

9. COMMODITY PRICES AND TAXATION

The WUFMAS survey of farms is designed primarily to measure the actual rates of inputs used and outputs produced, and is not a market survey. With the exception of Kyrgyzstan, there is a pressing need for an objective and systematic market survey of commodity prices in the main centres of population, in the rural areas and at farmgate, in all republics of Central Asia.

Enumerators were asked to record the financial prices paid and received for commodities on the sample farms. Mostly, enumerators were unable to complete the record sheets, particularly for output product prices as these were either unknown, very variable or farm staff were reluctant to disclose them.

Prices are gradually being rationalised in most republics, with the notable exception of Turkmenistan, and still to some extent, Uzbekistan. Financial prices are gradually stabilising at levels approaching economic prices but legacies of the command economy persist in manufacturing subsidies and state orders on some crops.

There is an array of direct taxes levied on the farms, but the two greatest burdens of tax may not always be appreciated as such as both are a legacy of the Soviet period. The first persists only with the state order crops in Turkmenistan and Uzbekistan, and is the difference between the financial and economic farmgate prices of products that is sequestered by Government and in part pays for the supply of subsidised inputs. The second is the massive contribution to the welfare of the local rural community.

9.1 Economic Commodity Prices

As in 1996, the estimation of the economic prices of the main commodities is only approximate. The assumptions and derivation of the export and import parity prices are shown in Appendix 6 and values are summarised in Table 9.1.

Commodity	Parity	Price of product \$/t	Price of main nutrient \$/kg
Seed Cotton	export	450	-
Wheat	import	322	-
Wheat (Kazakhstan)	export	130	-
Rice paddy	Import	209	-
Maize grain	Import	226	-
Sorghum grain	Import	222	-
Tobacco	Import	1,374	-
Beef (cdw)	Import	328	-
Urea	Import	341	0.74
DAP	Import	384	1.06
TSP	Import	403	2.00
Rock phosphate	Import	152	1.07
Muriate of potash	import	262	0.52

Few agricultural products are exported from Central Asia so it is assumed that an import parity price is the most appropriate estimate of the economic worth of most products, the obvious exceptions being cotton from all republics, and wheat from Kazakhstan.

9.2 Financial Price of Output Products

Data have been gathered from some but not all farms and in some cases from the Ministries of Agriculture. These values in local currency have been converted to US\$ at the official rates, shown in full in Appendix 6. The rapid change in the exchange rates against the US\$, and the considerable difference between official and parallel exchange rates in some countries introduces a further element of uncertainty to the data, that is particularly apparent in the estimates for Tadjikistan. The average financial prices of commodities by republic are summarised in Table 9.2.

Table 9.2 Financial Output Prices in 1997 (\$/t or animal)

Product	Kazakhstan		Kyrgyzstan		Tadjikistan		Turkmenistan		Uzbekistan		
	rep.	av.	av.	farm	av.	farm	av.	farm	rep.	av.	farm
<i>Exchange rate to US\$</i>	75		17		620		4165		64		
Upland cotton		426	493		481		247		244	226	
Pima cotton							336			344	
Tobacco				488							
Cereals									132		
Winter wheat, grain		140	139		99		84			121	
Wheat, seed			325								
Barley, grain				118							
Barley, seed				306							
Oats, grain				59							
Oats, seed				206							
Maize, grain		200									
Maize, seed				657							
Rice, paddy	200			471		244				283	
Rice, polished	285										
Rice, biproducts	80										
Green gram					343						
Potato	233			224					160	134	
Sugarbeet				88							
Vegetables	233		59						139	49	
Cabbage									114		
Cucumber											174
Radish											31
Carrot										245	
Onion			46		31					58	
Melons	49								99	19	
Water melon										38	
Sweet melon										51	
Grapes	87			206						105	
Fruit (tree)	93									70	
Apricot					32						58
Apple				88							
Raisin, sultana											395
Apricot, dry with stone											136
Lucerne, hay		24	38				66		28		32
Lucerne, fresh			9				12		7		4
Maize, fresh silage	13		59		32						
Milk, fresh	267		235							152	
Beef, cdw										1290	
Beef, live animal				765							642
Sheep/goat, live animal											22
Silk worm cocoon										784	

Note: "rep." is average for republic from MoA, "av." is the average price over all the farms where the data were collected, and "farm" is the price where only a single value was recorded.

The farm-gate price of raw cotton in Kazakhstan and Kyrgyzstan are both close to the economic price of about \$450-480/t. A special WARMAP investigation at the Kanibadam ginnery, Tadjikistan, in early 1997 showed that lint was being bought there by traders for about \$1500/t, equivalent to a farm-gate price of raw cotton of about \$480/t and confirming the US\$ exchange rate as S620. The low prices in Turkmenistan and Uzbekistan reflect the state orders on cotton, but farms in the new lands of the Golodneya Steppe received much less than average price on account of very poor quality. Small "private" farms in Ferghana

Valley also were reported to receive much less than the average state order price, maybe after deduction of payment for common services. Little pima cotton (*G. barbadense*) is produced, due to the shortness of the growing season over the majority of the area, but the prices were strikingly higher than for upland cotton (*G. hirsutum*).

Cereal grain prices in the “free” economies are much lower than in 1996, indicating that the fall from the peak price in world markets due to recovery of stocks, has worked through to local markets. Wheat prices now are mostly at the economic export parity price from Kazakhstan, suggesting that the shortfall in domestic production in Kyrgyzstan and Tadjikistan is being imported at this price. The state order price in Uzbekistan seems to have been fixed at this level but that in Turkmenistan is well below it. Two sample farms in Kyrgyzstan remain state property with contracts to produce wheat, barley, oats and maize seed, the prices for which are more than double normal grain prices.

Rice is free of state orders throughout the region, but the preference for local cultivars and the difficulty of importing comparable varieties, are sustaining local prices mid-way between the import and export parity prices. Few pulses are produced in any quantity in the region, but green gram is locally important in Tadjikistan, but the price shown in the table may be inflated by the exchange rate used.

As expected, prices for horticultural field crops are rather variable, and most supplies are grown and marketed privately. Orchard fruit crops show somewhat more price stability, excepting the high price for grapes recorded on one farm in Kyrgyzstan near Bishkek.

Fodder crops are much less important than a few years ago, partly due to the big decline in the national herds and flocks and partly to the privatisation of most former state livestock. The depressed level of livestock product prices reflects the lack of consumer purchasing power. Fodders are rarely traded for cash, and realistic prices are difficult to judge. The rather inadequate “barley equivalent” feeding system of the Soviet era is not being observed, and prices of fodders do not reflect their scientific feed value.

9.3 Seed Prices

Detailed records of the prices of seeds used to sow the sample fields are shown in Appendix 6. They are summarised in Table 9.3.

There is considerable variation in seed prices between species and even between cultivars. The price of horticultural seeds, where the seed rate is much less than that of field crops, is naturally much greater. The use of hybrid vegetable seeds imported into Uzbekistan accentuates this difference. The difference in the origin of the seed is reflected in the seed price, and the difference between averages in the republics is more the consequence of seed origin than pricing policy.

9.4 Fertiliser Prices

The three nitrogen fertiliser plants in Central Asia are located in Uzbekistan together with much of the capacity for phosphate fertiliser production. There is no doubt that regional consumption of fertiliser is much less than during the Soviet era but it is not clear if the reason is reduction in production capacity or lack of cash to buy it. In Turkmenistan and Uzbekistan, most if not all of the fertiliser used on the field crops is provided by the state order system but all farm directors experience problems in securing sufficient for their needs. This leads to a situation where farms are being supplied, buying and using whatever fertiliser type happens to be available, without regard to the chemical composition of the material.

Table 9.3 Average Prices of Seeds (\$/kg)

Crop	Kazakh- stan	Kyrgyz- stan	Tadjiki- stan	Turkmeni- stan	Uzbeki- stan	Overall
Barley		0.31			0.17	0.25
Cotton, pima				0.32	0.33	0.33
Cotton, upland	0.23	0.20	0.11	0.39	0.33	0.31
Cucumber/gherkin					8.57	8.57
Forage roots					2.42	2.42
Green gram					1.18	1.18
Green leaf vegetables					21.05	21.05
Lucerne	1.70	2.25	1.70		3.91	2.86
Maize, grain	0.22	0.56	0.21	0.44	0.51	0.45
Maize, silage		0.34			1.32	0.99
Oats		0.23				0.23
Onion		5.43			25.25	13.36
Potato		0.14				0.14
Pumpkin/squash					5.26	5.26
Rapeseed		0.01				0.01
Rice	0.19		0.30		0.70	0.52
Roots/tubers					0.10	0.10
Sorghum			0.07		0.50	0.21
Stem/root vegetables					76.85	76.85
Sugar beet		2.19				2.19
Sunflower	1.59					1.59
Sweet melon					7.38	7.38
Tobacco		14.70				14.70
Tomato		5.62			29.42	23.47
Water melon		14.04			4.69	7.81
Wheat, rainfed		0.34				0.34
Wheat, spring	0.23	0.25	0.05		0.38	0.28
Wheat, winter	0.42	0.40	0.05	0.08	0.44	0.33

Table 9.4 Average Prices of Fertilisers and their Nutrients

	Kazakh- stan	Kyrgyz- stan	Tadjiki- stan	Turkmeni- stan	Uzbeki- stan	Overall
Fertiliser product \$/kg						
Ammonium nitrate	0.09	0.16	0.10	0.09	0.12	0.11
Ammonium sulphate	0.07			0.09	0.12	0.11
Urea					0.10	0.10
Single superphosphate	0.13	0.16		0.05	0.15	0.13
MAP			0.07		0.19	0.18
DAP					0.22	0.22
Nitro-Amofos	0.09				0.18	0.14
Muriate of potash					0.13	0.13
Sulphate of potash					0.13	0.13
Fresh manure					0.01	0.01
Dry manure					0.01	0.01
Equivalent cost of pure N in \$/kg						
Ammonium nitrate	0.26	0.49	0.30	0.28	0.35	0.35
Ammonium sulphate	0.35			0.43	0.56	0.52
Urea					0.22	0.22
Equivalent cost of pure P in \$/kg						
Single superphosphate	1.89	2.31		0.7	2.11	1.82
MAP (Amofos)			0.20		0.77	0.75
DAP					0.92	0.92
Nitro-Amofos	0.29				0.73	0.55
Equivalent cost of pure K in \$/kg						
Muriate of potash					0.26	0.26
Sulphate of potash					0.33	0.33

Different fertiliser types have very different chemical composition and content of nutrients, so it is impossible to evaluate fertilisers on the basis of their price per tonne and rate of use in kg/ha. Full details of data collected on fertiliser prices are given in Appendix 6, but they are summarised in Table 9.4, and of particular relevance are calculated costs per kg of nutrient. Note that WUFMAS uses the Systeme International units for fertiliser: N, P and K and not P_2O_5 (44 percent P) and K_2O (93 percent K). In the case of fertilisers that contain both N and P, and because the P is much more costly than the N, the N is priced at the rate for N in Urea, the cheapest source. The price of nutrients varies widely both between products and republics, indicating the need for rationalisation of sources and harmonisation of prices in the region. Most show a strong and persisting price subsidy against their import parity price, most likely reflecting the subsidy on energy that is the single largest cost component in fertiliser.

9.4.1 Nitrogen fertilisers

Three "straight" N fertilisers are commonly used, together with amofos (monoammonium phosphate). Ammonium sulphate (21 percent N) is the most expensive source of N but is the most acidifying fertiliser of the four and has special application where soil pH is too high. Ammonium nitrate ("silitra", 33 percent N) is the most widely available and is cheaper. Urea ("carbamid", 46 percent N) is the cheapest and most concentrated source of N, and was used mostly in Uzbekistan.

Prices are within the same range as in 1996 but there are some exceptions. This may indicate the possible impact of exchange rate used to express price in US\$, and that prices on the free market may be quite different to those supplied through the state system. Nonetheless, it is noteworthy that the price remains well below both import and export parity economic prices of N as urea, of \$0.66 and \$0.74/kg of N. This is particularly striking in the case of urea, which costs \$0.22/kg of N in Uzbekistan at the official exchange rate, a third of the international price, revealing a marked persistent price subsidy.

9.4.2 Phosphorus

This is by far the most expensive fertiliser nutrient and as such, greater care should be taken when purchasing and using it. The prices recorded were much the same as in 1996 and generally close to the international import parity prices. These are about \$2.00 of P as triple superphosphate (18-20 percent P) and \$1.06/kg of P as diammonium phosphate (DAP 19N:21P as percent). There seems to be a larger subsidy on P in Turkmenistan and on Amofos (MAP, 11N:21P as percent) and Nitro-Amofos (26N:23P as percent) in Uzbekistan. The less concentrated but commonly used single superphosphate (7 percent P) is much more expensive than amofos as a source of P, but is cheaper than its import parity price reflecting a price subsidy.

9.4.3 Potassium

Apart from a low-grade source of kainit in Karakalpakistan, this nutrient is wholly imported into Central Asia, and in recent years very little has been imported. In 1997, the price of the little potash fertiliser recorded as being used is higher than in 1996, maybe reflecting the devaluation of the Uzbekistan currency against the rouble. Potassium is mostly cheaper than the other nutrients in international markets, but the subsidy on N and P reduces the differential in Central Asia.

9.4.4 Organic fertilisers

Mostly these are animal manure, applied in fresh or dry condition and after composting. Much less is available for use on field crops than in the past, and together with greater removal of crop residues from the fields, this is responsible for the slight decrease in soil organic matter content. Most organic fertilisers are used on the horticultural plots, mostly under private control. They are difficult to price because of their very variable chemical

composition and because they are rarely traded. Prices range from \$10 to \$20/t irrespective of the nutrient content.

9.5 Agro-chemical and Biological Control Prices

Full details that it was possible to collect of the pesticides and defoliants used on sample farms, supplemented by details provided by suppliers, are given in Appendix 6. They are summarised in Table 9.5, averaged over both farms and republics, as there are few recognisable differences on account of fiscal policy.

Table 9.5 Average Price of Agro-chemicals (\$/kg or l)

Insecticides		Fungicides		Herbicides		Other Products	
Nurelle D	14.65	Sulphur	0.07	Fusilade	9.59	Defoliants	
Preps	0.47	Fundazol	6.59	Dezarmon	1.97	Mg chlorate	0.62
BI-58	8.07	Saprol	3.83	Gesagard	9.32	Drop-Ultra	14.40
Rogor	13.51	Tuzal	8.88	Grandstar	476.29	Ustex	6.00
Arveo	22.53	Raksel	11.00	Stomp	8.77	Average	3.12
Tompil	11.28	Derazol	14.08	Cotoran	16.31		
Dravin 755	12.04			Basagran M	16.41		
Phosalone	12.89			Facet	21.28	Growth Regulators	
Thiodan	3.09			Target	7.48	Pix	13.06
Omite	6.54			Vertimek	139.58		
Nuron	30.41			Serox	27.65	Biological Agents (/box)	
Decis 025ec	6.18			Zelik Super	32.54	Trichogramma	0.33
Decis	10.00			Satis	9.16	Gabrobrachon	0.33
Bulldock	18.01			Ladox	3.90		
				Pardner	9.21		
Average	13.69	Average	5.15	Average	74.22		

Apart from defoliants, still extensively used on cotton to enhance maturation of bolls and aid picking, very little quantity of agro-chemicals currently is used in Central Asia, mainly on account of the lack of finance. A wide range of products is available, combining the older, off-patent products produced locally, in the CIS and Asia, with some of the latest products introduced in small quantities by most of the leading manufacturers who have local offices and agents. There is a wide range in price reflecting the age, origin, formulation and effectiveness of the products.

Included in this table are price estimates of the biological control agents most likely to be available. The technology of biological control was developed in Central Asia and its use largely replaced insecticides on cotton from the mid-1980s. After independence, the laboratories mostly have fallen into disrepair on account of the financial crisis, and fewer aircraft are available for aerial application. A few laboratories still operate and sell the control agents in a standard box, numbers contained depending on the species.

9.6 Labour

Average wage rates collected by enumerators from farms are shown in Table 9.6.

Table 9.6 Average Notional Wages Rates for Casual Labour (US\$/month)

Year	Kazakhstan	Kyrgyzstan	Tadjikistan	Turkmenistan	Uzbekistan
1996	65.47	15.56	4.37	3.12	20.42
1997	43.89	13.64	3.43	10.00	18.86

Rates in most cases are nominal and imputed, because on many farms, wages in cash have not been paid for several years. Labourers are paid notionally in kind by:

- access to land for production of crops that they are free to sell,
- allocations from the harvest of grain and vegetable crops and fodders, crop residues, and
- common services provided to the community, such as free housing, schooling, health care, electricity, gas, water, telephone and transport.

These imputed payments for labour are difficult to measure, and WUFMAS has not attempted to do so. They contribute heavily to the farm fixed costs, and are also part of the real variable costs of enterprises. The only effective way to account for them is to use an imputed cost of labour, using the rates shown in the table. Rates in local currency were converted to US\$ at an average exchange rate for the year but differences between estimates in 1996 and 1997 may reflect distortions caused by exchange rates as much as real changes on the farms.

9.7 Water Charges

Only Turkmenistan continued to provide water free of charge in 1997. Table 9.7 shows the current water charges with prices in local currency converted by mid-season exchange rates.

Table 9.7 Price of Water for Irrigation of Agricultural Crops
(US\$/tcm)

Year	Kazakhstan	Kyrgyzstan	Tadjikistan	Turkmenistan	Uzbekistan
1996	2.97	1.00	1.24	0	0
1997	2.12	0.88 (0.29)	0.65	0	0.71

Note: the price for water in Kyrgyzstan in brackets is for off-season use.

Prices mostly are less than in 1996 but this is likely to be the result of exchange rate variation. A decree of December 1996 established a water charge for Uzbekistan, to be levied as a charge against deliveries of state order crop products at the end of the year.

9.8 Taxes

Since independence when fiscal policy was uniform throughout the area and founded on heavy taxation of agricultural production, the five republics have pursued very different agricultural strategies. Agriculture is still taxed in Central Asia, particularly in the republics where state orders persist. So heavy are the levels of taxation that a production strategy much more advanced than subsistence is most likely to end in insolvency. This is the basic reason for the poor performance of agriculture, despite the legacy of subsidised inputs, highly developed infrastructure and technical competence.

Fiscal reform in Kazakhstan and Kyrgyzstan and less so in Tadjikistan, has seen the abandonment of indirect taxation through state orders. Despite the display of fiscal reform in Turkmenistan and Uzbekistan, it has largely been cosmetic. More than 70 percent of the cropping pattern remains under state orders, and the much-vaunted increase in commodity prices of Uzbekistan state order crops merely compensated for the impact of devaluation of the national currency. "Privatisation" in both republics has consisted more of "fragmentation" of land tenure than any serious attempt to create a truly free market for agricultural entrepreneurs.

9.8.1 Indirect Taxes

The difference between the farmgate purchase price of state order products and their economic equivalents represents a massive indirect tax on production (Sections 9.1 and 9.2). The most striking example is the farmgate price of raw cotton, which in 1997 averaged \$226/t and \$247/t on Uzbekistan and Turkmenistan sample farms respectively. The economic price of raw cotton at farmgate is about \$450-480/t, so the difference of \$230-250/t, equivalent to

more than \$500 per ha of cotton, represents the main source of Government revenue in these two republics.

This indirect tax on production, deducted at source through the enforced state marketing systems, drastically reduces the crop gross margin. For price-buoyant crops like cotton and fruit, financial gross margins are robust enough and mostly are attractively positive (see Section 12). For the other crops like cereal grains and fodders, the gross margins are either small or negative. With state orders on production, the levels of indirect taxes leave the farm with insufficient revenue to pay the substantial overhead costs of the farm and community levies, and their annual accounts are in the red.

Indirect taxation is partially compensated by subsidies on inputs: fuel for machinery, irrigation water, pumping from the drainage collector system, seeds and fertilisers. It remains, however, a major disincentive to farm management and labour to arrest the current decline in farm productivity, and also distorts resource allocation.

9.8.2 Direct Taxation

The common system of direct taxes on the agricultural sector at independence has been replaced by a variable set of taxes in the five republics. Information on these taxes was collected in 1997 from the five farms selected in 1996 as the proposed "type 2" pilot farms: it is summarised in Table 9.8.

Table 9.8 Agricultural Direct Taxes Levied in 1996

Republic	Kazakhstan	Kyrgyzstan	Tadjikistan	Turkmenistan	Uzbekistan
Farm name	Akumskiy	Rasviet	1st May	Murgap	G Guliam
Total area of farm (ha)	12,775	3,722	4,740	3,399	4,151
Irrigated area (ha)	4,859	1,934	3,071	2,456	2,532
Exchange rate used (ccy/\$)	75	17	500	4165	80
Name of tax	Cost of taxes in \$/ha of irrigated land				
VAT	6.74	0	0	0	0
Social security	0.38	0	2.34	6.20	0
Income (salaries)	1.95	0.06	4.75	5.08	4.32
Nature protection	0.62	0	0	0	0
Bowels of the earth	0.15	0	0	0	0
State	0.73	0	0	0	0
Private income	0.01	0	0	0	0
Property	0.72	0	0	0	0
Pension fund	2.65	0	0	6.20	39.56
Financial incentive fund	1.16	0	0	0	0
Unemployment	0.77	0	0.01	0	2.04
Unemployment & pension	0	0.33	0	0	0
Emergency	0	0.66	0	0	0
Roads	0	0.18	0	0	0
Production and VAT	0	45.78	3.96	0	0
Profit	0	0	0	0	0.28
Land	0	0	0	0	3.96
Transport	0	0	0	0	0.81
Medical insurance	0	0	0	0.15	0
Total	15.87	47.00	11.06	17.64	50.97

Note: farm Murgap in Turkmenistan is free from VAT and production tax because it is a seed farm

Some of the taxes are income-related, others land-related, so that it is possible only to compare similar types of farm. The farms representing the five republics fall into two groups: the high rate states of Kyrgyzstan and Uzbekistan, the others being the low rate states.

The lowest total rate of direct taxation is in Tadjikistan (\$11.06/ha), and the highest in Uzbekistan (\$50.97). Removal of indirect taxes in Kazakhstan and Kyrgyzstan has produced an increase in direct taxes only in Kyrgyzstan, where they amount to \$47/ha of irrigated land.

However, the loss of revenue from indirect taxation of cotton in the reformed economies, more than \$500/ha in Uzbekistan, is very much greater than the revenue from direct taxation.

9.9 Community Costs

The Soviet concept of rural development was that the basic farm unit should provide a complete livelihood for all the farm workers, their families and the whole rural community located on the premises. This livelihood included the right housing, power, drinking water, education, health care and rural infrastructure, free of charge for all. It is arguable that even at the time of their inception, this system was unsustainable without alternative enterprises to generate wealth. Such rural enterprises created during the Soviet period are mostly in decline or moribund. The annual rate of expansion of these rural communities is at more-or-less the national rate of population growth, which in all republics is above the global average, while the productivity of the land that supports the community is in decline. Except in the reformed economies of Kazakhstan and Kyrgyzstan, the original entities still directly support their communities by payment from the farm accounts of such of the community costs as is politically expedient to continue to provide. In many communities, the level of these services is much reduced, electricity and gas supplies cut-off, education and health care at substandard levels, and minimal maintenance of the rural infrastructure.

The farm accounts are kept according to the principles established in the Soviet period. So-called "variable costs" of enterprises are very different to the western definition of the term of the same name, and it is very difficult to disentangle the true overhead costs of the farm from the support costs of the local community. Analysis of the books of WUFMAS farm 14, 1st of May in Tadjikistan, revealed that more than 90 percent of the farm "overhead" costs were better classified as community costs. On most of the WUFMAS sample farms, salaries for farm labour have not been paid in cash for more than 3 years, so labour costs are imputed yet taxed at their notional book value. In lieu of salaries, families have access to land to produce their own crops, to the farm crops for their own consumption, and the minimum level of community services free of charge. For this reason, at least a part of the community cost is imputed labour cost, but it is very difficult to assign a realistic value to it.