivalent [6].

Eggs: Total domestic consumption of eggs [6].

Garlic, red pepper, and Chinese cabbage: Total domestic consumption of garlic, red pepper and Chinese cabbage [6].

VII. Reference prices

Barley: Weighted average of import reference prices for unhulled barley and malting barley. For unhulled barley, from 1979 to 1994, the US export price of second grade barley, f.o.b., (annual average price of Portland cash grain price) plus transportation costs (9.48 per cent) [7] and from 1995, the Korean average import price of ordinary barley in unhulled equivalent, c.i.f. [8]. For malting barley, from 1979 to 1988, the average Japanese price of malting barley imported from Australia (9) and from 1989, the Korean average import price of malting barley in unhulled equivalent, c.i.f. [8].

Rice: Chinese export price of rice, f.o.b., plus transportation costs (3 per cent) [10] and from 2001, average import prices (c.i.f.) of rice from China, the U.S. and Thailand. [3]

Soybeans: Korean average import price, c.i.f. [8].

Milk: Border prices of butter and SMP (skimmed milk powder) converted into a milk equivalent border price using technical coefficients minus a processing margin, calendar year. The border prices of butter and skimmed milk powder are the average import prices (c.i.f. prices) of butter and skimmed milk powder [18]. The processing margin is calculated as a simple average of the processing margins for the four main exporting countries: Australia, EU, New Zealand and the United States.

Beef and veal: From 1986 to 1988, US choice steers, Nebraska, 1100-1300 lb. [13] plus transportation costs from the US to Korea [13].
Since 1989, unit value of imported beef from Canada and the US, in carcass weight equivalent. [14].
Since 2001, import price estimated by using the tariff rate. [14].

Pigmeat: Borrowed from Japanese reference price. US No.2 grade wholesale price plus transportation and insurance costs [15].

Poultrymeat: US producer price, adjusted for EEP [16] plus 20 per cent transportation costs.

Eggs: Wholesale price of eggs in Japan minus tariffs [15].

Garlic: Since 1993, unit import value [17]. From 1986 to 1992, domestic producer price multiplied by price gap (3.50 times) calculated by comparison of 1993-99 domestic producer price and unit import value.

Red pepper: Since 1993, unit import value [17]. From 1986 to 1992, domestic producer price multiplied by price gap (3.75 times) calculated by comparison of 1993-99 domestic producer price and unit import value.

Chinese cabbage: Domestic producer price minus tariffs (1994: 30%, 2002: 27.6%) [12]

Sources:

[1] MIFAFF, *Crop Statistics*, various years, Seoul.

[2] NLCF, *Materials on Price, Demand and Supply of Livestock Products*, various years, Seoul.

[3] MIFAFF, Foodgrain Policy Division, Seoul.

[4] NACF, *Monthly Review*, Seoul.

[5] MIFAFF estimates.

[6] MIFAFF, Food Grain Policy Division, *Statistics on Demand and Supply of Food Grains*, various years.

[7] USDA, FAS database.

[8] Korean Customs Services [KCS], *Statistical Yearbook on Foreign Trade*, various years, Seoul.

- [9] MAFF Japan, Japanese exports and imports published by the Japanese Tariff Association.
- [10] FAO *Trade Yearbook*, various years, Chinese *Trade Yearbook*, 1996.
- [11] Information provided directly by the New Zealand Ministry of Agriculture and Fisheries.
- [12] MIFAFF, Seoul.
- [13] USDA, *Agricultural Outlook* [AGLINK database].
- [14] MIFAFF, Seoul.
- [15] OECD PSE/CSE Tables for Japan [Originally from USDA, *Agricultural Outlook*].
- [16] OECD PSE/CSE Tables for the United States.
- [17] MIFAFF, *Trade Statistics* (Ministry of Finance and Economy), various years, Korea
- [18] FAO *Statistical Databases*.