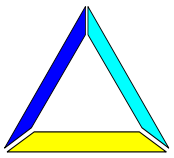
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The Quotas on Grain Exports in Ukraine: ineffective, inefficient, and non-transparent

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November 27, 2006


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Executive Summary:

On September 28, 2006, the Government of Ukraine introduced a system of licenses for grain exporters. This system was subsequently replaced with a quota system. In both cases, the argument made to support these market interventions is that they are needed to guarantee food security and protect domestic consumers from rising international wheat prices. This short policy note argues that:

- The **introduction of the quota is not justified,** because domestic grain supply is amply adequate to cover all domestic needs and allow considerably higher grain exports than estimated by the government. This year's grain production is well above the average of the last ten years and high beginning stocks contribute to the good the supply of grain in the 2006/07 marketing year. Furthermore, if the quota was implemented to keep bread prices stable, there is no justification at all for the introduction of a corn and barley quota. Finally, if stabilising consumer prices is such a concern, why does Ukraine maintain import tariffs on grains?
- Ukrainian **food consumers gain very little from the quota**. Although wheat prices have been constant, prices for flour and bread have actually increased since the quota's introduction. In fact, wheat prices contribute only to a certain percentage to the final bread price. The impact of lower feed prices on the prices of meat and dairy is expected to be very limited.
- At the same time, the quota system imposes **large losses on grain producers and significantly affects export revenues**. Total lost export revenue until the end of 2006 are estimated at US$300 million, while the estimated reduction in farmgate prices by around US$25/ton could lead to cumulative revenue losses in wheat production alone of US$350 million during the 2006/2007 marketing year. The proportion of the poor engaged in agriculture in Ukraine is larger than the average for the country, hence this reduction in revenues for grain producers **may actually increase rather than decrease poverty**.
- The quota system **also hurts grain traders**, who have invested significant amounts of money in grain storage and other logistics to facilitate exports. Traders incur additional storage costs, financing costs, costs of hiring shipping tonnage that remains unused, and potential loss of market share because delivery times cannot be kept. As a result, an industry that has generated close to US$300 million in Foreign Direct Investment in recent years may scale back. Even if the quota was to remain only temporary, the loss of Ukraine's reputation as a reliable host for foreign investment could cause lasting damage.
- The **administration of the quota system so far has been highly non-transparent**, and thus creates opportunities for corruption. Companies able to secure an export quota can presently cash in a profit of US$ 25/ton (the equivalent to the lost revenue for producers). Based on the existing wheat quota alone, this amounts to a pure profit of US$ 10 million until end 2006. Additional losses due to incentives to smuggle grain out of the country are likely.
- Domestically, the **main beneficiaries of the quota are flour millers and animal feed producers**, whose profit margins increase as a result of falling grain prices on the domestic market.
- Thus, the quota is an **ill-advised and poorly targeted measure to protect the poor in Ukraine**. Alternative measures exist that would protect the poor from rising food prices, including the use of means tested cash transfers. The quota system is both ineffective (does not reach the poor), inefficient (imposes large cost for very limited gain), and prone to corruption. The paper's main recommendation is therefore to abolish the quota system as soon as possible.

[*] The note has benefited from comments and contributions by: Riccardo Gucci, Oleg Nivyevskiy, and Heinz Strubbenhoff (all IER, German Advisory Group) and Asad Alam, Matthias Grueninger, Ruslan Piontkivskiy, Lee Travers and Peter Thomson (all World Bank).

1. Is the quota justified to ensure domestic food security?

The imposition of a quota only affects prices if the quota is in fact binding. The quota for grain exports introduced in October amounts to a total of 1.603 million metric tons (MMT), with 0.6 MMT respectively for barley and corn, 0.4 MMT for wheat and 0.003 MMT for rye. The quota is currently valid for the remainder of 2006. A new draft Cabinet of Ministers resolution published 22 November would bring the quota for the year to 2.873 MMT for the 2006/2007 marketing year, with 0.73 MMT for wheat, 1.3 MMT barley, 0.84 MMT for corn, and 0.003 MMT for rye. Government sources expect Ukrainian grain exports in the 2006/07 marketing year to amount to 9.5 MMT. What this implies for further relaxation of the quota during the course of 2007 remains unclear.

How do these numbers compare with production and net export data in recent years? Official data on wheat production, net exports and in particular storage are incomplete, often published with considerable lags and considered unreliable by many market participants. This lack of quality statistics is in itself a significant hurdle for the operation of grain markets. A series of private data sources are available, as well as data from the United States Department of Agriculture. In this paper, we use data from the private market information agency UkrAgroConsult.

Table 1 tracks the supply and demand (S&D) estimate for Ukraine for the last three marketing years plus the current 2006/07 marketing year. The S&D estimate for wheat is attached in Table 2. The total 2006/07 grain crop of Ukraine is estimated to amount to approximately 35 MMT. This is below last year's crop of 36.6 MMT, but nevertheless well above the ten year average and much higher than the low 2003/04 crop. Moreover, grain stocks at the end of the 2005/06 marketing year were large. Thus, the total supply of grain in Ukraine – ending stocks of the last marketing year plus the year's crop and grain imports – is very large: 37.8 MMT. The total domestic use of grain is expected to increase to 24.4 (last year: 23.3) MMT, especially due to growing demand from the livestock sector. This would, however, still allow for total exports considerably above the Government's forecast of 9.5 MMT. Indeed, assuming exports stayed at the levels of 2006/2006, which was a record year, there would still not be any shortage on the domestic market, while taking a more conservative export forecast of 10.2 MMT provided by UkrAgroConsult end-year stocks of grain would actually increase.

Table 1: Total Grain Supply, Demand, Net Exports and End-Year Stocks

TOTAL GRAIN	**2003/04**	**2004/05**	**2005/06**	**2006/07***
Total Grain Crop	20,320	37,957	36,622	34,933
Imports	3,725	160	185	177
Total Supply	**26,072**	**39,459**	**39,273**	**37,814**
Food Industry	7,820	8,200	7,910	8,025
Feed Usage	10,535	12,400	10,575	11,570
Seeds	2,520	2,815	2,830	2,820
Losses	967	2,295	2,015	1,935
Total Domestic Use	**21,842**	**25,710**	**23,330**	**24,350**
Exports	**2,888**	**11,283**	**13,239**	**10,295**
Ending stocks	**1,342**	**2,466**	**2,704**	**3,169**
Stocks/Use %	**5.4**	**6.7**	**7.4**	**9.1**

Source: UkrAgroConsult

The situation is quite similar for the wheat S&D statistics, which are part of the total grain S&D statistic. The 2006/07 wheat harvest was well below previous years due to the dry autumn last year and some

winter kill, which reduced both harvested acreage and yield. However, a wheat crop of close to 14 MMT is still an average crop and clearly much higher than the crop of 2003/04. Taking total supply and forecast domestic demand (with a slight increase in the share of fodder wheat due to insect damage), exports of close to 5 MMT would still be possible. In fact, UkrAgroConsult forecasts wheat exports to total only 2.8 MMT, which is still well above the currently allocated quota.[1]

Table 2: Total Wheat Supply, Demand, Net Exports and End-Year Stocks

WHEAT	**2003/04**	**2004/05**	**2005/06**	**2006/07***
Crop	4,250	16,529	17,910	13,809
Imports	3,400	5	10	10
SUPPLY	**9,078**	**17,462**	**19,207**	**15,795**
Food Industry	5,700	5,800	5,750	5,700
Feed Usage	1,000	3,900	3,000	3,200
Seeds	1,100	1,350	1,100	1,200
Losses	300	800	900	750
Total Domestic Use	**8,100**	**11,850**	**10,750**	**10,850**
Exports	**50**	**4,325**	**6,481**	**2,800**
Ending stocks	**928**	**1,287**	**1,976**	**2,145**
Stocks/Use %	**11.4**	**8.0**	**11.5**	**15.7**

Source: UkrAgroConsult

The lack of justification of the quota is most obvious for the case of barley. The 2006/07 barley harvest reached a ten year high. And despite a very large increase in domestic use to 6.4 MMT(last year: 5.3), exports could increase by over 50% without exhausting stocks. Note in addition that barley is mainly used for feedstock and thus a quota on barley exports has no direct impact on food security.

[1] The argument is sometimes made that due to the lower quality of the wheat harvest, available milling wheat may not exceed domestic demand by much and hence the quota on wheat exports (particularly if increased to 0.73 MMT) is adequate. However, the distinction between feed wheat and milling wheat is ultimately a question of degree and price rather than kind. In bad years, millers will accept lower quality wheat and can if necessary make up the difference through purchasing supplements. Moreover, the quota makes no distinction between flour and fodder wheat.

Table 3: Total Barley Supply, Demand, Net Exports and End-Year Stocks

BARLEY	2003/04	2004/05	2005/06	2006/07*
Crop	7,450	10,615	8,824	11,998
Imports	40	15	20	5
SUPPLY	**7,736**	**10,816**	**9,515**	**12,315**
Food Industry	350	500	450	500
Feed Usage	4,600	3,900	3,300	4,100
Seeds	900	930	1,200	1,100
Losses	180	500	300	580
Total Domestic Use	**6,030**	**5,830**	**5,250**	**6,280**
Exports	**1,520**	**4,315**	**3,953**	**5,200**
Ending stocks	**186**	**671**	**312**	**835**
Stocks/Use %	**2.5**	**6.6**	**3.4**	**7.3**

Source: UkrAgroConsult

Until the end of September, when Ukrainian grain exports were stopped, the country had exported 1.62 MMT of wheat and almost 2.2 MMT of barley. Exports in October, which were already within the quota, amounted to 0.388 MMT of wheat and 0.496 MMT of barley. Thus, total exports for the 2006/07 marketing year to date are 2 MMT for wheat and 2.7 MMT for barley. Adding the unallocated amount of the proposed revised quota (0.35 MMT for wheat and 0.8 MMT for barley), the resulting figures are still well below the numbers which would lead to a decline in wheat and barley stocks. The quota is therefore clearly unjustified from a domestic food security point of view and very clearly highly binding.

2. The costs of the quota: large losses for grain producers, lower export revenues, potential negative effects on future investment, increased risk of corruption

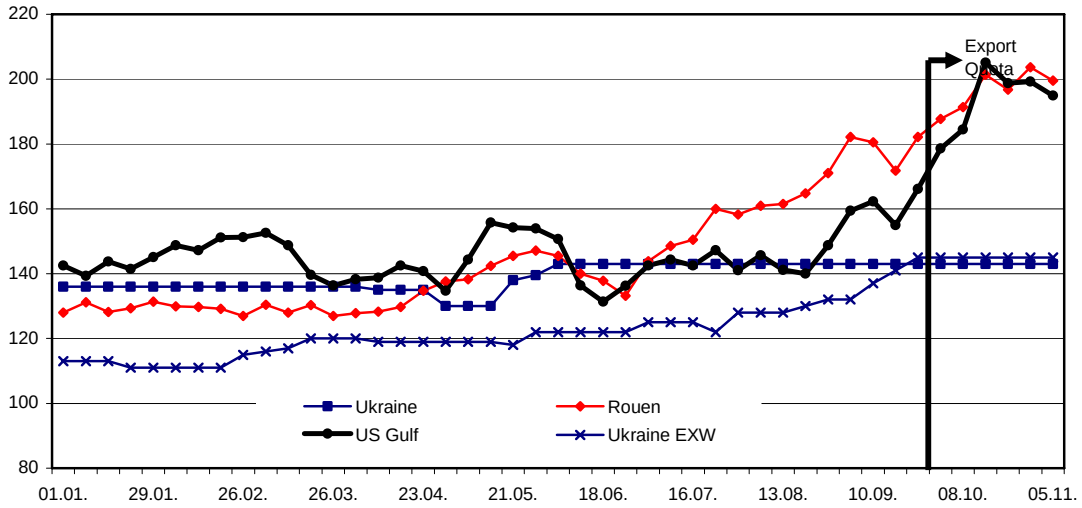
The imposition of quantity controls is under any circumstances a very inefficient and blunt policy tool to achieve a stated objective. The losses to an economy and society are always greater than the gains. This basic principle is a widely accepted result in trade economics, and has influenced the strong position taken for instance in the GATT Article IX, paragraph 1, against the imposition of quantitative restrictions. Annex 1 explains the economic argument with the help of a simple diagram, which shows that the losses suffered by domestic producers are always larger than the gains to consumers.

How much are grain producers in Ukraine losing as a result of the quota? The size of these losses depends on the impact of the export quota on farm gate prices. Chart 1 provides information on wheat price developments since the beginning of 2006 in Ukraine and on world markets. Since mid-2006, FOB prices (Free On Board, in the US and the EU), which represent the world market price level, have increased from roughly 140 to 200 US$/t. These price movements have been driven by indications that world grain production will fall short of consumption in the 2006/07 marketing year. Rising demand for food production and biofuel together with lower than expected grain production in the US and the EU and the devastating drought in Australia have fuelled the sharp price rises. The Ukrainian export quota has also contributed to higher world market prices in other countries.

Chart 1 shows that prior to the implementation of the quota, Ukrainian EXW prices tended to mirror world market prices minus a margin of roughly 25 US$/t. Since the imposition of the quota, however, this margin has increased to roughly 50 US$/t as Ukrainian grain price developments have been divorced from corresponding world market price developments, and Ukrainian EXW prices have remained

essentially constant.[2] The result is that 25 US$/t less is being paid for grain at the EXW level than would be the case without the export quota system. It is safe to assume that the resulting reduction in farm gate prices is at least as large. Assuming that this reduction in farm gate prices is maintained over the entire marketing year, wheat producers stand to lose a total of US$ 350 million in revenues (25 US$/t over 14 million t). If farm gate prices for all grains fall by a similar amount, revenue losses of US$ 875 million could result.[3]

Chart 1: Weekly FOB wheat prices since Jan. 1, 2006 (US$/t)



At the same time, Ukraine as a whole is losing export revenues and the corresponding foreign currency earnings as a result of the quota. If the price relations prevailing in the first 8 months of 2006 are taken as a guideline, FOB prices for Ukrainian wheat would have followed the international trend and would be in the neighbourhood of 190-200 US$/t at the moment, if not for government interference in the form of the export quota. Using this price, and a (conservative) average monthly export volume for wheat before the quota in the order of 0.5 MMT (which corresponds to slightly less than the average monthly wheat exports during the previous four seasons), Ukraine is currently foregoing export revenues for wheat in the range of USD 100 million per month. For barley, similar calculations based on average exports of 0.4 MMT and a FOB price in the neighbourhood of 140 US$/t suggest additional forgone monthly export revenues of another USD 60 million. For corn, losses would range around US$ 30-40 million. Until mid November, these losses accrued fully because effectively no official exports were taking place. Since then, limited exports have resumed under the quota system. Nonetheless, based on the estimates in section 1, we can safely assume that the current quota for grain exports until end 2006 effectively cuts grain exports to 1/3 or so of their level without quota. The estimated total reduction in export earnings until year end would

[2] The Ukrainian FOB price in Chart 1 is, since the implementation of the quota, essentially a fictional price, as no (official) trade is taking place at the moment.

[3] The impact on poverty would depend on the distribution of agricultural revenues across the rural population, on which we know little. The household budget survey does show that the poor are more likely to live in rural areas, and average agricultural salaries are well below the national average. How revenues are distributed within farms is something that would require deeper analysis, but it is plausible that the reduction in revenues would on balance hurt the poor in rural areas and thus may actually increase overall poverty.

thus amount as a minimum to approximately to US$ 300 million and increase the current account deficit by 0.3% of GDP all else equal.[4]

Proponents of the export quota might object to these calculations by pointing out that these export revenues are only temporary and can be recouped later on, if the quota was to be lifted or relaxed and exports re-allowed. This reasoning misses two important points, however. First delayed exports result in a number of costs. The grain in question must be stored in the interim, which leads to financial losses in the form of bound capital, and quality losses in storage. Moreover, real economic losses accrue to grain traders, who have hired transport ships, at the cost of several tens of thousands of US$ per day. Second, there are obvious limits to Ukraine's storage capacity, and given the S&D statistics presented above, not all producers will be able to wait things out. The opportunity costs of not being able to export today could thus be significant, particularly for smaller producers without access to their own storage.

In fact, if the purpose of the export quota – to lower consumer prices for grain and grain-based products – is taken seriously, then over the marketing year there must be some significant net reduction in exports (so that domestic supply is significantly increased and prices are effectively reduced). Hence, a reduction in net export revenues is the inevitable price that Ukraine pays for implementing a binding quota.

These are only the immediate financial damages caused by the export quotas. The indirect damages due to corruption, loss of investment and damage to Ukraine's reputation could be significantly higher in the long term:

- **Corruption:** As a result of the difference between the domestic and world market price, there is a great incentive to obtain export quotas. For instance, if the difference between the domestic and international price for wheat is around US$ 25/ton and if the allowable quota is 0.4 MMT for wheat, then the value of this quota is US$ 10 million until the end of 2006. This is a pure profit transferred directly to the enterprise that was able to obtain the quota and represents a significant incentive for corruption. If the government allocates the quota on a competitive basis, some of these profits could be recouped through an auction. However, so far, the quota system has been administered in a largely non-transparent way.[5]
- **Loss of investment:** The export quotas for grain make mockery of government claims that it welcomes and wants to attract foreign investment in agriculture. The total stock of FDI in agriculture amounted to US$294 million as of April 2006, with significantly higher numbers in the downstream food industry. The de facto export ban hits firms that have been at the forefront of efforts to modernize and transform Ukrainian grain production and marketing, and have invested in upgrading grain storage, transportation and port infrastructure. This investment, the corresponding jobs and transfer of know-how are at risk, if Ukraine's Government is perceived to be an unreliable partner.
- **Loss of reputation:** Ukraine is an important European grain exporter. For international grain traders, reliability of supply is important. The introduction of the quota and the subsequent complete stop to grain exports for a couple of weeks have not only imposed direct financing, storage and shipping tonnage costs on producers and grain traders, but also meant that some traders were unable to fulfill delivery orders at the other end on time. This has a price, too, and means that Ukrainian grain may henceforth be traded at a discount to compensate for export and delivery risk. The loss of reputation is naturally highest in the grain market, but it could extend to other sectors where foreign investors may ask for a risk premium to compensate them for the uncertainty surrounding government policy.

[4] Estimated exports from Oct-Dec without quota 1.5 MMT wheat, 1 MMT barley. Losses if quota is fully utilized are 1.1 MMT of wheat * USD200, 0.4 MMT barley * USD140, totals USD 304 million.

[5] Initially, the Ministry of Economy favored an allocation on a first-come, first-served basis. Later, the idea of an auction was floated. In the event, general regulations were issued in mid-November, which would appear to leave significant room for discretion and also require any applicant to have grain in storage by the time of the application. This creates the risk that the grain is purchased by a trader and stored but the quota is not obtained. This is clearly not in line with international practices.

- **WTO membership at risk:** A final economy-wide cost of the quota is that it may cause complications to Ukraine's WTO accession bid. As noted above, under paragraph 1 of Article XI of the GATT, quantitative restrictions are in principle ruled out. Since this concerns an agricultural commodity, the rule can be waived if the quantitative restriction is needed to support domestic agricultural policies. In fact, however, Ukraine would have a hard time justifying its stance on acceptable principles. First, with the grain harvest at 35 MMT in 2006, there is no real issue over food security that would justify an export limitation. In fact, Ukraine still applies an import tariff of 20 Euro per ton on corn[6], rye and barley and of 40 Euro per ton on wheat. WTO members could reasonably ask for this to be removed first, if the issue was one of immediate food security (as provided for in the so called "safeguard clause"). Second, from the point of view of supporting agriculture, the present quota makes no sense at all, since the bulk of the costs are in the end borne by grain producers. However, we use the cautious formulation "may cause complications" above because WTO members tend to be far more sensitive about import than export restrictions. Indeed, if anything, Ukraine is as a result of its export restriction subsidizing grain exporters from Russia and Europe, who are gaining market share and benefiting from marginally higher prices given the lack of supply from Ukraine.

3. Who gains from the quota? Flour and feed producers, not consumers

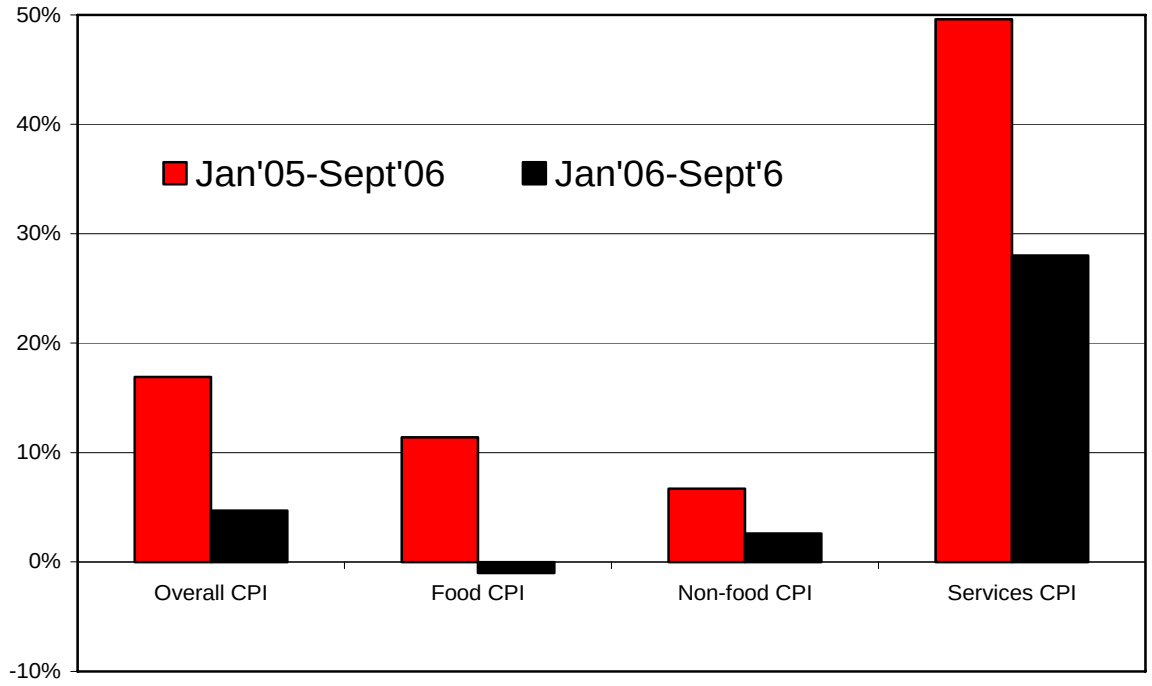
Despite its large costs, proponents of the quota may still argue that these costs are only borne by international grain traders and hence don't really hurt average Ukrainians, whereas the benefits of lower domestic food prices are widely shared and particularly welcome for the poor. This argument is not borne out by evidence.

As Chart 2 suggests food prices have on the whole tended to dampen rather than push consumer price inflation over the most recent 12 months. Flour and bread represent 0.54% and 3.87%, respectively, of the consumer price basket. Thus while the price of bread has an important symbolical value in a country that experienced one of the worst famines ever recorded in the 1930s, it is not a major contributor to the cost of living. Even if the recent rise in international grain prices had been fully passed through to domestic consumers this would have led only to an increase of 1.75 percentage points in the CPI.

In fact, since the imposition of the grain quota, flour and bread prices have increased, by 2.3% and 2% respectively in the month of October. This has happened although the domestic price of wheat has been constant since the summer. Hence, whatever benefit has been derived from keeping grain prices low has not been passed on to consumers so far. One reason why this is the case is that the price of flour and bread reflects a host of factors, including the price of energy, wages, transportation to market and a retail margin. Energy prices, for instance, have increased significantly in the domestic market since the summer and this may account for higher flour and bread prices.

[6] The tariff on corn is 20 Euro/ton or 25% ad valorem, whichever is the lower.

Chart 2: Consumer price inflation by source in Ukraine – January 2005 to September 2006, and January-September 2006 (%)



In some instances, even abstracting from other cost factors, the impact of lower grain prices on consumer food prices will be effectively nil in the short run. Take the livestock feeding sector as an example. Since the stock of animals to be fed is more or less fixed in the short run, the demand for feed grain is also more or less fixed. Thus should feed grain prices fall, this will have no immediate impact on the supply of meat and cattle and hence no immediate impact on meat and dairy prices (a somewhat price elastic supply curve may exist in the poultry sector). Furthermore, in particular in the pig and poultry industry meat and feedstock production are vertically integrated and relatively highly concentrated. In the absence of competition there is no reason why meat or feed producers should pass lower costs on to their customers. There is every reason to fear, therefore, that the net impact of export quotas will largely be to tax farmers at one end, and inflate the profits of meat producers and feed and flour mills at the other, with little or no noticeable impact on consumer prices, at least in the short run.[7]

At the conceptual level, export quotas are an exceedingly ill-targeted tool to help consumers who are truly threatened by food price inflation. To the extent that export quotas for grain really do result in a measurable reduction in food price inflation, all consumers benefit; rich and poor. There is no denying that increasing food prices could represent a significant burden to poor Ukrainians. But certainly not to all Ukrainians, many of whom have benefited from increasing real incomes over the last five years of economic growth. A significant share of whatever benefits the export quotas generate will not go to help poor consumers but rather be 'wasted' on consumers who can actually afford to pay more for food.

In summary, the argument that export quotas are designed to support consumers is weak. Experience with similar interventions in Ukraine and elsewhere shows that it is often instructive to consider whether perhaps there are other 'hidden' beneficiaries, who are using populist arguments as a cover for other

[7] Note that one of the stabilizing factors for meat and poultry prices in 2006 has been the export ban on Ukrainian meat imposed by Russia. However, no one has argued so far for keeping this ban in place to stabilize domestic meat prices.

motives. In particular, anyone who manages to export despite the export quota system (i.e. smugglers or those who succeed in bribing officials) will profit handsomely. Based on the price data presented in Chart 1 above, the margin between the world market price for wheat and the corresponding EXW price in Ukraine is currently roughly 25 US$/t higher than is usually the case. We noted above that for wheat alone this provides a pure profit to anyone able to export totaling US$10 million until end 2006. This profit provides both a powerful incentive to get around the export quota system, and the financial means of 'persuasion' to do so. Indeed, many observers suggest that the underlying purpose of the export quota system is not to reduce exports but rather to make them more lucrative (at the expense of Ukrainian farmers) and to redirect the proceeds into certain pockets.

4. Policy recommendations

The grain quota is a costly tax on producers and investors in the agricultural sector. It is an ill-advised policy instrument, giving rise to fears of corruption and damaging Ukraine's reputation. Moreover, taxing farmers to help consumers (even if it were more effective than we show to be the case presently) is clearly inconsistent with the stated policy goal of supporting agriculture in Ukraine. Indeed, according to the draft 2007 budget, 7.3% of total public expenditure will be channeled towards agriculture, the equivalent of 1.8% of Ukrainian GDP. It is contradictory to give this money to agriculture with one hand, and take it away via export quotas with the other. Clearly, it would make more sense to reduce farm subsidies and use the resulting fiscal space to reduce taxes (thus helping consumers) and/or provide consumers with direct income transfers to help them cope with increased food prices.

The main policy recommendation that follows from the analysis in this short note is to abolish the export quota as soon as possible. Time counts, because of the costs that even a temporary quota imposes both financially to grain producers and traders and by damaging Ukraine's reputation. The gains, as this note argues, are skewed to the benefit of flour and feed mills as well as meat producers rather than consumers at large, and in any case an export quota is a particularly blunt and distortive instrument to shield consumers from the effects of rising world grain prices.

Nonetheless, it is important to realize that grain prices may play an important political role. Indeed, interventions into the grain market are not new in Ukraine and have been justified in the name of food security in the past. Should the government be genuinely concerned about the impact of rising grain prices on the poor, the first best policy would be to a cash transfer system targeted to the poorest segments of the population. As the government deals with the social impact of administrative price increases for energy and municipal utilities, adding a small cash transfer program calibrated on developments in domestic food prices would not represent a significant additional difficulty. Such transfers should ideally be funded from general government revenue (and, indeed, fiscal space for them could be easily created by limiting and reorienting wasteful agricultural subsidies). In the extreme case of an acute revenue shortage, an export tax on grain would still be preferable to the quota system since it does not create the same risks of corruption, whilst generating the same effect of lower domestic prices. However, because Ukraine has no market power in the international grain market, it will still lose significant export revenues from an export tax, which will translate into lower producer incomes. As we have argued in this note, the current supply and demand situation in Ukraine's grain market hardly justifies any government intervention.

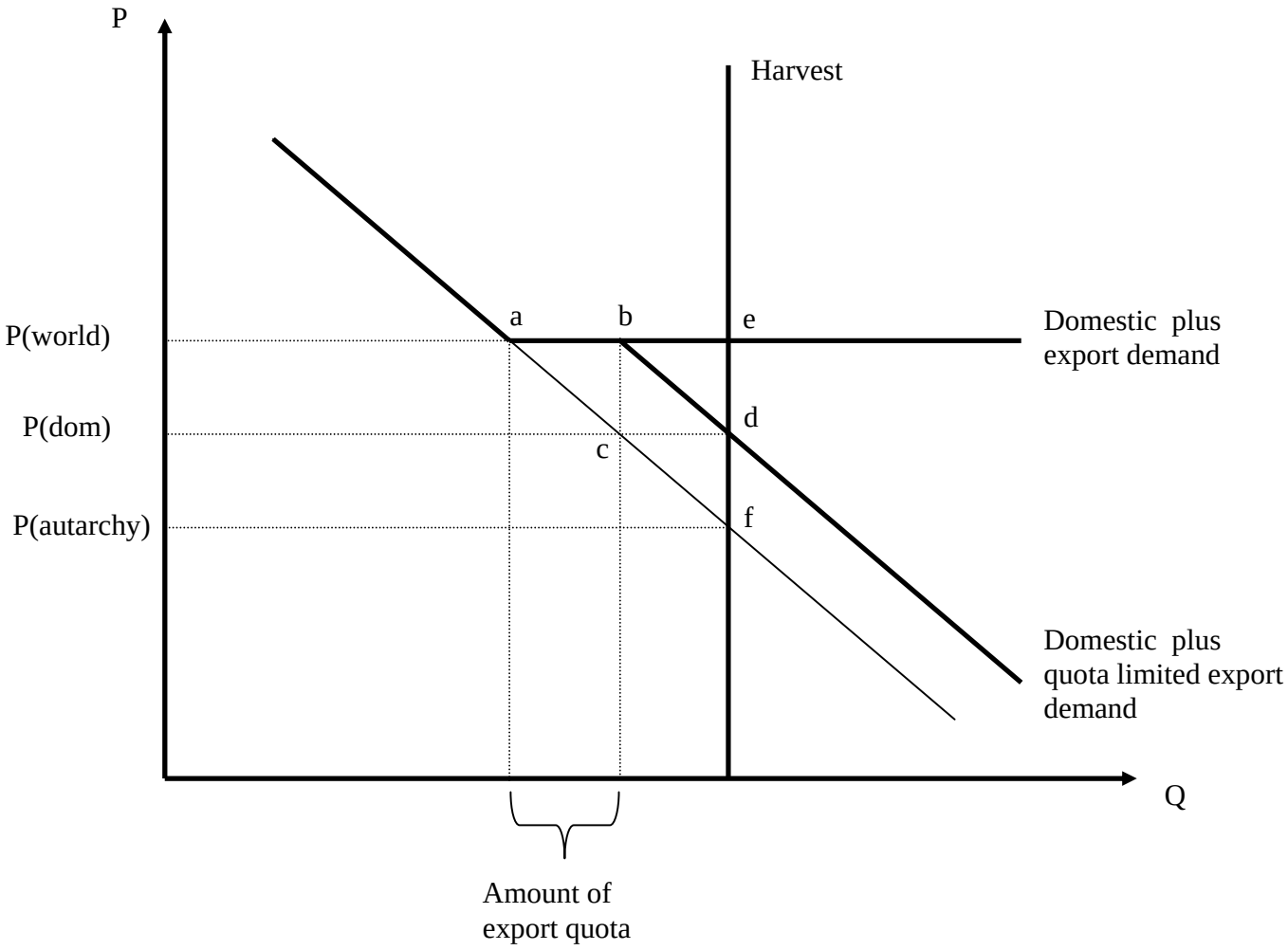
The abolition of the grain export quota is one way for the Ukrainian government to reconfirm its market orientation and reformist credentials. The sooner this happens the better for average Ukrainians.

Annex 1 The Economic Analysis of Quotas

A quota is essentially an intervention into the market through quantity controls with the aim to affect the domestic price. In the case of an export quota, the government aims to lower domestic prices below the world market price, which is taken as given in most instances – this is certainly the case for grain. If the quota is binding, domestic prices should fall to the benefit of domestic consumers of grain. At the same time, however, producers of grain (and those companies involved in the export of grain since Ukraine is a net grain exporter) lose out. How do these gains and losses compare? This section shows using a simple diagram that the imposition of a quota generates overall welfare losses – in other words, the losses of producers are larger than the gains of consumers.

Chart 3 explains why. The diagram shows the supply and demand for wheat in a price quantity space. The supply curve is vertical, since grain is an annual crop the supply of which in the short run cannot be altered by policy. Before the imposition of a quota, the demand curve is downward sloping (the lower the price, the more is demanded), but kinked at the world market price P(world). This is because at the world price, producers are indifferent between selling domestically or abroad and the demand curve becomes the world demand curve. The domestic economy consumes at *a*, and total exports are *ae*.

Chart 3



If the government introduces an export quota, *ab*, then domestic producers will supply domestic demand *a*, then export the amount allowed by the quota *ab*, and after this will be forced to sell the remainder of the harvest on the domestic market. Hence, after *b*, the demand curve slopes downward again, until it cuts the supply curve at point *d*. This corresponds to a domestic equilibrium price P(dom) below the world market price.

The welfare effects are simply calculated. As a result of the quota, the consumer surplus (the area below the demand curve and above the domestic price level) increases by *abcd*. However, the producer surplus (the area to the left of the supply curve and below the domestic price level) falls by *acde*. A net welfare loss is created by the imposition of the quota, equal to *bde*. We provide approximate estimates of the size of this welfare loss in the next section. Suffice to note here, that the size of the area *bde* is a function of the gap between the domestic and the international price for grain, which in turn depends on the size of the quota relative to exports under free trade and the elasticity of demand (which is represented graphically by the slope of the demand curve).

However, here it is important to note that there are additional welfare losses associated with the quota system. This is because, as a result of the difference between the domestic and world market price, there is a great incentive to obtain export quotas. Every exporter has an incentive to allocate additional resources to obtain the quota (the literature calls this “rent seeking behavior”) and these additional resources are a net loss to social welfare.

The size of this welfare loss depends on the mechanism for allocating the quota. If this is through competitive and transparent auction, then rent seeking is minimized. However, usually other means of allocation (nepotism, patronage, discretion etc.) dominate, and the size of rent seeking expenses may in fact far exceed the total value of the quota and thus welfare losses multiply.