

## CHINA: ESTIMATES OF SUPPORT TO AGRICULTURE

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### 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 market price support is explicitly calculated in Tables 4.1-4.17. In addition, Table 4.18 provides MPS estimates for the group called “other commodities”, it means those for which MPS estimates per commodity were not made due to a very small share of a given commodity in total value of production (below 1%) or lack of data.

**Table 2. Breakdown of PSE by Commodity and Other Transfers** provides a breakdown of the total PSE into four categories reflecting the flexibility in production choices given to producer receiving support. 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 3.1-3.18 where definitions are included.

**Tables 3.1-3.17 Producer Single Commodity Transfers** contain producer SCT by commodity, which are calculated for China for the following commodities: wheat, maize, rice, soybeans, rapeseed, peanuts, sugar cane, milk, beef and veal, pig meat, poultry, sheep meat, eggs, apples, imported fruit and vegetables, exported fruit and vegetables and cotton provided that the value of production of that commodity exceeds 1% of the total value of agricultural production. In addition, SCT for “other commodities” is also calculated (Table 3.18), 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 4.1-4.18 where definitions are included.

**Tables 4.1-4.18** contain **Market Price Support (MPS)** and **Consumer Single Commodity Transfers** (consumer SCT) by commodity, calculated for the same set of commodities as in **Tables 3.1 to 3.18**. 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 estimates, 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*).

**TABLE 1. CHINA: 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 4.1-4.17) 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) x100].

*II.1. Of which MPS commodities:* Sum of the value of consumption (at farm gate prices) of the MPS commodities as indicated in Tables 4.1-4.17.

**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 output***

*A.1. Market Price Support:* On quantities domestically produced (excluding for on-farm feed use -- *Excess Feed Cost*) of all agricultural commodities, estimated by increasing the MPS for the MPS commodities according to their share in the total value of agricultural production [(ΣMPS for MPS commodities listed in the rows below) / (I.1) x 100].

***A.2. Payments based on output***

***B. Payments based on input use***

***B.1. Based on variable input use***

*Input subsidy programme* (price subsidies to fertilizers, chemical and other input), (1993-2007): Subsidy made to compensate state-owned agricultural input manufacturers' losses resulting from selling their products to farmers at the state administered price for the purpose of reducing farmers' production cost. Fertiliser, pesticide and mulching film costs were covered.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for all crops.

*New variety extension payment* (2002-05): Subsidies to support the sowing of improved quality seeds. The programme was launched in 2002 to promote the fine variety of soybean seeds and covered 10 million *mu* (*mu*=1/15 of hectare) of demonstration fields testing the results of the fine seeds. Since then the programme was enlarged each year to cover new commodities on an extended area. In 2003, the coverage was extended to cover soybeans, wheat and maize; and in 2004 and 2005, the scheme covered improved seeds of wheat, maize, rice and soybeans. The implementation of this subsidy may vary depending on commodity and province, but up to 2005 in principle it took the form of reduced seed prices, either as a payment to the seed company to provide specific type of seed at reduced price or as a reimbursement to the

farmer for seeds purchased. As from 2006 this subsidy was dominantly paid as a direct payment per unit of land it has been reclassified to category C below.

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

In 2002 payments are included in SCT for soybeans. In 2003 payments are included in GCT for the group of following commodities: soybean, wheat and maize. For the years 2004-05 payments are included in GCT for grains.

*Advanced hog breed nurturing programme (2007-09):* Partial compensation of costs of the extension of new varieties of hogs.

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

Payments are included in SCT for pig meat.

*Insurance fees subsidy for livestock commodities (2007-09):* Fee subsidies focused on pork producers with costs of insurance fees shared between the central government, local governments and farmers.

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

Payments are included in SCT for pig meat.

*Insurance fees subsidy for crops (2007-09):* Pilot programme focused on grains with the cost of insurance fees shared by the central government, local governments and farmers.

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

Payments are included in GCT for grains.

*Insurance fees subsidy for crops and livestock commodities (since 2010):* Cost of insurance fees shared by the central government, local governments and farmers. The coverage was extended to include rice, wheat, maize, oilseeds (rapeseed, peanut), cotton, potato, highland barley, sugar, hogs, cows, Yak and Tibetan sheep, (natural rubber and forest also covered).

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

Payments are included in ACT.

*Comprehensive reform subsidy to reduce the fee burden on agricultural irrigation water (since 2010):* Pilot project for areas implementing comprehensive reform to reduce the price paid by farmers on irrigation water used for agricultural production. No budgetary allocations have been identified since 2014.

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

Payments are included in GCT all crops.

## *B.2 Based on fixed capital formation*

*Mechanisation of farming (since 2004):* A subsidy for the purchase of agricultural machinery. The subsidy is available to individual farmers, so called specialised households and agricultural machine service delivery organisations. The programme compensates the cost of purchases by reimbursing the purchaser or compensating the seller for 30% of the purchase price. In principle, subsidy ceiling for each type of machine is applied. The programme is implemented at the provincial level, and it is up to local governments to decide on the machinery and models eligible for the subsidy.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO. Payments are included in ACT.

*National Agricultural Comprehensive Development Funds and Projects* (1993-2009): Public finance allocations to support main agricultural areas and main grain production areas determined on the basis of output of key agricultural commodities at the province level. Provinces that were not eligible for such support were able to designate counties within their jurisdiction which can benefit from these funds. This programme was focused on improving land productivity through support for a wide range of local projects, but preference was given to the construction and up-grading of small-scale water supply systems for agricultural production. Support could also be provided e.g. for adjusting waste-land for agricultural production, construction and up-grading of local roads important for the transportation of agricultural commodities, local afforestation initiatives, improvement of storage capacities for agricultural commodities, dissemination of new technologies for agricultural production, etc. All projects were co-financed by central government, provincial governments, county and township level authorities (those designated for the poverty relief funding were not requested to provide any funding), rural collectives and farmers. Projects supported within this programme had components which could be classified as on-farm amelioration and other which were focused on infrastructure. Following interviews with Chinese experts, 50% of amounts budgeted for this programme has been allocated to the category B2 (Based on fixed capital formation) and 50% to the category J2 (Storage, marketing and other physical infrastructure).

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Land consolidation* (since 2010): Budgetary expenditures to support land consolidation projects undertaken by the central and local governments under Agricultural Comprehensive Development Funds and Projects. Following consultations with the Chinese experts, 50% of amounts budgeted for this programme has been allocated to the category B2 (Based on fixed capital formation) and 50% to the category J4 (Farm restructuring).

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Farmland irrigation construction* (since 2010): Budgetary expenditures to assist construction of small irrigation facilities, small-scale rainwater collecting facilities, sprinkler irrigation, drip irrigation facilities, irrigation and drainage pumping stations, and small hydropower stations. Following consultations with Chinese experts, 50% of amounts budgeted for this programme has been allocated to the category B2 (Based on fixed capital formation) and 50% to the category J1 (Hydrological infrastructure).

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for all crops.

*Agricultural environment, water and soil reservation* (1996-2009): payments to protect agricultural production resources.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Water and soil conservation* (since 2010): Payments to protect agricultural water and soil production resources.

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

Payments are included in GCT for all crops.

*Soil conservation* (since 2010): Payments to soil conservation, including expenditure for soil fertility surveying, pollution controlling, soil improvement, conservation planting, improving soil organic content, formulating fertilisation based on soil testing pilot programme, etc.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for all crops.

*Water-saving techniques expansion in arid area* (2004-09): support for water-saving techniques.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Small-sized agricultural land water resource infrastructure support programme* (2005-09): Central and local government support for private small-sized water resource facilities construction pilot programmes in 644 counties. The small-sized water resource infrastructure constructions supported within this programme included those operated by households, Professional Farmers Cooperative Associations, and village teams.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for all crops.

*Grassland and pasture protection* (2010): Payments to protect grassland and pasture, including expenditure for grassland and pasture improvement, grassland vegetation recovery, aerial pasture seeding, and grazing control.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for livestock.

*Subsidy for agricultural industrialisation production base construction* (since 2010): Payments to agribusiness (called agricultural industrialisation leading enterprise) to cover a part of costs linked with the construction of agricultural production base.  
Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Agricultural infrastructure* (1993-2009): Various public finance allocations to support on-farm investments (1/3 of the total) and Storage, marketing and other physical infrastructure (2/3 of the total, see category J2 below).

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Agricultural technology extension payment* (2004-05 and 2008-09): A small programme targeting large farms of sufficient scale warrant mechanisation.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Large-scale commodity grain base construction programme* (2004-09): A subsidy focused on districts with potential growth in grain productivity. The funds were mainly invested in grain production infrastructure, in particular in water management systems, land amelioration, extension of advanced crop varieties.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for grains.

*High quality grain production project (2004-09):* Operated in 13 main grain production provinces and provided support for land amelioration projects, creation of specialised large-scale grain production units, promotion of modern technologies and machinery, dissemination of high quality grain varieties.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for grains.

*Double-low canola base construction in the Yangtze river region (2004-09):* Subsidies to promote the double-low canola production through investments mainly in the advanced seed nurturing and unified seed supplying system, small-sized agricultural land water resource projects, disease and pest prevention, and land fertility supervision and examination.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for rapeseed.

*Sugar crop base construction (2004-09):* Programme focused on selected provinces including Guangxi, Yunnan, Guangdong, and Xinjiang. Provided subsidies for such projects as land consolidation, advanced varieties' nurturing, small-sized water resource infrastructure construction, pest and disease prevention.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for refined sugar.

*Cotton crop base construction (2008-09):* Programme focused on selected provinces to stimulate cotton production.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for cotton.

*Standardized hogs feeding pilot programme (2007-09):* Subsidies to support the standardisation of hog production, water supplies, and vaccination.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for pig meat.

*Calculating and reducing the reimbursable capital owed due to comprehensive agricultural development (2006-09).*

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*International advanced agricultural science and technology introduction programme ("948" Scheme) (2004-09).*

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Agricultural science and technology advancement programme (2004-09).*

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Improving soil organic matter levels pilot subsidy (2006-09).*

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for all crops.

*Preferential interest rates on loans for agricultural comprehensive development programme (2010):*

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

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

*Agricultural extension and advisory services (since 1993):* Budgetary expenditures for introduction, testing, demonstration, promotion of new varieties, new machines and new technology. Following consultations with Chinese experts, 50% of budgetary expenditures on advisory services has been allocated to this category and the remaining 50% to category H2.b (Extension services)

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Pest and disease control (since 1993):* Budgetary expenditures for facilities, medicines and vaccines for the epidemic monitoring, prediction, prevention and control. 50% of budgetary expenditures on this programme have been allocated to category B3 and the remaining 50% to category I2 (Pest and disease inspection and control).

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

### *C. Payments based on current area planted/animal numbers/receipts/income – production required*

*Direct payments to grain farmers (2004-2014):* Payments based on current area sown to rice, wheat or corn and financed from the National Grain Risk Fund. Initially, payments were targeting 13 major grain producing provinces, but later were extended to almost all provinces. Not all sown areas were covered by the subsidy scheme. It was up to the local government to determine the “major producing area” which could obtain the subsidy. In some regions, payments were provided for farmers whether they plant crops or not. In general, the payment rate was CNY 10-15 per *mu* (1/15 ha) (USD 22-33/ha), but this could vary between localities as central government funding could be supplemented from local sources.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for grains.

*Agricultural input comprehensive subsidies (2006-2014):* Payments to compensate farmers for an increase in prices of agricultural inputs such as fertilisers, pesticides, plastic films and diesel. The targeted key beneficiaries of this subsidy were grain producers, as the amounts transferred to provinces depend on grain planting areas. In fact, as these payments were made per unit of land, their implementation was similar to direct payments discussed above.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in GCT for all crops.

*New variety extension payment – crops (2006-2014):* Apart from wheat, rice, maize and soybean covered by the original scheme, rapeseed and cotton were added in 2007, potatoes in 2009, highland barley in 2010 and, on a pilot basis, peanuts in 2010. Compared to the original scheme based on lowering seed prices for farmers, as from 2006 the scheme has increasingly been implemented as a direct payment per unit of land. The rates depended on a crop and vary from CNY 10-15 per *mu*. It was not monitored to determine if the payment was used for seed purchases or for other expenses.

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

Payments are included in GCT for the group of following commodities: wheat, maize, rice, soybean, cotton and rapeseed.

*New variety extension payment for livestock (since 2010):* Apart from cow covered by the original scheme, hog breed were added in 2007, cattle and sheep in 2009, yak in 2011. The rates vary from CNY 20-30/head/year for reproduction cow, CNY 40/head/year for reproduction hog, CNY 10/head/year for reproduction cattle, and one-time payments at CNY 800/head for sheep and goat breeding and CNY 2000/head for yak breeding.

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

Payments are included for GCT livestock.

*Payments to grassland ecological protection (since 2011):* Payments to protect grassland in Inner Mongolia, Xinjiang, Tibet, Qinghai, Sichuan, Gansu, Ningxia, and Yunnan. The programme includes: (i) payments for the suspension of grazing at CNY 6 per *mu*/year over the period of 5 years; (ii) rewards for not exceeding stock-carrying capacity of grassland at CNY 1.5 per *mu*/year; (iii) subsidies for improved breeds of animals and improved varieties of pasture grass at CNY 10 per *mu*/year and general input subsidy at CNY 500 per household; and (iv) financial rewards for county governments based on successful implementation of the programme.

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

Payments are included in GCT livestock.

*Payments for relief from natural disasters (since 1993):* Compensations for losses in agricultural production due to natural disasters.

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

Payments are included in ACT.

*Advanced reserve cows subsidy (2007-09):* Payments of CNY 500 (USD 72.5) for each high quality dairy cow heifer produced from pure-bred breeding stocks with registered bloodlines.

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

Payments are included in SCT for milk

*Reproductive sow subsidy (2007-09):* Payment of CNY 50 (USD 6.6) per reproductive sow in 2007.

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

Payments are included in SCT for pig meat.

*Advanced hog breed subsidy (2007-09):* Support for the extension of advanced breeds of hogs through partial compensation of costs of artificial insemination in selected counties.



Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for pig meat.

*Advanced cow breed subsidy* (2005-09): Public finance allocations to foster the adoption of advanced cow breeds and increase the cow reproduction capacity.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for milk.

*Stabilize farmers' income payments* (since 2010): Payments to stabilise farmers' income by local government.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Payments for agricultural structural adjustment* (since 2010): Payments to promote agricultural structural adjustment and to develop modern agriculture by local government.

Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in ACT.

*Target price payments: cotton* (since 2014): estimated value of transfers consisting of two components (i) in Xinjiang province, compensatory payments for cotton producers based on a difference between the government target and market prices for cotton and on the amount of certified production sold; (ii) in nine cotton-producing province outside of Xinjiang, direct subsidies per tonne sold to cotton grinders.  
Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for cotton.

*Target price payments: soybean* (since 2015): estimated value of transfers for soybean producers in four provinces (Heilongjiang, Jilin, Liaoning and Inner Mongolia) to compensate a difference between the government target price and the market price registered in autumn 2014. Payments were made per unit of land.  
Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for soybean.

*Agricultural support payments* (since 2015) combination of previous three programmes (direct payments for grain producers; agricultural input comprehensive subsidies, new variety extension payments); four-fifths paid per unit of land and one-fifth set aside for “new-style” farms.  
Use of labels: Production limits: NO; Variable payment rates: NO; Input constraints: NO.  
Payments are included in SCT for grains.

***D. Payments based on non-current area planted/animal numbers/receipts/income – production required***

***E. Payments based on non-current area planted/animal numbers/receipts/income – production not required***

*Special funds for agricultural production development in poverty region* (since 1993): Expenditures for development projects of planting, breeding, animal husbandry, agricultural products processing, related technology promotion, and agricultural labour re-training in regions identified as poor and covered by the poverty alleviation programme.

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

*Special allowance for agricultural construction in "Three western provinces"* (since 2010): Special allowance for improvement of agricultural production conditions in selected counties, in particular in Gansu and Ningxia provinces, covered by the poverty alleviation programme.

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

#### ***F. Payments based on non-commodity criteria***

##### ***F.1. Long-term resource retirement***

*Returning grazing land to grassland project* (since 2004): Payments to encourage farmers to turn grazing land to grassland in 8 west provinces. No payments under this programme have been identified since 2013.

Use of labels: Production limits: NO.

*"Grain for Green Programme" - Return Farmland to Forest Programme* (since 2000): Payments to encourage farmers to turn fragile agricultural land to forest or pasture. Up to 2003, participating farmers were provided with grains and cash subsidies according to the area of damage-susceptible land they "retire". In 2004, the grain allocation was converted to a cash equivalent. The period for which "retired" land was subsidised was set at two years for land returned to pasture, five years for land converted to "economic" forests and eight years for land converted to "ecological" forests. In addition, farmers are provided with a one-time cash subsidy to purchase seeds or tree seedlings for planting, and a yearly subsidy for tending and miscellaneous expenses on the newly converted land. Funds are also provided to the forestry agencies to cover technical support and programme design.

Use of labels: Production limits: NO.

*Return farmland to grassland project* (since 2011): Payments to encourage farmers to turn farmland to grassland.

Use of labels: Production limits: NO.

*Payments for grassland vegetation recovery* (since 2010): Payments to recover grassland vegetation, protect and manage the grassland vegetation.

Use of labels: Production limits: NO.

##### ***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. Agricultural knowledge and innovation system***

##### *H.1. Agricultural knowledge generation*

*Research and development* (since 1993): Public financing of agriculture-related research institutions.

*Animal genetic variety conservation* (2004-09): Public finance allocations to strengthen animal germ plasm resources management.

*Super rice research and development programme* (2004-09): Public finance allocations.

*Science and technology for grain high yield project* (2004-09): Public finance allocations.

##### *H.2. Agricultural knowledge transfer*

###### *H.2.a. education*

*Agricultural schools* (1993-2009): Public financing of agricultural schools.

###### *H.2.b. extension services*

*Technical and skill training programme* (since 2004): Budgetary expenditures for training of managers of agricultural systems, professional technical experts and farmers.

*Agricultural extension and advisory services (since 1993)*: Budgetary expenditures for introduction, testing, demonstration and promotion of new varieties, new machines and new technology. 50% of budgetary expenditures on advisory services has been allocated to category B3 (payments based on use of on-farm services; see above) and the remaining 50% to category H2.b. extension services.

*Seed project* (1996-2009): public finance allocations.

*New advanced varieties extension and demonstration programme* (2004-09): Public finance allocations.

*Agricultural organisation and cooperation* (since 2005): Public finance allocations to assist Professional Farmers Cooperative Associations.

*Scientific demonstration farm programme* (2005-09): Public finance allocations for planning, arranging and building of production facilities, introduction, trial and demonstration of new technologies and varieties, training of farmers and local officials, purchase of basic production materials and small-sized equipment.

*Conservation planting* (2005-09): Public finance allocations for conservation planting in drought-stricken areas.

*Establishment and modification of agricultural standards* (2005-09): Public finance allocations for establishment and modification of agricultural standards.

*Standardised farming demonstration programme* (2006-09): Public finance allocations to speed up the popularisation and application of agricultural standards.

*Agricultural technology entering household demonstration project* (2005-09): Public finance allocations for pilot farms implementing new technologies. These farms were expected to provide demonstration effects and to attract other participants.

*Apple bagging technique demonstration subsidy programme* (2005-09): Public finance allocations to encourage and support farmers using advanced bags, promote the adoption of apple bagging technique, and improve the quality of apples.

*Rice raising and transplanting mechanisation demonstration and extension* (2007-09): Public finance allocations to demonstrate and promote rice raising and to promote mechanisation of rice production.

*Formula fertilisation based on soil testing pilot programme* (2005-09): public finance allocations.

*Agricultural extension system reform and construction demonstration counties programme* (2009): Public finance allocations to reform the agricultural extension system.

*Payments for agricultural industrialisation technical service* (since 2010): Public finance allocations to assist agribusiness (called agricultural industrialisation leading enterprise) for technical training and quality certification authentication. 50% of budgetary expenditures on subsidy for agricultural industrialisation has been allocated to category B2 (see above) and the remaining 50% to category H2.b (Extension services).

*Agricultural science and technology demonstration* (since 2010): Budgetary expenditures for agricultural science and technology demonstration programme by the central and local government agricultural comprehensive development department.

*Modern agricultural demonstration project* (2004-09): Public finance allocations.

## ***I. Inspection and control***

### ***I.1. Agricultural product safety and inspection***

*Agricultural product quality security programme* (since 2010): Budgetary expenditures on agricultural products' quality standard formulation, implementation and supervision; on agricultural inputs' quality supervision and monitoring; on agricultural products' quality certification and recognition; and on demonstration of standardized products.

*Subsidy for food circulation security* (since 2010): Payments to guarantee food safety during processing and marketing.

### ***I.2. Pest and disease inspection and control***

*Inspection services* (1993-2009), public finance allocations.

*Pest and disease control* (since 1993): Budgetary expenditures for facilities, medicines and vaccines for the epidemic monitoring, prediction, prevention and control. 50% of budgetary expenditures on this programme has been allocated to this category and the remaining 50% to category B3 (payments based on use of on-farm services; see above).

*Plant protection programme* (2006-09): Public finance allocations.

### *I.3. Input control*

*Agricultural resources protection* (since 2010): Payments e.g. to monitor water nonpoint pollution of agricultural origin; to prevent and control soil heavy metals pollution of agricultural origin; to demonstrate technologies allowing cleaner agricultural production.

## ***J. Development and maintenance of infrastructure***

### *J.1. Hydrological infrastructure*

*Farmland irrigation construction* (since 2010): Budgetary expenditures to assist construction of small irrigation facilities, small-scale rainwater collecting facilities, sprinkler irrigation, drip irrigation facilities, irrigation and drainage pumping stations, and small hydropower stations. 50% of amounts budgeted for this programme has been allocated to the category B2 (based on fixed capital formation, see above) and 50% to the category J1 (Hydrological infrastructure).

*Continuous matching construction and water-saving modification in large-scale irrigation district* (since 2004): Public finance allocations for large-scale irrigation projects.

### *J.2. Storage, marketing and other physical infrastructure*

*National Agricultural Comprehensive Development Funds and Projects* (1993-2009): projects supported within this programme had components which could be classified as on-farm amelioration and other which were focused on infrastructure. On the basis of interviews with Chinese experts, 50% of amounts budgeted for this programme had been allocated to the category B2 (based on fixed capital formation; see above) and 50% to the category J2 (Storage, marketing and other physical infrastructure). For a more detailed description of the programme see category B2 above.

*Other National Agricultural Comprehensive Development Funds and Projects* (since 2010): This category covers budgetary allocations for a number of National Agricultural Comprehensive Development projects targeting agricultural infrastructure, excluding: land consolidation (category B2, Based on fixed capital formation and category J2, Storage, marketing and other physical infrastructure), agricultural industrialisation infrastructure constructions under agriculture comprehensive development programme (J2, Storage, marketing and other physical infrastructure), preferential loans for agricultural comprehensive development programme (J2, Storage, marketing and other physical infrastructure), and agricultural science and technology demonstration (H2.b. extension services). All projects are co-financed by central government, provincial governments, county and township level authorities, rural collectives and farmers.

*Agricultural infrastructure* (1993-2009): This category covers budgetary allocations for a number of projects targeting agricultural infrastructure, excluding those for which specific budgetary allocations have been identified such as National Agricultural Comprehensive Development Funds and Projects (see above) and those listed below within category J2 (Storage, marketing and other physical infrastructure). The remaining amount has been divided into two components: 50% to category B2 (Based on fixed capital formation, see above) and 50% to category J2 (Storage, marketing and other physical infrastructure).

*Agricultural wholesale market project* (2005-09): Public finance allocations for wholesale markets development and for wholesale market information system.

*Agricultural industrialisation* (2005-09): Public finance allocations to support enterprises creating marketing linkages with farmers.

*Agricultural industrialisation infrastructure construction under agricultural comprehensive development programme* (since 2010): Public finance allocations provided by the central and local governments to propel agriculture industrialized operation projects under agricultural comprehensive development funds and projects, i.e. standardized livestock feeding pilot programme.

### *J.3. Institutional infrastructure*

*Agricultural information service delivery in TV, telephone and computer pilot programme* (2005-09): Public finance allocations for agricultural information service delivery.

*Statistical monitoring and information service* (since 2010): Public finance allocations to support agriculture statistical investigation, information collection, analysis and releasing.

*Agriculture resources investigation and regional planning* (2010): Public finance allocations to support the investigation of agriculture natural resources and agricultural regional planning.

*Agriculture law enforcement and supervision* (since 2010): Budgetary expenditures for agricultural legal system construction, law enforcement supervision, and dispute resolution; supervision of the quality of agricultural products and of agricultural inputs; testing and evaluation of agricultural machinery; administration of veterinary services; animal drug administration management; animal epidemics prevention; quarantine supervision and management; supervision of agricultural construction projects; and training of personnel responsible for supervision and law enforcement.

### *J.4. Farm restructuring*

*Land consolidation* (since 2010): Budgetary expenditures to support land consolidation projects undertaken by the central and local governments under Agricultural Comprehensive Development Funds and Projects. 50% of amounts budgeted for this programme has been allocated to the category B2 (Based on fixed capital formation, see above) and 50% to the category J4 (Farm restructuring)

*Advanced livestock and fisheries breed project* (2006-09): Public finance allocations.

## **K. Marketing and promotion**

### *K.1. Collective schemes for processing and marketing*

*Industrialisation of high-tech biological breed nurturing* (2007-09): Public finance allocations.

### *K.2. Promotion of agricultural products*

*Promoting agricultural marketing programme* (since 2006): Public finance allocations to support agricultural products' processing, storage, transport and industrialisation of agricultural development; to link producers with markets and to develop new domestic and foreign markets.

## **L. Cost of public stockholding**

*Public stockholding for food security purposes* (since 1993): Public finance allocations for public stockholding of agricultural commodities, mostly grains.

*Important agricultural products stockholding* (since 2010): Public finance allocations for public stockholding of important agricultural commodities and agricultural inputs, such as pig meat, cotton, sugar, tea, wool, fertilizers and pesticides.

## ***M. Miscellaneous***

**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 N to Q; when negative, the amounts represent an implicit tax on consumers].

***N. 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  $[(N.1) / (I.1) \times 100]$ .

***N.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 Tables 4.1 to 4.15.

***O. 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  $[(O.1) / (I.1) \times 100]$ .

***O.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 Tables 4.1 to 4.15.

## ***P. Transfers to consumers from taxpayers***

***P.1. Commodity specific transfers to consumers:*** Sum of commodity specific transfers from taxpayers to consumers (farm gate level) from commodity MPS tables.

***P.2. Non-commodity specific transfers to consumers:*** Sum of non-commodity specific transfers from taxpayers to consumers, including:

*Food price subsidies for consumers* (since 1993): public finance allocations to offset the price increases of staple food products for urban consumers. Paid directly as part of wages and salaries. Currently of marginal importance, provided mostly as compensation for growth in meat prices. Allocations called in the Chinese statistical yearbooks as “Subsidies on price increases in grain, cotton and edible oil” are in fact used for public stockholding of agricultural commodities and as such have been allocated to category L above.

***Q. Excess Feed Cost:*** Associated with market price support on quantities of domestically produced crops and used on-farm as feed as calculated [Sum of *Excess Feed Cost* in the MPS Tables 4.1, 4.2, 4.3, 4.5]

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

**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 2. 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 $[(III.1) + (IV) + (P)]$ and $[(R) + (S) + (T)]$**

## ***R. Transfers from consumers $[(N) + (O)]$***

***S. Transfers from taxpayers*** [(III.1) - (O) + (IV) + (Q)]

***T. Budget revenues*** [(O)]

**Sources:**

ABC (Agricultural Bank of China), Statistical Yearbook of China's Rural Finance and Banking.

MOF (Ministry of Finance People's Republic of China), Outlay Documents of the Ministry of Finance.

NBSC (National Bureau of Statistics of China), China Statistical Yearbook, various editions.



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

All data sets in Table 2 come from Tables 1 and 3.1-3.18 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 3.1-3.18].

**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 3.18).

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

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

**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<sub>GROUP</sub> + C<sub>GROUP</sub> + D<sub>GROUP</sub>].

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

**Transfers to specific groups of commodities:** The GCT involves the following groups of commodities: all crops; all grains; wheat, maize and soybean; wheat, maize, rice, soybean, cotton and rapeseed; all livestock.

**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<sub>ALL</sub> + B<sub>ALL</sub> + D<sub>ALL</sub>].

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

**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]

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

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

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

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

Tables 3.1 to 3.18, provide information on Producer Single Commodity Transfers (PSCT) for the following commodities: wheat, maize, rice, soybeans, rapeseed, peanuts, sugar cane, milk, beef and veal, pig meat, poultry, sheep meat, eggs, apples, imported fruit and vegetables, exported fruit and vegetables, cotton and “other commodities”. All data sets in the calculation SCT by commodity come from Tables 1 and 4.1-4.18 where definitions are included.

**Definitions:**

**I. Level of production:** Data from respective commodity Tables 4.1-4.18 (Market Price Support tables)

**II. Value of production (at farm gate):** Data from respective commodity Tables 4.1-4.17 (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 Tables 4.1-4.18]

*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** [ $B_{1COM} + B_{2COM} + B_{3COM}$ ]

*B1. Based on variable input use*

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

*B2. Based on fixed capital formation*

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

*B3. Based on on-farm services*

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

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

**TABLE 4. CHINA: Market Price Support and Consumer Support Estimate**

Tables 4.1 to 4.18 contain calculations of the Market Price Support (MPS) and Consumer Single Commodity Transfers (consumer SCT) for the following commodities: wheat, maize, rice, soybeans, rapeseed, peanuts, sugar cane, milk, beef and veal, pig meat, poultry, sheep meat, eggs, apples, imported fruit and vegetables, exported fruit and vegetables, cotton and “other commodities”. The data sets used in calculations of the MPS and consumer SCT by commodity are described below.

In the 2017 edition of the PSE database for China two separate groups of imported and exported fruit and vegetables have been added. Both represent an important part of total value of China’s agricultural production, 31% for imported fruit and vegetables and 5% for those exported in 2013-15. A separate file for apples (exported commodity) has been retained. Both groups have been identified on the basis of the annual net trade position for individual fruit and vegetables for which trade data at the level of 6 digits exist. To secure comparability of results over time, the relevant data have been searched and provided for the whole period covered, it means for 1993-2016. As for imported fruit and vegetables tariffs have been identified as the only policy instrument protecting domestic market, simple average tariff has been applied for the estimation of the price gap for the whole group. As for exported fruit and vegetables no particular price support or tax policies have been identified, the price gap for this group has been set at zero.

**Note:** For all below mentioned commodities relevant data have been collected and price gaps calculated. But, as for selected exported products such peanuts, apples, exported fruit and vegetables, beef and veal (exported until 2008), pig meat (exported until 2007), poultry (exported until 2001) and eggs no export subsidies and no other market price policy supporting or taxing producers have been identified, in line with the OECD methodology applied for other countries, the price gaps for these products and for the periods when China was a net exporter have been set at zero.

**Definitions:**

**I. Level of production [1, 2]**

**Wheat, maize, rapeseed, apple and milk:** Total domestic production, no specific standard.

**Rice:** Total production of rice, in milled weight, derived by multiplying production of paddy rice by a conversion rate of 0.68.

**Soybean:** Total production of soybean in terms of shelled dry bean.

**Peanuts:** Total production of peanuts, in shelled weight, derived by multiplying production of dry peanuts by a conversion rate of 0.7.

**Sugar:** Total production of sugar from cane, in raw sugar equivalent, derived by multiplying production of cane by a conversion rate of 0.12.

**Cotton:** Total production of cotton lint.

**Beef and veal:** Total production of beef and veal, in carcass weight equivalent, derived by multiplying production in live weight by 0.54.

**Pigmeat:** Total production of pig meat, in carcass weight equivalent, derived by multiplying production in live weight by 0.75.

**Sheep meat:** Total production of sheep meat, in carcass weight equivalent, derived by multiplying production in live weight by 0.55.

**Poultry:** Total production of poultry, in carcass weight equivalent.

**Eggs:** Total production of eggs in the shell, including chicken, duck and goose eggs, converted into tonnes using the coefficient 1 egg = 55 grams.

## **II. Producer prices (at farm gate) [3]**

**Wheat, rapeseed, milk and eggs:** No specific standard. The farm gate price is the weighted average sale price received by farmers.

**Maize:** Weighted average farm gate price in the province of Jilin, major area of commercial maize production in China.

**Rice:** Weighted average farm gate prices of milled rice, obtained by dividing the weighted average paddy rice farm gate price by 0.68.

**Soybean:** Weighted average farm gate price in the province of Heilongjiang accounting for about 40% of total soybean production in China. The vast majority of soybean produced in Heilongjiang is commercialised and used for further processing which in terms of quality makes it comparable with imported soybeans.

**Peanuts:** Weighted average farm gate price of shelled peanut, obtained by dividing the weighted average sale price of peanut in shell by 0.7.

**Apple:** No specific standard. Weighted average farm gate price of all types of apples.

**Sugar:** Weighted average farm gate price of sugar cane in raw sugar equivalent obtained by dividing the weighted average cane farm gate price by 0.12.

**Cotton:** Weighted average farm gate price of cotton lint.

**Beef and Veal:** weighted average farm gate price of all categories of bovine animals for slaughter, live weight, converted into carcass equivalent.

**Pig meat:** Weighted average farm gate price of all pigs for slaughter, live weight, converted into carcass equivalent.

**Sheep meat:** Weighted average farm gate price of all sheep meat for slaughter, live weight, converted into carcass equivalent.

**Poultry:** weighted average farm gate prices of live chicken, converted into carcass equivalent.

## **III. Value of production (at farm gate) [(I)\*(II)]**

While for each individual commodity, the value of production has been calculated according to the formula stated above, the values of production of groups defined as “imported fruit and vegetables” and “exported fruit and vegetables” have been estimated differently as neither prices nor quantities produced were available. As mentioned above, both groups have been identified on the basis of the annual net trade

position for individual fruit and vegetables for which trade data at the level of 6 digits exist. Then, the value of production of each commodity was searched in the FAOSTAT data base. The sum of the values of production of individual imported fruit and vegetables was related to the total value of crop production as calculated from the FAOSTAT database. This ratio was then used as a share of imported fruit and vegetables in the total value of crop production sourced from the National Bureau of Statistics of China and used as a reference for all MPS commodities. This allowed the estimation of the total value of production of imported fruit and vegetables. The same procedure was applied for the group defined as exported fruit and vegetables. Both changes in the balance of trade for fruit and vegetables and changes in their relative importance in the total value of production have been reflected in MPS calculations for these two groups for the whole period 1993-2016.

#### **IV. Level of consumption (at farm gate) [4]**

**Wheat, maize, soybean, apple, cotton, beef and veal, pig meat, sheep meat, poultry and eggs:** total domestic use during the calendar year (total production, plus net trade, plus change in stocks).

**Rice:** Total domestic use during the calendar year (total production, plus net trade, plus change in stocks) of milled rice, derived by multiplying use of paddy rice by 0.68.

**Rapeseed:** Total domestic use during the calendar year (total production, plus net trade, plus change in stocks) of rapeseed plus mustard seed.

**Peanut:** Total domestic use during the calendar year (total production, plus net trade, plus change in stocks) of shelled peanuts, derived by multiplying production of dry peanuts by 0.7.

**Sugar:** Total domestic use during the calendar year (total production, plus net trade, plus change in stocks) in terms of raw sugar from cane.

**Milk:** Total domestic use of milk during the calendar year (total production, plus net trade, plus change in stocks).

#### **V. Consumption prices (at farm gate)**

Implicit prices corresponding to reference prices plus the unit value of market transfers.

#### **VI. Value of consumption (at farm gate) [(IV)\*(V)]**

#### **VII. Reference prices**

**Wheat:** C.i.f. import unit values, sum of durum wheat (HS 1001 10) and wheat except durum wheat (HS 1001 90) from 1993 to 2012 except for the years 2006-07-08 (F.o.b. export unit values)[5]. Wheat is the only commodity for which quality adjustment has been made by multiplying C.i.f. import unit values by a coefficient of 0.85 to reflect lower quality of wheat produced domestically compared to that imported. [5,7]

**Maize:** F.o.b. export unit values of maize, except seed corn (HS 1005 90) from 1993 to 2009. C.i.f. import unit values since 2010 [5,7].

**Rice:** From 1993 to 2010: Weighted average reference price of Thai export price (Indica-type rice/white rice, 100% second grade, f.o.b. Bangkok. Source: Jackson Son & Co. (London) LTD) and US export price (Japonica-type rice 2/ F.A.S. basis (Free Alongside Vessel). Source: USDA). In line with changes in the composition of rice production in China, it has been assumed that the share of Indica-equivalent price was

falling from 80% in 1993 to 70% in 2002 and the share of Japonica-equivalent price growing from 20% to 30% over the same period. For the period between 2003 and 2010 the shares fluctuated from 70-73% and from 27-30%, respectively [6]. As from 2011 China has been a net importer of rice, C.i.f import unit values of rice (HS 1006) on the Chinese border have been applied as a reference price[5,7].

**Rapeseed:** C.i.f. import unit values of rape or colza seed, whether or not broken (HS 1205 00) [5,7].

**Soybeans:** C.i.f. import unit values of soybean, whether or not broken (HS 1201 00) [5,7].

**Peanuts:** F.o.b. export unit values of shelled peanut (HS 1202 20) [5,7].

**Apple:** F.o.b. export unit values of apples, fresh (HS 0808 10) [5,7].

**Sugar:** C.i.f. import unit values of raw sugar, cane (HS 1701 11) [5,7].

**Cotton:** C.i.f. import unit values, cotton, not carded or combed, (HS 5201 00) [5,7].

**Milk:** Border price of milk is a calculated implicit value [7, 8]. The calculation method is based on two assumptions. First, world markets for tradable dairy commodities are competitive, which allows the formation of a single price for each of the solid components of raw milk, milk fat and protein, used to make dairy products. Secondly, each type of dairy product contains a unique and fixed amount of each of those solid components of milk. Under this method, the implicit price of milk at the border ( $P_b$ ) is calculated from the prices of those components:

$$P_b = \left(\frac{a}{b}\right)P_{wb} + \left(\frac{c}{d}\right)P_{ws} \text{ where:}$$

$a$  and  $b$  are milk fat contained in one ton of raw milk and butter respectively,  $c$  and  $d$  are non-fat-solids contained in one ton of milk and skimmed milk powder respectively,  $P_{wb}$  and  $P_{ws}$  are Chinese unit import values of butter and skimmed milk powder respectively. The reference price of milk at farm gate ( $P_r$ ) is the implicit milk border price net of processing costs ( $C$ ):

$$P_r = P_b - C$$

**Beef and Veal:** Until 2008 F.o.b. export unit values, bovine meat: cuts boneless, fresh or chilled and frozen (HS0201 30+ HS0202 30). As from 2009 China has become net importer of beef and veal, China's simple average import MFN tariff on beef and veal, both fresh and frozen (HS0201 and HS0202), has been used as an estimation of the Market Price Differential [5],[7]

**Pig meat:** Until 2007 F.o.b. export unit values, swine carcass & half carcass fresh, chilled or frozen. (HS0203 11 and HS0203 21). As from 2008 China has become net importer of pig meat, China's simple average import MFN tariff on pig meat, both fresh and frozen (HS0203), has been used as an estimation of the Market Price Differential [5],[7]

**Sheep meat:** As during the whole period China has been net importer of sheep meat, China's import MFN tariff on sheep meat, both fresh or frozen (HS0204), has been used as an estimation of the Market Price Differential [5],[7].

**Poultry:** Until 2001 F.o.b. export unit values meat of edible offal of the poultry, not cut in pieces, fresh, chilled or frozen, (HS020711 and HS020712). As from 2002 China has become net importer of poultry, China's simple average import MFN tariff rate on meat and edible offal (HS0207) has been used as an estimation of the Market Price Differential [5], [7].

**Eggs:** F.o.b. export unit values of eggs in the shell [6,7].

## **VIII. Margins**

**Marketing margins:** Estimated on the basis of interviews with business representatives, traders and commodity experts in China. In most cases, margin estimates have been based on a difference between average wholesale and farm gate prices adjusted, where relevant, by processing costs and fees paid to intermediate agents. Available technical coefficients were used when needed (e.g. to convert paddy to milled rice; sugar cane to sugar or live weight to slaughter weight). A marketing margin for a given commodity was expressed as a percentage of a farm gate price. While it was assumed that the percentage margin remained at the same level over various periods specified below, its equivalent in absolute terms varied depending on the level of farm gate price in a given year. The absolute value of the margin in a given year was subtracted from the border reference price.

**Transportation costs** (between China's border and domestic wholesale markets), assessed on the basis of interviews with traders and expressed as a percentage of the border reference price. These percentages have been converted into absolute values and added to the CIF price for imported commodities and subtracted from the FOB price for exported commodities.

For imported commodities, for which tariffs have been applied as a proxy for price gaps, marketing margins and transportation costs have not been included in the formula. This is the case for different periods for such commodities as beef and veal, pig meat, sheep meat and poultry.

**Wheat:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 11% until 2009, 8% in 2010 and 10.2% since 2011. Transportation costs (Border – Wholesale) as % of border price: 10% until 2009, 7% in 2010 and 7.2% since 2011.

**Maize:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 15% until 2009 and 10% since 2010. Transportation costs (Border – Wholesale) as % of border price: 9% until 2009 and 7% since 2010.

**Rice:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 12% until 2009 and 8% in 2010 and 7.2% since 2011. Transportation costs (Border – Wholesale) as % of border price: 6% until 2009, 5% in 2010 and 5.2% since 2011.

**Rapeseed:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 9% until 2009, 5% in 2010 and 5.9% since 2011. Transportation costs (Border – Wholesale) as % of border price: 4% until 2010 and 3.4% since 2011.

**Soybeans:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 10% until 2009, 5% in 2010 and 7.6% since 2011. Transportation costs (Border – Wholesale) as % of border price: 4% until 2010 and 3.4% since 2011.

**Peanuts:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 9% until 2010 and 10% since 2011. Transportation costs (Border – Wholesale) as % of border price: 7% until 2010 and 5% since 2011.

**Apple:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 55% until 2010 and 45% since 2011. Transportation costs (Border – Wholesale) as % of border price: 10% for the whole period.

**Sugar:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 40% from 1993 to 2009, 20% in 2010 and 19% since 2011. Transportation costs (Border – Wholesale): 4% until 2010 and 2.5% since 2011.

**Cotton:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 28% until 2009, 15% in 2010 and 18.2% since 2011. Transportation costs (Border – Wholesale) as % of border price: 4% until 2010 and 2.5% since 2011.

**Milk:** Average dairy processing margin (processing margin of butter & SMP from one tonne of raw milk) in major dairy exporters: Australia, European Union, United States and New Zealand.

**Beef and veal:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 25% until 2010 and 22.1% since 2011. Transportation costs (Border – Wholesale) as % of border price: 4% until 2010 and 2.6% since 2011. However, since 2009 import tariff has been applied as a proxy for price gap (see above for the definition of the reference price).

**Pig meat:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 25% until 2009, 20% in 2010 and 19.1% since 2011. Transportation costs (Border – Wholesale) as % of border price: 4% until 2010 and 2.6% since 2011. However, since 2008 import tariff has been applied as a proxy for price gap (see above for the definition of the reference price).

**Sheep meat:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 25% until 2009, 16% in 2010 and 22.1% since 2011. Transportation costs (Border – Wholesale) as % of border price: 4% until 2010 and 2.8% since 2011. However, import tariff has been applied as a proxy for price gap during the whole period (see above for the definition of the reference price).

**Poultry:** Marketing margin (Farm gate - Wholesale) as % of farm gate price: 25% until 2009, 15% in 2010 and 18.8% since 2011. Transportation costs (Border – Wholesale) as % of border price: 4% until 2010 and 3.3% since 2011. However, since 2002 import tariff has been applied as a proxy for price gap (see above for the definition of the reference price).

**Eggs:** Converted into tonnes using the coefficient 1 egg = 55 grams [8]. Marketing margin (Farm gate - Wholesale) as % of farm gate price: 16% until 2009 and 12% since 2010. Transportation costs (Border – Wholesale) as % of border price: 4% for the whole period.

#### **Sources:**

- [1] NBSC (National Bureau of Statistics of China), China Rural Statistical Yearbook, various editions.
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- [5] CGAC (Customs General Administration of China), China Customs Statistical Yearbook, various editions.
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- [7] Comtrade database.
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