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Iryna Kulyk

ANALYSIS OF
IMPEDIMENTS TO GRAIN EXPORT FROM RUSSIA, UKRAINE AND KAZAKHSTAN

Three Essays

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ANALYSIS OF IMPEDIMENTS TO GRAIN EXPORT FROM RUSSIA, UKRAINE AND KAZAKHSTAN

Three Essays

by Iryna Kulyk

IAMO 2019

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SUMMARY

Food security has emerged high on the agenda of development agencies, policy makers and private stakeholders. As a consequence of major events affecting agricultural production such as the world food crisis of 2007–2008 which prompted skyrocketing world market prices for grains, or highly variable weather leading to harvest failures, the governments of exporting countries tend to restrict their exports with the aim of limiting domestic food price inflation and mitigating any negative impacts on their local markets.

According to USDA projections to 2025, Russia, Ukraine and Kazakhstan will further strengthen their position on the world wheat market. The countries are known to have unrealised grain production potential, deteriorated grain storage and transport infrastructure, and government interference in agricultural trade, i.e. application of restrictive measures on grain exports. The topic of trade barriers in the RUK countries remains highly relevant as demonstrated by the recent implementation of export duties for wheat in the Russian Federation.

Given the highly variable weather in the RUK region as well as other changing macroeconomic factors, it is hard to predict whether the countries will restrict exports in the future. Barriers to trade can be of formal or informal nature. Formal barriers are documented in governmental resolutions, while informal barriers can stem from administrative procedures, the market structure and the institutional framework observed in the country (Deardorff and Stern, 1997). Administrative measures such as the delayed supply of wagons, additional certifications and controls, bribing, preferential access and soft budget constraints for state trading enterprises are a few examples of the informal impediments to trade observed in the RUK region.

Both the formal and informal barriers described above lead to higher transaction and time costs, result in foregone opportunities for trade, damage the image of the country and provide disincentives for investments in the sector. This prevents the RUK countries from realising their potential in grain production as well as grain export.

Goal of the dissertation

Thus, the general objective of this thesis is to analyse the impediments to grain exports from Russia, Ukraine and Kazakhstan. In order to reach this objective I have divided it into three more specific goals, which are reflected in the structure of the thesis. Each aspect is covered in a separate essay.

1. The first objective is to theoretically and empirically evaluate a series of export restrictions implemented by the RUK countries.
The grain sector in the RUK countries has witnessed a series of public interventions over the last years. They took the form of export quotas, export taxes, export bans, transportation subsidies, the installation of a policy-business agreement, and partial reimbursement of Value Added Taxes (VAT). Considering the importance of these countries on the world market, it is not surprising that export restrictions in the RUK region have received significant attention in the scientific literature.

In this essay I show that any export restriction brings large welfare losses compared to a free trade situation. I support this claim with a comparative analysis of the different export policies applied by the RUK governments on their respective domestic wheat markets between 2006 and 2016. Additionally, alternative policy responses towards achieving the policy goal of food security are suggested and discussed.

As the policy instruments applied by the RUK governments include tariff and non-tariff measures, the comparison of their effects becomes very challenging. There is a lack of method for the consistent comparison of tariff and non-tariff measures that restrict export. Moreover, estimates

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for the comparison of different export restrictive measures are difficult to obtain because of the lack of or limited access to good data.

In the first essay I answer the following research questions:
- How can different policy measures be compared consistently?
- What are the theoretical welfare effects of the applied measures?
- What governmental interventions applied in the grain markets of RUK are the least trade-restrictive?

Using a social welfare analysis, I show and compare the effect of different policy instruments on producers, consumers and the government budget. I use a partial equilibrium approach to show the effect of export policies on the wheat market, although I do not take the consequences for other markets into consideration.

Based on the theoretical analysis, it has been shown that although consumers might benefit from export restrictions, the overall welfare of the country decreases when export restrictions are introduced. After a theoretical welfare analysis of the export restrictions applied by the RUK governments, I compare them empirically by calculating their tariff equivalents. The results make it possible to rank the policy measures according to their trade restrictiveness.

For Russia, the estimation results show that the export ban had the highest restrictive effect on exports, an unsurprising outcome. The export tax in 2007–2008 was slightly more restrictive than the one applied in early 2015. The tariff equivalent for the export tax from July 2015 to September 2016 turned out to be positive, i.e. the average monthly exported quantities were higher than in the base period of the 2008/09 MY.

For Ukraine, the results of the empirical analysis confirm the theoretical predictions and show that export taxes in 2011 were less distorting than export quotas in 2006–2008 and 2010–2011. During the export tax regime, signals from the world market continued to be transmitted onto the domestic market and traders were able to react to them.

For Kazakhstan, the results suggest the restrictive power of the export ban applied in 2008. The tariff equivalent for the transport subsidy

is positive, which is a reasonable result, considering that it was applied to support wheat exports from Kazakhstan.

The following key recommendations aim at supporting the development of a more competitive grain market while at the same time realising food security for the most vulnerable households:

- Stop the practice of unannounced official and unofficial export restrictions;
- Design and introduce a set of indicators to monitor food security in the country;
- Design safety nets for the poor to compensate them for increases in bread prices and shift to a targeted food support system.

2. The second objective is to compare the grain STEs across the RUK counries.

Russia, together with the other former USSR countries, inherited a complex system of centralised exports and imports. Foreign trade organisations exercised a foreign trade monopoly for the state during Soviet times. Although these trade organisations no longer exist, many former Soviet Union countries have organisations comparable to state traders. Russia, Ukraine and Kazakhstan have functioning state trading enterprises (STEs) in the grain sector: the State Food and Grain Corporation of Ukraine (SFGCU), the open joint-stock company 'United Grain Company' (UGC) in Russia, and the joint-stock company Food Contract Corporation (FCC) in Kazakhstan.

There has been little research carried out on state trading in Kazakhstan, Russia and Ukraine. The involvement of state trading enterprises in grain trade may have distorting effects on the domestic markets and export of these countries (Ingco and Ng, 1998; Informa Economics, 2008). As these three countries are potentially among the largest suppliers of grain on the world market and affect global food security, the functioning of the STEs in the RUK countries should be carefully inspected.

In the second essay I answer the following research questions:

- How can the STEs across the RUK countries can be compared consistently?
- Do the grain STEs in the RUK countries enjoy any benefits due to their ownership status?
- Considering the different features of the RUK grain STEs, do they distort grain trade on their respective markets?

After a short description of the grain STEs in the RUK countries I compare them using the following conceptual framework: I consider the structure of the ownership of the STEs, the type of activities in which they are involved, their role on the market and their preferential access to infrastructure and markets, political networks and soft budget constraints as important criteria for assessing the market distorting effects of the STEs. All criteria are grouped into three categories: internal decisions, external decisions and hybrid or mixed decisions, depending on the actor that has the power to make decisions, whether it is the government or a representative (CEO) of the company. The results provide an answer as to whether the grain STEs in the RUK countries are trade distorting and to what extent.

A common feature of the operations of the STEs in the RUK countries is the lack of transparency and limited access to any financial information on their activities. The results of the analysis show that the Ukrainian, Kazakh and Russian grain STEs enjoy certain preferential rights.

None of the grain STEs in the RUK countries have a single-desk status on the domestic or export market, and as such their opportunities to influence domestic consumers and processors, as well as the world market, are limited. However, based on the analysis of the following criteria: type of activities, role on the market and preferential rights, it can be concluded that the Kazakh Food Contract Corporation is the most potentially trade distorting enterprise among the three STEs. Abuse of its preferential access to infrastructure and the inputs market, price leadership on the domestic market and involvement in a large number of activities along the supply chain makes the Kazakh Food Contract Corporation the most

potentially trade distorting grain STE across the RUK countries. Its activity hinders market competition and restricts the access of its competitors to infrastructure facilities. The Russian United Grain Company has the least distorting impact on the market, if any. It is the only STE among the three with the participation of private capital.

The goals of the STEs could be achieved in a more efficient marketing framework. Literature findings show that the bureaucratic structure of STEs increases administrative expenses and leads to a slow flow of information, which results in false decisions.

As an alternative policy option to ensure food security for citizens in the future, it is advised to use targeted consumer-oriented measures to reach the people in need, for example, direct income transfers. Governments should avoid soft budget constraints and preferential rights for STEs. Preferential rights for STEs might discourage investments from private traders into infrastructure and market development. To achieve better functioning markets, governments should ensure open competition on the grain markets without any entry barriers. Transparent and stable rules on the market will provide long-term incentives for investments in the sector. The governments of the RUK countries can support market competition by increasing transparency around the activities of the STEs and their sources of finance. The STEs should restrain from using unfair market practices. Clear delineation between the functions of the STEs as market intervention agencies and profit-making grain traders is required.

3. **The third objective is to uncover and compare the major obstacles for conducting business for grain traders and food processors in Russia, Ukraine and Kazakhstan.**

A predictable institutional and policy environment is considered from the point of view of business as the most important public good (Hellman et al., 2000). A business environment, as a combination of policies, institutions, physical infrastructure, human resources, and geographic features, can influence the efficiency of firms and industries and encourage investments; it can play a key role in the stability and security of the firm's future (Eifert et al., 2005; Dethier et al., 2008). On the contrary, a poor business

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environment, unpredictable changes in policies, corruption, and capture of the state by political and economic elites have a significant negative impact on FDI inflows and sales growth (Kaufmann et al., 2003; Jensen, 2002). Inappropriate policy and institutional frameworks are among the most relevant factors associated with the poor performance of the agricultural sector in developing and transition economies (Chang, 2012).

Studies on the business environment in transition economies are not unusual but most of them are quite outdated and use the BEEPS data from 1999. All of them investigate obstacles in the economies of the countries in general, but do not look specifically at the agri-food sector. To deal with the identified research gap, I focus on the business environment in the agri-food sector of three post-Soviet countries, namely Russia, Ukraine and Kazakhstan. They are important suppliers of grain to the world market, therefore it is important to eliminate different barriers to export, both at the border and inside the country.

In this essay I pursue two major objectives:
- Identify the major obstacles for grain traders in Russia, Ukraine and Kazakhstan;
- Find out whether there are differences between the countries in this respect.

Additionally, to expand the understanding of the barriers in the agri-food sector, I aim to reach some minor objectives:
- Identify the barriers in the food sector of Russia, Ukraine and Kazakhstan;
- Compare the barriers faced by grain traders and the food sector;
- Identify and explain the determinants of obstacle perception.

A combination of qualitative and quantitative approaches is used to examine the business environment in the agri-food sector. Two waves of a grain exporter survey conducted in Russia, Ukraine and Kazakhstan are used for the qualitative analysis of the obstacles in the grain trading sector. The survey focuses mainly on the institutional and infrastructural impediments for grain export and the strategies employed by grain exporters

for dealing with them. The research is complemented by the econometric analysis of the business environment in the agri-food sector, using the Business Environment and Enterprise Performance Survey's (BEEPS) data for the years 2012–2013 (Enterprise Surveys). Using the BEEPS data, the effect of the firm characteristics on the perception of obstacles is tested. Given that the dependent variables for the perception of obstacles are categorical, ordered probit models are used for these regressions.

Two surveys conducted with grain traders revealed that the main obstacles observed in the sector are: corruption/bureaucracy, political instability, obsolete transport, excessive certification requirements, problematic contract enforcement, and taxes (problems with VAT reimbursement). Some obstacles were eliminated in the interim between the two surveys, some restrictions were implemented during this time, and some obstacles remained among the major barriers for doing business. All in all, despite the small number of interviews conducted, the results reveal similar tendencies; therefore, it is possible to assume that they are generalisable for the whole grain trading sector of the respective country. The interviews in Ukraine were conducted with major grain exporters, and in Russia and Kazakhstan both large and middle-size exporters were interviewed.

According to the BEEPS survey, tax rates, political instability, corruption, and financial and transport-related obstacles are found to be the greatest impediments to doing business in the food sector of the RUK countries. Food firms suffer from state capture at the local or regional level the most.

The results of the econometric models show that the relevance of different obstacles is found to vary across subpopulations of firms. However, the country dummies tend to capture the largest share of the explanatory power of the models. These country specifics are hard to interpret given the current dataset. The firm characteristics do not explain much about the determinants of obstacle perception as many coefficients are not statistically significant. In some cases, this can be explained by high standard errors, i.e. high variation in the answers to the questions, where some firms assess the obstacle as critical and others as no obstacle. This

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variation can describe either the heterogeneous state of affairs between the different firms, or difficulties in assessing the obstacle due to subjective perceptions and expectations of what is a major or very severe obstacle, as well as a certain unwillingness to critically assess sensitive issues like corruption.

The results of the qualitative and quantitative analyses have several policy implications:

1. **In the grain sector:**
   - Timely information on planned regulatory changes should be provided to reduce political instability;
   - Ad hoc trade regulation measures should be avoided;
   - Outdated grain hoppers should be replaced.

2. **In the food sector:**
   - Priority should be given to reforms in the financial sector (tax rates, access to finance) and institutional reforms (political instability, corruption);
   - The interests of vulnerable groups of enterprises should be considered during the implementation of new laws and regulations;
   - Effective instruments against the misconduct of local/regional officials (state capture) should be implemented;
   - Regulatory procedures should be simplified and governmental control over decision-making processes in some types of enterprises should be reduced (time tax).

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LIST OF ABBREVIATIONS

BEEPS	Business Environment and Enterprise Performance Survey
CSCT	Consumer Subsidy Commodity Transfer
EXW	Ex Works, Incoterms rules
FAO	Food and Agriculture Organisation of the United Nations
FCC	Food and Contract Corporation
FOB	Free On Board, Incoterms rules
KZT	Kazakh Tenge
mln	Million
MoU	Memorandum of Understanding
MT	Metric ton, 1000 kg
MY	Marketing year
NTB	Non-tariff barrier
NTM	Non-tariff measure
OECD	Organisation for Economic Co-operation and Development
PSCT	Producer Subsidy Commodity Transfer
ROW	Rest of the world
RUB	Russian Rouble
RUK	Russia, Ukraine and Kazakhstan
SFGCU	State Food and Grain Corporation of Ukraine
STE	State trading enterprise
SUR	Stocks-to-use ratio
UAH	Ukrainian Hryvnia
UGC	United Grain Company
UNCTAD	United Nations Conference on Trade and Development
USDA	U.S. Department of Agriculture
VAT	Value Added Tax
WTO	World Trade Organization

1 INTRODUCTION

Food security has emerged high on the agenda of development agencies, policy makers and private stakeholders. As a consequence of major events affecting agricultural production such as the world food crisis of 2007–2008 which prompted skyrocketing world market prices for grains, or highly variable weather leading to harvest failures, the governments of exporting countries tend to restrict their exports with the aim of limiting domestic food price inflation and mitigating any negative impacts on their local markets.

According to USDA projections to 2025, Russia, Ukraine and Kazakhstan (RUK) will further strengthen their position on the world wheat market. 'Wheat exports from Russia, Ukraine, and Kazakhstan […] are projected to climb from 40 million tonnes in 2016/17 to 50.8 million tonnes by 2025/26, accounting for 42 percent of the projected increase in world wheat trade' (USDA, 2016).

Wheat is one of the major exported agricultural goods in three countries. Russia is the largest wheat producer and exporter among them. But in general, in recent years all three countries have been exporting 40–60% of their wheat produce. The countries are known to have unrealised grain production potential, deteriorated grain storage and transport infrastructure, and government interference in agricultural trade, i.e. application of restrictive measures on grain exports.

Among other commonalities of the RUK countries are: a rather low share of agriculture (compared to other developing countries) in GDP. According to 2016 estimates, the share of agriculture in GDP of the Russian Federation was 4.7% (The World Factbook, 2017). For Ukraine, agriculture has a more prominent role in the economy and it generated 14.4% of GDP in 2016 (The World Factbook, 2017a). In Kazakhstan, agriculture accounted for 5.1% of total GDP in 2016. Despite the small share in GDP of the country, one-quarter (25.8%) of the working population was employed in agriculture in 2012 (The World Factbook, 2017b). The polarising division of farm structure into small-scale individual farms and large agro-holdings is also observed in all three countries. The policy goals, production, and market developments in the RUK countries will be described in more detail further.

1.1 COUNTRY PROFILES

1.1.1 Russia

In 2015, all sown area under agricultural crops was 79.3 million ha, and of them 45.1 million ha were under grains (Table 1). Compared to 2014, the area under wheat increased by 6.2% and under corn, 3.1%. In 2015, production of wheat increased by 3.5% mainly due to an increase in sown areas under this crop. In general, areas under grain crops have been growing over the last years, mainly due to larger sown areas under coarse grains, and sown areas under wheat have been rising since 2012.

Table 1: Sown area under main grains in Russia, thousand ha

	2010	2011	2012	2013	2014	2015
Grains:	**41,889.6**	**42,019.4**	**42,595.4**	**43,847.8**	**44,623.8**	**45,054.2**
wheat	26,613.4	25,552.1	24,684.2	25,063.6	25,277.2	26,833.5
barley	7,214.1	7,881.0	8,819.6	9,019.3	9,390.6	8,885.4
corn	1,415.7	1,716.1	2,058.1	2,449.7	2,687.3	2,770.7
other grains	6,646.4	6,870.2	7,033.5	7,315.2	7,268.7	6,564.6

Source: State Programme of RF (2012)

Over the last three marketing years, despite higher wheat exports, rising ending stocks of wheat have been observed due to greater production (Table 2). Human consumption of wheat has remained relatively stable over the years, whereas wheat consumption for feed increased due to greater production in the animal husbandry sector.

Egypt is the 'traditional' importer of Russian wheat. In 2016, almost a quarter of exported wheat (23.5%) went to Egypt. Among other major export destinations in 2016 were Turkey (10.1%), Bangladesh (6.6%), Nigeria (5.8%) and Azerbaijan (4.5%) (Trademap, 2017).

Share in
Russian Federation's exports, %

- N.A.
- 0–1%
- 1–5% (e.g. Azerbaijan)
- 5–10% (Nigeria, Bangladesh)
- 10–20% (Turkey)
- 20–50% (Egypt)
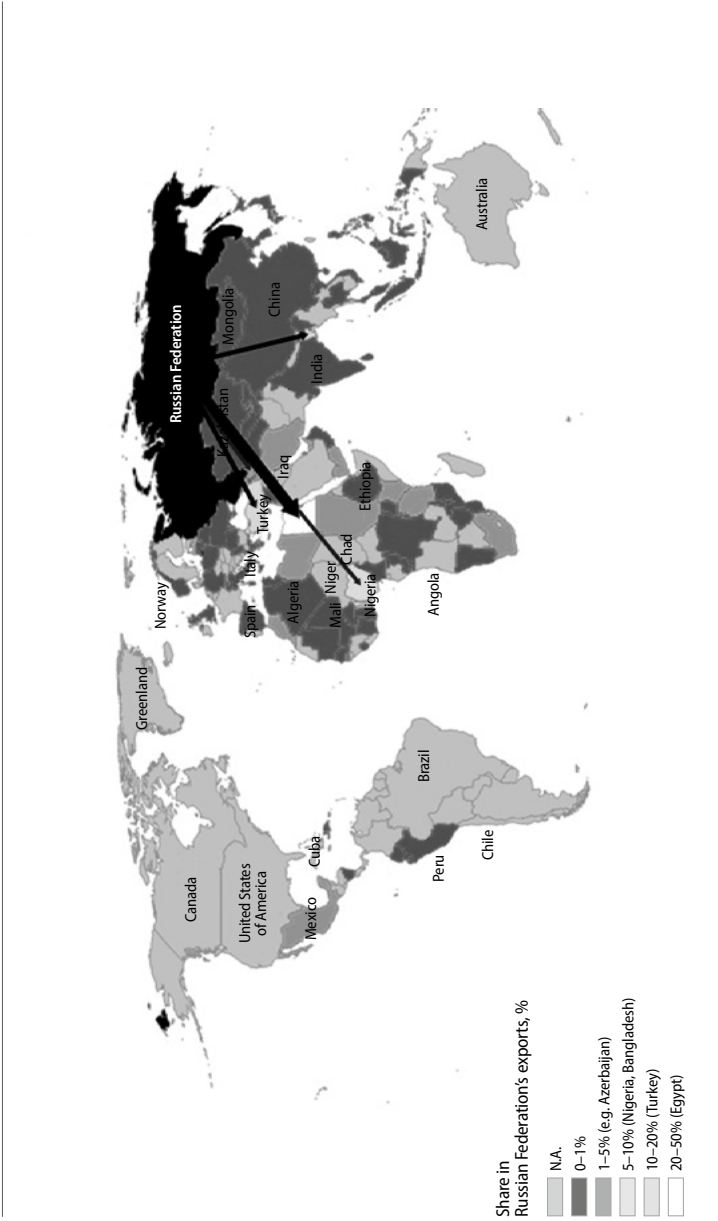
Figure 1: Top five importers of Russian wheat in 2016

Source: Trademap, 2017

Table 2: Wheat production, consumption and trade in Russia from 2006/07 MY to 2015/16 MY

Wheat	Unit	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Beginning Stocks	mln t	6.0	4.7	4.3	10.9	14.7	13.7	10.9	4.9	5.2	6.3
Production	mln t	44.9	49.4	63.8	61.8	41.5	56.2	37.7	52.1	59.1	61.0
Imports	mln t	0.9	0.4	0.2	0.2	0.1	0.6	1.2	0.9	0.3	0.8
Total Supply	mln t	51.9	54.5	68.2	72.9	56.3	70.5	49.8	57.9	64.6	68.1
Feed Dom. Consumption	mln t	14.1	15.3	16.2	16.8	16.0	15.5	11.9	12.5	13.0	14.0
Total Dom. Consumption	mln t	36.4	38.0	38.9	39.6	38.6	38.0	33.6	34.1	35.5	37.0
Exports	mln t	10.8	12.2	18.4	18.6	4.0	21.6	11.3	18.6	22.8	25.5
Ending Stocks	mln t	4.7	4.3	10.9	14.7	13.7	10.9	4.9	5.2	6.3	5.6
Stocks/ Use ratio	%	9.9	8.5	19.1	25.3	32.3	18.3	11.0	9.8	10.8	9.0

Source: own calculation based on PSD USDA data (2016)

Devaluation of the rouble in 2014/15 MY made grain export more attractive than selling it on the domestic market. To keep the balance between exports and the domestic supply of wheat, export duty for wheat came into force on 1 February 2015 (more details on this policy will follow in Chapter 2). The export duty for wheat was implemented in order to keep prices on the domestic market from rising. The Figure 2 (p. 6) shows that consumer prices for bread continued to grow despite grain export restrictions in the form of export taxes from November 2007 to June 2008 or the export ban that lasted from August 2010 till June 2011.

Regulation of grain market

Measures towards regulating the grain market are aimed at stabilising the domestic grain market and increasing the competitiveness of Russian
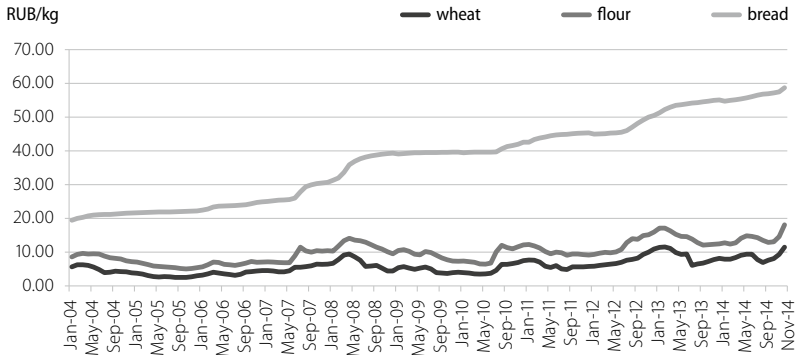
Figure 2: Wheat, flour and bread prices over the period 2004–2014

Source: unpublished data

grain and its processed products on the world market. To this end, a balance of resources and use of grain is being developed, information on its commodity and consumer properties is monitored, and state procurement and commodity interventions are carried out.

In order to be able to stabilise prices on the market during unfavourable weather conditions or other destabilising events, the state forms grain stocks and buys grain for the Federal intervention fund. The total grain stocks in the intervention fund in March 2016 were 3.03 million tonnes (State Programme of RF, 2012).

State support for investment lending in the sub-sector of crop production, processing of its products, and development of infrastructure and logistics support for crop markets is carried out by subsidising part of the interest rate on loans.

Agricultural policy objectives

The State Programme of agricultural development and regulation of agricultural and food markets for 2013–2020 was approved by the Decree № 717 of the government of the Russian Federation on 14 July 2012 (further, the State Programme). The State Programme declares the following objectives for Russian agricultural policy.

As first priority level objectives, the State Programme names:
- development of import-substituting sub-sectors of agriculture, including vegetable growing, horticulture, and dairy and beef cattle breeding;
- improvement of income for agricultural producers;
- sustainable development of rural areas, creating conditions for ensuring economic and physical accessibility of food on the basis of rational norms of food consumption for vulnerable groups of the population;
- reclamation of agricultural land, usage of abandoned arable land and other categories of agricultural land;
- development of integration links in the agro-industrial complex and the formation of product sub-complexes, as well as territorial clusters;
- formation of an innovative agro-industrial complex.

The second priority level includes:
- ensuring environmental safety of agricultural products, raw materials and food;
- increasing the export of food and agricultural products after the domestic agri-food market is saturated;
- minimising logistics costs and optimising other factors determining the competitiveness of products, taking into account the rational allocation and specialisation of agricultural production, and food and processing industries in the regions of the country (State Programme of RF, 2012).

One section of the State Programme describes the sub-programme on 'Development of Crop Production, Processing and Selling of Crop

Products'. This programme aims at increasing crop production and its competitiveness.

The Doctrine of Food Security of the Russian Federation, which was adopted in 2010, set threshold shares for agricultural products on the Russian market that have to be of domestic origin. For grain this share was set at 95%, though the target value of the State Programme for 2015 was higher and set at 99.6%. In fact, 99.2% of grain supplied to the domestic market in that year was of Russian origin. Similar target indicators were set for meat and milk products. For milk, the doctrine target is set at the level of 90% and the State Programme target for 2015 was at the level of 81.9%, whereas the actual value in 2015 was 81.2%. The share of meat and meat products of domestic origin in 2015 reached the level of 87.4%, which is higher than the target value set by the State Programme for 2015 (80.9%) or the Doctrine threshold level of 85%. A considerable decrease in meat import together with a rise in domestic production made this share possible, although the total supply of meat on the market decreased by 2.4% compared with the previous year.

Grain infrastructure

There is a need to build new elevators. Current capacities for grain storage amount to 118 million tonnes, but only one-third of them are modern elevators. The rest are hangars and floor storages, most of which are old and worn-out. The same situation is observed in port facilities, and there is a lack of deep water ports (Zerno On-line, 2009). There is also a lack of rail tracks near the ports, limiting their capacity to accept rail cars. The allocation of grain infrastructure and elevators was planned during the years when Russia was still a net importer of grain; therefore the elevators were built mainly near large cities for the storage of imported grain and not in the grain producing region, where it can be gathered to form a larger batch[1].

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1   https://www.vedomosti.ru/newspaper/articles/2011/11/14/zerno_na_vyezd

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1.1.2 Ukraine

The grain sector remains very important for the economy of the country. The share of grain exports in total exports from Ukraine in 2016 was 16.3% which makes grain the most important agricultural export good (State Statistics Service of Ukraine). In 2015/16 MY total grain production in Ukraine was nearly 60 million tonnes (AMIS, 2017), which included 27.3 million tonnes of wheat, 23.3 million tonnes of corn and 8.8 million tonnes of barley (Table 23; Annex 1). Total grain exports reached a level of around 39 million tonnes, a record high level for Ukraine, due to greater wheat exports (17.4 million tonnes).

Ukraine has, on average, record harvests every two years. But grain production heavily depends on the weather conditions and, as such, the marketing year 2012/13 ended with the lowest wheat harvest for several years. Winter frosts and a strong drought during the summer months had a negative influence on crop yields. Thus, the production of wheat was only 15.8 million tonnes. Despite the comparatively small harvest, exports of wheat still reached 7.2 million tonnes.

One common indicator of mid-term stable grain supply is the stocks-to-use ratio (SUR), defined as the quantity of stock divided by sum of all uses. Assuming rationally behaving stock managers, high SURs are expected to soften price spikes in case of shocks to production. International experience shows that global prices start to increase if world stocks-to-use ratios drop below 20% for wheat and 12% for maize (Bobenrieth et al., 2012).

Domestic consumption of grain in Ukraine averages annually up to 26 million tonnes, including around 12 million tonnes of wheat, 6 million tonnes of barley, 6 million tonnes of corn and 2 million tonnes of other cereals. Based on this demand, the export potential is estimated as a residual variable.

Out of around 12 million tonnes of wheat for domestic consumption, 5.2 million tonnes are used for human consumption, around 1.6 million tonnes of wheat is used for seeds, 4.1 million tonnes is used for feed,

processing into non-food products requires around 0.3 million tonnes, and losses amount to 0.4 million tonnes[2].

Table 3: Wheat production, consumption and trade in Ukraine from 2006/07 MY to 2015/16 MY

Wheat	Unit	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Beginning Stocks	mln t	2.4	1.3	2.1	3.1	2.4	3.3	5.4	2.6	3.7	5.7
Production	mln t	13.9	13.9	25.9	20.9	16.8	22.3	15.8	22.3	24.8	27.3
Imports	mln t	0.1	0.3	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0
Total Supply	mln t	16.4	15.6	28.0	24.0	19.2	25.7	21.2	24.9	28.4	33.0
Feed Dom. Consumption	mln t	2.1	3.0	2.9	3.3	2.8	6.1	3.1	3.4	4.0	5.2
Total Dom. Consumption	mln t	11.7	12.3	11.9	12.3	11.6	15.0	11.4	11.5	11.5	12.3
Exports	mln t	3.4	1.2	13.0	9.3	4.3	5.4	7.2	9.8	11.3	17.4
Ending Stocks	mln t	1.3	2.1	3.1	2.4	3.3	5.4	2.6	3.7	5.7	3.2
Stocks/Use ratio	%	8.9	15.4	12.4	10.9	21.0	26.3	13.9	17.3	24.9	10.9

Source: own calculation based on PSD USDA data (2016)

Major consumers of Ukrainian wheat in the world are Indonesia (18.8%), Thailand (17%), Egypt (14.1%), the Republic of Korea (9.6%), India (8.1%), the Philippines (7.1%) and Morocco (6.4%) as can be seen in Figure 3 (Trademap, 2017a).

Ukraine is deeply integrated into the global agricultural markets and has to compete with other suppliers there. In this study, I use soft wheat prices (class 1) FOB Rouen as an indicator of a world market price. As shown by Figure 4, Ukrainian FOB prices and Rouen prices follow similar patterns. Producer prices (EXW) also follow spikes and drops observed on the world market but to a lesser extent. The difference between producer

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2   Average numbers based on the grain balances developed by the working group of the Ministry of Economic Development and Trade of Ukraine.
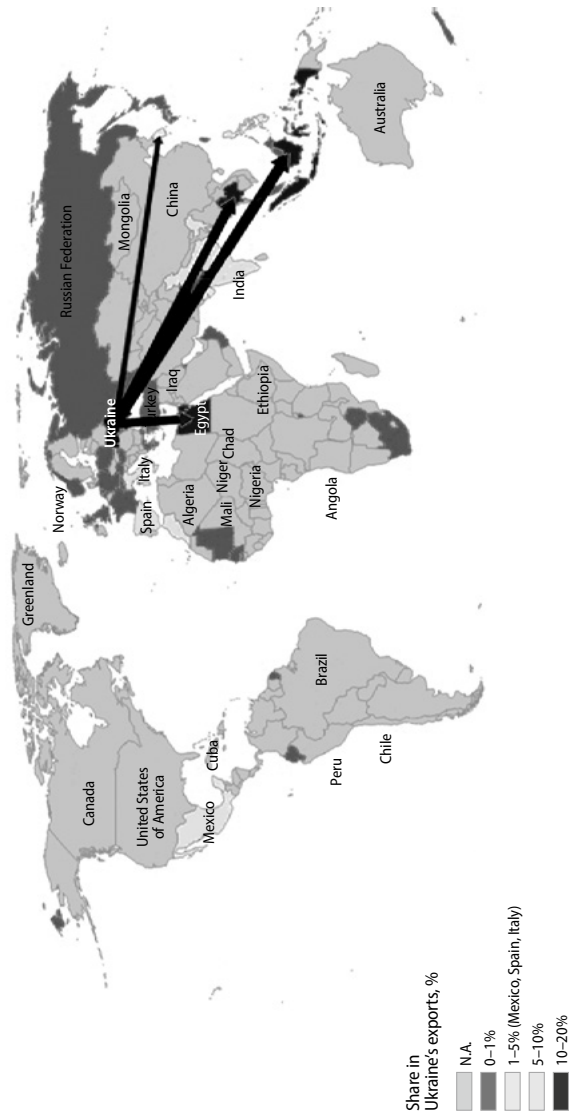
Figure 3: Top five importers of Ukrainian wheat in 2016

Share in
Ukraine's exports, %

N.A.

0–1%

1–5% (Mexico, Spain, Italy)

5–10%

10–20%

Source: Trademap, 2017a

prices and export prices can be partly explained by domestic transport and handling costs. The larger decoupling of Ukrainian prices from international wheat markets during times of export restrictions will be discussed more in detail further below in Chapter 2.

One important motivation for the introduction of export restrictions has been the concern over food security and food price inflation. Therefore, I compare consumer prices of different processed grain products between 2007 and 2013. As displayed by Figure 5, all bread prices follow an upward trend, despite the implementation of export restrictions, which should theoretically lead to the excess supply of wheat on the domestic market and thus lower prices for Ukrainian consumers. But in order to explain rising bread prices in spite of the export restriction, additional research needs to be done. One of the reasons might be the behaviour of traders if they decide to keep grain in storages and wait for better prices. Furthermore, bread prices are regulated by government policies and, thus, do not simply reflect market signals. The numbers in Table 3 indicate that in marketing years 2007/08–2008/09 and 2010/11–2011/12 stocks increased significantly.

Another reason for a less than theoretically expected price drop due to export restrictions might be that the middlemen (e.g. large mills) get the surplus. Djuric et al. (2012) find such an effect for Serbia. Wheat flour is not the only component in the cost structure of bread, accounting for 40–47% of all costs[3]. Thus, increasing prices for other components while flour prices remain relatively stable may lead to higher bread prices. But Figure 5 reveals that the flour price also follows an upward trend. Another reason for the growing bread and flour prices despite the export restrictions could be governmental purchases of wheat for the state reserve. But the amount of purchases seems to be too small to affect the market. According to the Agrarian Fund of Ukraine, the governmental purchases of wheat equalled 772 thousand tonnes, 866 thousand tonnes, 624 thousand tonnes, and 773 thousand tonnes in the years 2010 to 2013, which represents approximately 4% of the quantity produced.

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3   http://ukrhlibprom.org.ua/ua/novini/richnij_zvit_2011.html , 2011

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500
450
400
350
300
250
200
150
100
50
0

07.01.2005   07.01.2006   07.01.2007   07.01.2008   07.01.2009   07.01.2010   07.01.2011   07.01.2012   07.01.2013

Export restriction period   EXW Wheat Class 2, USD/t
FOB Black Sea Soft Milling Wheat Class 3, USD/t   Rouen, USD/t
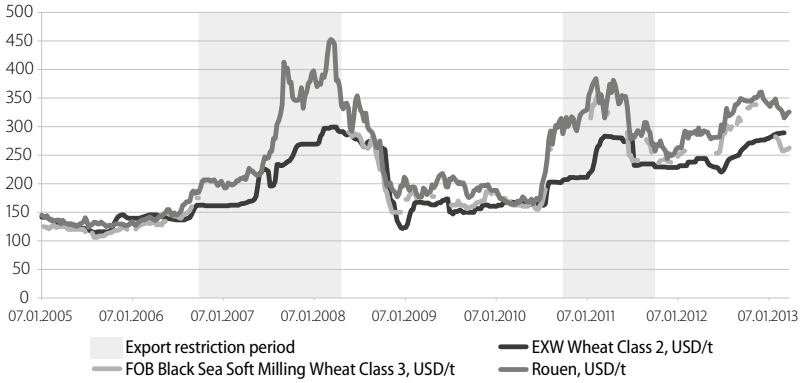
Figure 4: Producer and export prices for wheat in Ukraine, Rouen wheat prices (weekly data)

Source: APK-Inform (2013), HGCA (2014)

7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0

2007   2008   2009   2010   2011   2012   2013

export restriction   wheat bread, UAH/kg   wheat flour, UAH/kg
                                       rye-wheat bread, UAH/kg   long loaf, UAH/500 g
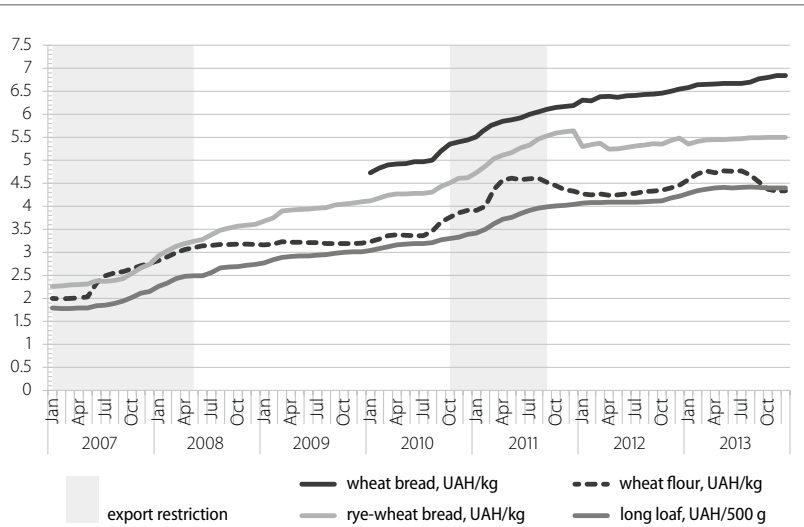
Figure 5: Average consumer prices for flour and bread in Ukraine

Source: State Statistics Service of Ukraine

Agricultural policy objectives

The state target programme towards developing the agricultural sector of the economy for the period up to 2020 sets out a number of goals:

- creation of conditions for the effective social-oriented development of the agricultural sector;
- stable provision of safe and high-quality domestic agricultural products for the population and agricultural raw materials for industry;
- production of goods with high added value;
- increased share on the world agricultural and food market (State Programme Ukraine, 2015).

The programme does not include specific goals and tasks with regard to the Ukrainian grain sector but rather overarching goals for the entire agricultural sector.

1.1.3 Kazakhstan

Wheat is a major cereal crop produced in Kazakhstan. The main production areas are located in the Northern Kazakhstan, Kostanai and Akmola regions. While the area under agricultural crops remained steady, there was some reallocation between crops (Figure 6). The planted area under wheat decreased significantly over the period from 2011–2015, although its share remained rather high at 56%. Meanwhile, the area under oil crops increased by 11%. Among the main reasons for the decrease of the planted area of wheat is the state policy of crop diversification away from wheat because in some provinces it remains a monoculture.

Over the last decade, the production of wheat has varied from 9 to 22 million tonnes. Domestic consumption of wheat, both for food and feed purposes, has remained flat over the last four years (Table 4). According to the USDA, wheat is widely used for feeding livestock in Kazakhstan, however barley, other feed grains and grasses are expected to cover
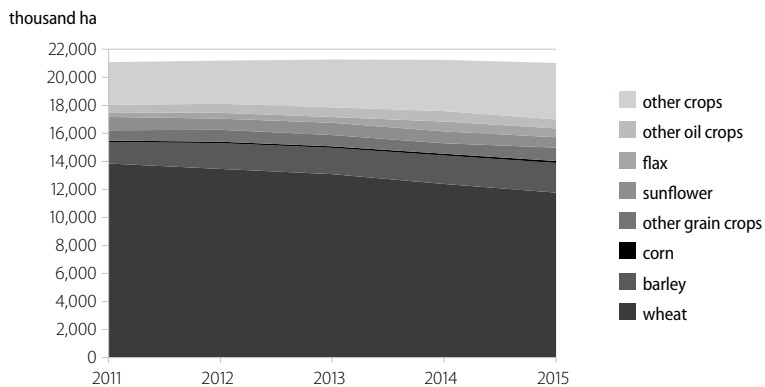
thousand ha

Figure 6: Allocation of sown areas under agricultural crops in Kazakhstan in 2011–2015, thousand ha

Source: own depiction based on the data from the State Programme 2017–2021

Table 4: Wheat production, consumption and trade in Kazakhstan from 2006/07 MY to 2015/16 MY

Wheat	Unit	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Beginning Stocks	mln t	6.4	3.7	4.7	3.7	4.8	2.9	6.2	2.9	2.0	3.2
Production	mln t	13.5	16.5	12.5	17.1	9.6	22.7	9.8	13.9	13.0	13.7
Imports	mln t	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.6	0.1
Total Supply	mln t	19.9	20.2	17.4	20.8	14.4	25.6	16.0	16.9	15.6	17.1
Feed Dom. Consumption	mln t	3.0	2.4	2.5	2.6	2.0	2.6	2.0	2.0	2.0	2.1
Total Dom. Consumption	mln t	8.1	7.5	7.6	7.7	6.7	7.6	6.8	6.8	6.8	6.9
Exports	mln t	8.2	7.9	6.2	8.3	4.9	11.8	6.3	8.1	5.5	7.6
Ending Stocks	mln t	3.7	4.7	3.7	4.8	2.9	6.2	2.9	2.0	3.2	2.6
Stocks/Use ratio	%	22.5	30.8	26.6	30.1	24.9	31.8	22.4	13.3	26.3	17.6

Source: own calculation based on PSD USDA data (2016)

the anticipated additional demand from the livestock sector in place of wheat (FAS/USDA, 2016).

Export of wheat highly depends on production as well as competition from Russia and Ukraine. During years of bad harvest in the competitor countries, there is a stronger demand for Kazakh grain. Otherwise Kazakhstan, as a landlocked country, cannot compete with Russia or Ukraine on the EU market due to greater transportation costs, despite the higher quality of its wheat.

Traditionally, the main export destinations of Kazakh wheat and flour are CIS countries. In 2016, Kazakh wheat was exported to the following destinations: Uzbekistan (29.5%), Tajikistan (24.1%), the Russian Federation (9.2%), China (7.7%), Italy (6.2%), Kyrgyzstan (5.6%), Afghanistan (5.6%) and Iran (5.5%) (Trademap, 2017b). In general, the share of Kazakh wheat in the imports of Russia, Uzbekistan, Kyrgyzstan and Tajikistan is very large. In 2015, 86.6% of all imported wheat in Russia came from Kazakhstan and for Uzbekistan, Kazakhstan was the only supplier.

Over the last two years, export to China has increased considerably, up to 414,000 tonnes in 2015/16 MY. Currently China allows bulk shipments. China changed its regulation requiring Kazakh wheat to arrive in bags which had previously restricted Kazakh exports (FAS/USDA, 2016).

Agricultural policy objectives

Increasing the competitiveness of agribusiness is the major goal of the Programme 'Agribusiness 2020' adopted in 2013. To achieve this goal, the following measures have to be fulfilled as mentioned in the Programme: a) the financial rehabilitation of agribusiness; b) improving access to material inputs and services; c) developing a government service supply system for agribusiness entities; and d) improving the effectiveness of government regulation in the sector. These goals and the methods for achieving them (mainly by subsidisation) are discussed by Petrick et al. (2017).
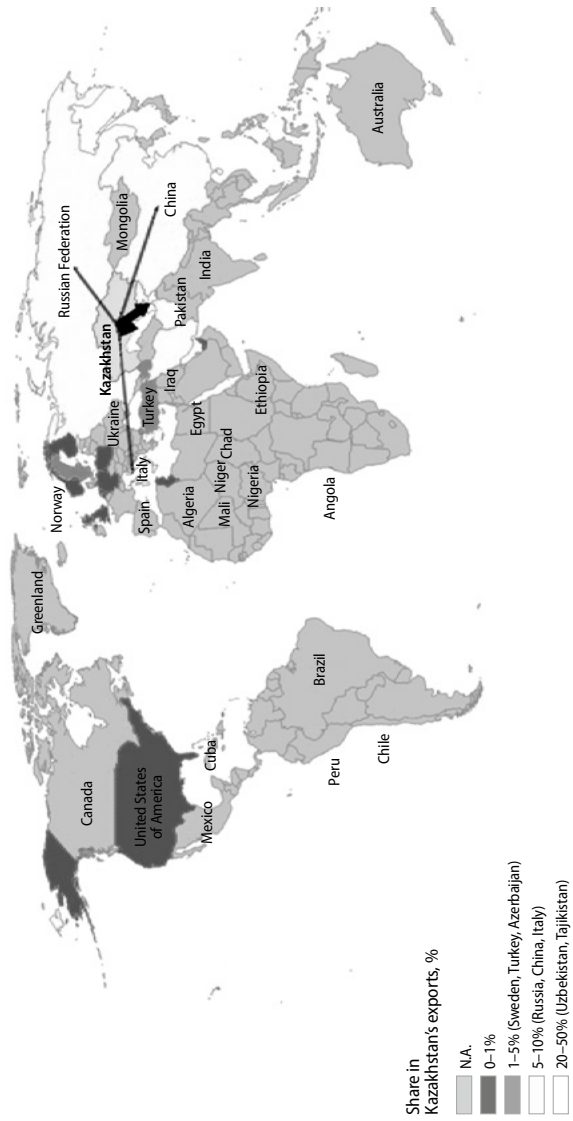
Figure 7: Top five importers of Kazakh wheat in 2016

Share in
Kazakhstan's exports, %

- N.A.
- 0–1%
- 1–5% (Sweden, Turkey, Azerbaijan)
- 5–10% (Russia, China, Italy)
- 20–50% (Uzbekistan, Tajikistan)

Source: Trademap, 2017b

With regard to the grain sector, over the last years the Kazakh government has tried to encourage crop diversification, because wheat is often planted as a monoculture. There is also strong support of the livestock sector, which has led to a higher demand for feedstuffs and should motivate farmers to grow feed grains and oilseeds instead of wheat (FAS/USDA, 2012). The goal is to continue to decrease the area under wheat until 2020 in order to reach the indicative value for the sown area under wheat for the year 2021 of 10,132 thousand hectares (Programme 2017–2021) which is nearly 14% lower than the sown area in 2015. Grain yields are expected to increase from an average of 12.3 centners/ha to 13.9 centners/ha in 2021 due to use of better seeds, fertilisers and pesticides. Moreover, in the State Programme, the government has set a goal for 2021 of exporting wheat to the traditional importers such as Central Asia, Iran, Afghanistan, and Azerbaijan as well as increasing exports of processed wheat products (flour, pasta, cereals, gluten).

Transport and storage infrastructure

During years of good harvest there is a lack of grain cars for transportation as well as facilities to store the grain. The grain car deficit is estimated at 3,000 units, and the lack of grain storages is assessed at 2 million tonnes (Programme 'Agribusiness 2020', 2013).

'The total storage capacity for all grains in Kazakhstan is reported at 26.0 million tonnes' (FAS/USDA, 2016). Half of the storage facilities are licensed grain elevators, the rest are on-farm storages. Old elevators have outdated grain handling equipment and are unable to handle large volumes of grain. As an alternative, farmers use 'Argentinian bags' for grain storage.

The long distances to key markets and the landlocked status of the country remain huge obstacles for the export of grain from Kazakhstan. In certain years, in order to address the problem of high transportation costs, the government implemented transportation subsidies. Moreover, the government is promoting the development of the livestock sector

which will require more grain to be consumed as feed inside the country. In addition to these measures, the Kazakh government has invested in the development of infrastructure (FAS/USDA, 2013). This includes:

- Railway lines between 'Zhaskazgan-Beineu' and 'Akralyk-Shubarkol' stations were opened in 2014. These connections have decreased the transportation distance from west to east and from north to south in Kazakhstan.
- The railway line 'Korgas-Zhetygen' reduces the distance from South Kazakhstan to China by 550 km. This will decrease the transportation time from China to Central Asian countries.
- Storage capacities in Aktau port were increased, which resulted in higher trans-shipment capacities (FAS/USDA, 2015).

1.2   CURRENT STATE OF KNOWLEDGE

Effects of export restrictions

The grain sector in RUK countries has witnessed a series of public interventions within the last years. They took the form of export quotas, export taxes, export bans, transportation subsidies, the installation of a policy-business agreement, and partial reimbursement of Value Added Taxes (VAT). Considering the importance of these countries on the world market, it is not surprising that export restrictions in the RUK region have received significant attention in the scientific literature.

The previous literature shows that export restrictions on agricultural markets have a rather limited effect on protecting consumers from rising prices and negative effects on market stability and economic growth. Götz et al. (2014) show that while wheat prices in the port region of the North Caucasus were damped by the export ban by 42%, the end consumer bread prices in Moscow went down by only 3%. The analysis by Nogues (2008) focusing on a beef export ban in 2006 in Argentina suggests that quantitative restrictions should not be implemented because they are not successful in providing a 'cheap food' policy. During the

period of restrictions, producer prices dropped by 30% while consumer prices never went down more than 10%. Jones and Kwiecinski (2010) find that by implementing grain quotas, Ukraine limited export volumes but was not able to insulate the domestic market from the world price increases. Thus, consumers had to face rising domestic prices while producers were unable to benefit from rising world prices.

Beyond their inefficiency, export restrictions have further downsides: Liapis (2013) claims that frequent temporary measures contribute to market instability both in the domestic and international markets, as well as to making suppliers seem unreliable. Mitra and Josling (2009) show that export restrictions lead to a decrease in welfare, both in exporting and importing countries in the long and short run.

The positive effects of the elimination of export barriers are demonstrated by Nogues (2008) in his study on export taxes on beef in Argentina. The projected elimination of export taxes in Argentina would result in a GDP growth rate varying from 2.8 to 4.6%, and a decline in poverty between −1.4 and −6.9%, depending on the simulation scenario.

There are studies looking at the effects of the export restrictions imposed by RUK from the perspective of the importing countries (Baisakova, 2016) and whether grain exporting countries abuse market power on the markets of Central Asia and the North Caucasus (Gafarova et al., 2015; Imamverdiyev, 2017). Baisakova (2016) investigates the influence of the restrictions on net wheat importing countries of the Caucasus and Central Asia. The impact of the export ban implemented by Kazakhstan and the associated price increase for staple foods was estimated for Kyrgyz households through price and income elasticities of the marketed surplus. The results show that despite the rising prices the marketed surplus for staples decreased, which could be explained by a general decline in cereal production (Baisakova, 2016).

Given the highly variable weather in the RUK region as well as other changing macroeconomic factors, it is hard to predict whether the countries will restrict exports in the future. Barriers to trade can be of formal or informal nature. Formal barriers are documented in governmental resolutions, while informal barriers can stem from administrative procedures,

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the market structure and the institutional framework observed in the country (Deardorff and Stern, 1997). Earlier research focuses mainly on the effects of the single formal barrier, while comparison of both tariff and non-tariff measures can be very challenging.

Administrative measures such as the delayed supply of wagons, additional certifications and controls, bribing, preferential access and soft-budget constraints for state trading enterprises are a few examples of the informal impediments to trade observed in the RUK region.

Role of State Trading Enterprises

The role of the STEs on these markets is not only to provide grain to the state food security/stabilisation funds, but also to act as commercial agents that export grain. Their variation from the classic examples of wheat boards (Canadian Wheat Board and Australian Wheat Board) and non-transparent actions on their respective domestic wheat markets make them interesting objects of research and comparison.

Despite the theoretical expectation that the effects of the importing STEs should be similar to the effects of import tariffs, and that exporting STEs should act like export subsidies, in reality they can also take the form of import subsidies and export taxes. The distorting effect of the STE depends on the following conditions: the goal of the STE, whether it is producer- or consumer-oriented, the potential market structure if the STE didn't operate, and the extent of the exclusive rights that the STE has (McCorriston and MacLaren, 2010).

The main points of criticism relate to the market power of the STE, its pricing policies and its non-transparent activities. Although it can be argued that wheat boards can extract premium prices for grains and decrease marketing costs, a detailed analysis (Informa Economics, 2008) of the Canadian Wheat Board's performance showed the opposite: Canadian farmers received lower prices for wheat than their American colleagues, and handling and marketing costs for crops traded through the Canadian Wheat Board were higher than for non-board crops.

Concerning the STEs in the RUK countries, the World Bank (2009) prepared an analysis of the likely impact of the United Grain Company (UGC) in Russia, right after the company began operations, and concluded that concerns that the UGC would influence world grain markets were not justified. As a part of their study on wheat export economy in Ukraine, Kobuta et al. (2012) describe state operators that were functioning in the Ukrainian grain sector and their development during the period between 1990 and 2011. However, currently no comparison of the grain STEs across the three RUK countries has been made.

Role of business environment

Administrative procedures can themselves constitute a barrier to trade. A poor business environment, unpredictable changes in policies, corruption, and capture of the state by the political and economic elites have a significant negative impact on FDI inflows and sales growth (Kaufmann et al., 2003; Jensen, 2002). Inappropriate policy and institutional frameworks are among the most relevant factors associated with the poor performance of the agricultural sector in developing and transition economies (Chang, 2012).

Almost two decades ago, Brunetti et al. (1997) discovered that tax regulations and/or high taxes were the most important obstacle for doing business in CIS countries, followed by policy instability and corruption obstacles. Hellman and Schankerman (2000) found that taxes and regulations, the exchange rate, inflation, finance and policy instability were among the major obstacles for the operation and growth of business in Russia, Ukraine and Kazakhstan. Kaufmann et al. (2003) found that in CIS countries, firms were seriously restricted by high interest rates and inadequate access to long term loans. Over 60% of enterprises in CIS countries were worried about unpredictable economic and financial policies. Corruption was considered a serious obstacle in about half of the CIS companies.

The above-mentioned studies look at the economy in general, but do not specifically consider agribusiness. So far, there is a significant lack of studies dealing with the business environment with an explicit focus on the agribusiness sector, with the exception of Herzfeld et al. (2017), and no studies have focused on the grain industry.

The study by Herzfeld et al. (2017) provides an outlook on the relevant barriers in agribusiness in the CIS region with a specific focus on corruption. Using the answers from their own survey (AGRICISTRADE) as well as from the recent wave of the BEEPS survey, the authors identify the major obstacles for traders and food manufacturers in the CIS countries. Traders suffer most often from customs and trade regulations, certification requirements and permits, taxes, corruption, as well as political instability. Food manufacturers mentioned tax rates, corruption, political instability, and access to electricity and finance as the biggest obstacles. After conducting the econometric analysis, the authors could not reject the hypothesis that in agribusiness, corruption is perceived as a bigger obstacle than in other sectors (Herzfeld et al., 2017).

1.3   PROBLEM STATEMENT AND RESEARCH OBJECTIVES

Both the formal and informal barriers described above lead to higher transaction and time costs, result in foregone opportunities for trade, damage the image of the country and provide disincentives for investments in the sector. This prevents the RUK countries from realising their potential in grain production as well as grain export. Therefore, trade enabling measures rather than trade restrictive instruments should be the focus of policy-makers in Russia, Ukraine and Kazakhstan. Trade facilitation combines 'the rationalization of regulatory procedures and the elimination of unnecessary red tape – along with the availability of suitable infrastructure' (World Economic Forum, 2016).

The topic of trade barriers in the RUK countries remains highly relevant as demonstrated by the recent implementation of export duties for

wheat in the Russian Federation. While most researchers focus on formal trade barriers and there are studies dealing with the effects of the export restrictions on the domestic markets of the exporting countries, only limited research is available on the informal barriers to trade. Although there are studies on the business environment and informal barriers that look at transition economies in general, few focus specifically on agribusiness. The value of this study is that it combines the analysis of formal and informal impediments to grain trade and provides a comprehensive picture of the wheat market in Russia, Ukraine and Kazakhstan.

Thus, the general objective of this thesis is to analyse the impediments to grain exports from Russia, Ukraine and Kazakhstan. In order to reach this objective I have divided it into three more specific goals, which are reflected in the structure of the thesis. Each aspect is covered in a separate essay.

1. The first objective is to theoretically and empirically evaluate a series of export restrictions implemented by the RUK countries. A specific challenge is the choice of methodology in comparing tariff and non-tariff measures consistently. The results will allow policy measures to be ranked according to their trade restrictiveness.

2. The second objective is to compare the grain STEs across the RUK countries. Based on the existing literature, a suitable framework for comparison has to be developed and the effects of these grain STEs on the markets need to be discussed. The results will show whether the grain STEs in the RUK countries are trade distorting and to what extent.

3. The third objective is to uncover and compare the major obstacles for conducting business for grain traders and food processors in Russia, Ukraine and Kazakhstan using a self-conducted survey of grain traders and BEEPS' firm level-data. To understand the differences between firms across the three countries, the determinants of obstacle perception will be identified and explained.

1.4 CONTRIBUTION OF THE ESSAYS

After reviewing the existing literature and identifying the main research gaps and challenges, this thesis attempts, where possible, to address these research gaps.

1. The first essay contributes to the bulk of the literature on the domestic effects of export restrictions in Russia, Ukraine and Kazakhstan. The major focus of the essay is on the welfare effects of export restrictions and the comparison of tariff and non-tariff measures. A lack of method for the consistent comparison of tariff and non-tariff measures restricting export was identified. The previous literature suggests that tariff equivalent is the most viable measure as it allows for the direct comparison of tariff and non-tariff barriers. Tariff equivalents of the NTMs in the previous literature concentrate mainly on price comparison, and the 'price gap' between the distorted and non-distorted price. In this study I use an alternative approach, estimating the 'quantity gap', the disruption to the trade flow of goods in the presence of policy intervention. It has its advantages over the 'price gap' approach because export prices are sometimes not observable, as in the case of export bans. To calculate tariff rate equivalents, some assumptions concerning the export supply elasticities have to be made. At the same time, this approach has the advantage of using publicly available data. Tariff equivalents provide estimates as to which policy instrument is more restrictive than the other. To the best of my knowledge, this method was mainly used in empirical research for the comparison of measures restricting import, whereas here the method is applied for the analysis of tariff and non-tariff measures that restrict export. The method applied can be used for other countries and markets where price data is scarce or not available.

2. There are no studies yet that look at the grain STEs in Russia, Ukraine and Kazakhstan from a comparative perspective. Instead of a scattered description of single grain STEs, a consistent comparison across

the countries could provide better insights into their distortive potential. In the second essay, I develop a framework for the comparison of State Trading Enterprises based on a wide set of criteria, including external and internal decision making processes, based on studies by Dixit and Josling (1997), Ingco and Ng (1998), FAO (2002) and OECD (2001). Then, the main attributes of the grain STEs as well as their effects on the grain markets of the RUK countries are discussed. Currently the economic activities of the STEs are non-transparent. Should economic data on the STEs become available, the results of their economic activities could be compared in future research. Since there is an ongoing debate in some of the investigated countries around the need for, and relevance of the STEs, suggestions for policy makers on the procedure for establishing or assessing the activities of state-owned enterprises are provided.

3. Studies on the business environment in transition economies are not unusual but most of them are quite outdated and focus on obstacles in the economies of the countries in general. The specific peculiarities of the business environment in the agri-food sector have not been analysed. In the third essay, a combination of qualitative and quantitative approaches is used to examine the business environment in the agri-food sector. Business constraints specific to the grain sector are discussed and compared with constraints in the food sector. Interviews with grain exporters conducted in Russia, Ukraine and Kazakhstan provide insights into the functioning of the market and are used for qualitative analysis. The results show the similarities and differences between the grain sectors of the RUK countries. They also allow for the progress made in the elimination of obstacles to be checked, as the interviews with grain traders were conducted in two waves. Econometric analysis of the business environment in the agri-food sector, using data from the Business Environment and Enterprise Performance Survey (BEEPS) allows the assessment of the effects of firm characteristics on the perception of the obstacles. The results reveal that different subpopulations of firms face different obstacles, but

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country specifics play the major role in understanding the perception of obstacles. Therefore, the results of the econometric analysis cannot be generalised for other CIS countries or transition economies and an in-depth analysis of the business environment on a country basis is recommended.

The major contribution of my research lies in identifying and understanding the formal and informal barriers in the grain sector. Handling the existent impediments in a sound manner will lead to a better functioning sector and help achieve the grain production and export potential of the RUK countries.

1.5   STRUCTURE OF THE DISSERTATION

In the dissertation I analyse three different aspects of barriers for grain export from Russia, Ukraine and Kazakhstan. Each essay covers one aspect, has its research questions and methodology. Theoretical and empirical analysis of the export restrictions is presented in Chapter 2. Formal and informal practices in functioning of the State Trading Enterprises are documented and compared in Chapter 3. Chapter 4 covers mainly informal barriers that grain trading and food processing firms face inside the country. Chapter 5 includes discussion and outlook for future research.

2 COMPARATIVE ASSESSMENT OF RUSSIAN, UKRAINIAN AND KAZAKH GRAIN EXPORT POLICIES FROM A WELFARE ECONOMICS PERSPECTIVE

2.1 INTRODUCTION

Russia, Ukraine and Kazakhstan (RUK) have applied grain export restrictions several times, allegedly for domestic food security reasons. During the last decade, these countries introduced various restrictive export measures, such as export licensing, export quotas, export bans, export subsidies and export taxes (Table 25–27 in the Annex 2).

It is quite common among food exporting countries to implement export restrictions. According to Sharma (2011), 33 of the 105 countries that used any sort of food policy measures restricted their exports at least once between 2007 and early 2011 using various forms of restrictions (Sharma, 2011). A more recent study by Liapis (2013) shows that from 2002–2012 grains, oilseeds and vegetable oils were the most frequently targeted goods. Restrictions applied to cereals took place during years when harvests were low and price spikes occurred on the world grain market.

In this essay I show that any export restriction brings large welfare losses compared to a free trade situation. I support this claim with a comparative analysis of the different export policies applied by the RUK governments on their respective domestic wheat markets between 2006 and 2016. Additionally, alternative policy responses towards achieving the policy goal of food security are suggested and discussed.

Most recent trade restrictions, except export duties, belong to the group of non-tariff trade measures. According to UNCTAD, 'non-tariff measures are generally defined as policy measures other than ordinary customs tariffs that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both' (UNCTAD, 2015).

There are several approaches for analysing non-tariff measures: frequency-type measures can be used when the frequency of the incidence of the non-tariff measures (NTM) is considered on a country basis or a coverage ratio on a commodity basis; quantity measures show what the export numbers would be if export measures were not in place; and price measures are expressed as a difference between the market price for the

restricted product and the price that would prevail if export restrictions were not imposed (Linkins and Arce, 1994).

As the policy instruments applied by RUK governments include tariff and non-tariff measures, the comparison of their effects becomes very challenging. There is a lack of method for the consistent comparison of tariff and non-tariff measures that are restricting export. Moreover, estimates for comparison of different export restrictive measures are difficult to obtain because of the lack of or limited access to good data.

In what follows I will attempt to answer the following research questions:
1. How can different policy measures be compared consistently?
2. What are the theoretical welfare effects of the applied measures?
3. What governmental interventions applied in the grain markets of RUK are the least trade-restrictive?

To compare the effects of export ban, export tax, export quota, export subsidy and tax reimbursement I will quantify the tariff equivalent of each trade policy measure. Earlier literature suggests that tariff equivalent is the most viable measure as it allows direct comparison of tariff and non-tariff barriers. The method has its shortcomings that will be discussed at the end of this chapter; nevertheless, it also has advantages over other approaches such as frequency-type measures or coverage ratios.

Despite a large body of literature (Bhagwati (1968), Sharma (2006)) dealing with tariff equivalents of import-restricting measures, there is a gap in the literature on tariff equivalents of export-restrictive instruments. As mentioned by Linkins and Arce (1994), in the case of an export barrier, the estimate is called an export tax equivalent. The literature on export tax equivalents is scarce. Linkins and Arce (1994) provide a survey of the literature on the use of tariff and export tax equivalents for non-tariff barriers. In the paper they compare the methods applied by the US and Canadian governments for estimation of tariff equivalents. Both countries constructed tariff equivalents for NTMs in the textile and apparel sector and in the agricultural sector using mainly the price-comparison method. The quota licence method was employed by the US government

for the estimation of tariff equivalents of the Multi Fibre Arrangement (MFA) quotas.

In the next section, a summary of the policies applied on the grain markets of RUK will be presented. After reviewing the available literature on the incidence, assessment and effects of export restrictions in Section 2.3, a theoretical analysis of the welfare effects of export restrictions will be provided in Section 2.4. The method will be discussed in Section 2.5 and the results of the tariff equivalents estimations will be presented in Section 2.6. Conclusions and a discussion will follow in Section 2.7 and some policy recommendations will be presented in Section 2.8.

2.2   POLICY BACKGROUND

2.2.1 Description of grain export policy measures in Russia

Export taxes November 2007–June 2008

On 12 November 2007, as a response to the global food crisis of 2007/2008 and rising world market commodity prices for cereals, the Russian government imposed an export tax of 10% on wheat and meslin with a minimum amount of EUR 22/tonne, and an export tax of 30% on barley, with a minimum amount of EUR 70/tonne, for exports to countries outside the Customs Union Agreement[4]. As this duty did not lead to a reduction in the volume of grain export, at the end of January 2008 the government raised the tax to 40% on wheat with a minimum amount of EUR 105/tonne and 30% on barley. The tax remained in place till 1 July 2008. The government also temporarily banned exports to Belarus and Kazakhstan to avoid the re-export of Russian wheat and meslin from these countries.

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4   The Eurasian Customs Union consists of the following member states: Russia, Belarus, Kazakhstan, Armenia and Kyrgyzstan.

Export ban August 2010–June 2011

In 2010, Russia suffered from record high temperatures, drought and wildfires. As the Russian harvest was severely affected by adverse weather conditions, world market grain prices increased. To insulate the domestic market from rising world market prices and to secure sufficient wheat supply for Russian consumers and meat producers, the government implemented an export ban for grain in mid-August 2010. The ban was in place from 15 August 2010 until 1 July 2011.

Export tax February–May 2015

Driven by the depreciation of the Russian rouble, the export of grain became very attractive for Russian traders. Russia exported a record high amount (16.5 million tonnes) of wheat over the period of July to December 2014. To slow down the export and stabilise the situation on the domestic grain market, the government introduced a grain export duty on 1 February 2015, setting the tax at 15% plus EUR 7.5 with a minimum amount of EUR 35/tonne of wheat. There were no taxes imposed on other grains. On 15 May 2015 the duty was lifted.

Export tax July 2015–September 2016

The Russian government imposed a new export tax on wheat exports starting on 1 July 2015. The rate of the export tax for wheat was set at 50% minus RUB 5,500/tonne, with a minimum amount of RUB 50/tonne. With this formula, the export of grain was restricted 'in case of the sudden devaluation of the rouble' (Government Resolution № 513 of 28 May 2015).

Starting from 1 October 2015 the new formula for calculating the wheat export duty was applied to wheat exports. The government increased the deductible portion of the wheat export duty to RUB 6,500/tonne and decreased the minimal amount of the duty to RUB 10/tonne[5].

The Government Resolution № 966 of 26 September 2016 'On amending the rates of export customs duties on goods exported from the

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5   https://www.fas.usda.gov/data/russia-wheat-export-duty-amended

Russian Federation to countries outside the Customs Union Agreement' set a zero rate export duty for grain until 1 July 2018.

Administrative barriers

Even prior to the implementation of the export duty in February 2015, some Russian authorities started using administrative measures to restrict grain export. Russian Railways (RZhD) slowed down grain shipments; paperwork was more thoroughly checked by transportation authorities; and the time to receive 'export phytosanitary and quality certificates increased from the typical 1–2 days to 6 days' (FAS/USDA, 2015a).

2.2.2 Description of grain export policy measures in Ukraine

Currently, compared to periods of ad hoc measures, grain export in Ukraine is more predictable due to the agreed amount of export in the Memorandum of Understanding. Previously the government applied different ad hoc export policy measures: export quotas, export taxes, and export licensing.

In what follows, I briefly summarise the various export policies and other requirements applied by the Ukrainian government over the last years. A full table with all measures and amendments is presented in the Annex 2.

Ad hoc measures

Export licensing was introduced for wheat and wheat-rye mix in September 2006 and remained in force until the end of December 2006.

Grain export quotas were introduced in October 2006 and lasted, with some short breaks, until May 2008. The distribution of quotas was highly non-transparent (Cramon and Raiser, 2006). Export quotas were introduced again in October 2010 and lasted until the end of May 2011. In June, quotas were substituted by export taxes which were in force

until mid-October 2011. Since 10 October 2011 export has been regulated by an informal agreement (MoU) between the government and grain traders.

The Ukrainian government, following the abolition of export quotas, introduced in July 2011 export duties of 9% on wheat (with a minimum amount of EUR 17/tonne), 14% on barley (with a minimum amount of EUR 23/tonne) and 12% on maize (with a minimum amount of EUR 20/tonne). The duties were planned to last until the end of December 2011 but were abolished earlier on 7 October 2011. Since export duties imposed at the beginning of the season seriously diminished the rate of the shipment of grain, the export of wheat in 2011 amounted to only 4.1 million tonnes (GTIS, 2016).

Memorandum of Understanding (MoU)

The Memorandum of Understanding is a relatively new regulation mechanism on the Ukrainian grain market. It was first signed by representatives of grain exporters and producers and the Ministry of Agricultural Policy and Food in October 2011. The levels of grain export mentioned in the MoU are to be discussed and agreed upon by September of each year, taking into account existing grain stocks and the expected grain harvest, and may be revised throughout the marketing year. The MoU enforces the position of grain traders already engaged in international markets but could prevent competition from market entrants.

According to the Memorandum, traders must provide the Ministry with data on the exported amount of grain every week; the Ministry on a weekly basis then provides traders with aggregated data on the exported volumes of grain and informs them how much can be still exported.

If export reaches 80% of the 'agreed' level, the Ministry can 'review' the conditions of trade (OECD, 2013). A notification of the termination of the grain export should be sent to all exporters no later than two months before its introduction.

For the marketing year 2011/12, the export volume of wheat was restricted to 10.5 million tonnes. In the 2012/13 MY, export limits were revised several times with a final limit of 6.6 million tonnes for wheat,

12.4 million tonnes for maize, and 3.0 million tonnes for barley. The Memorandum continues to be signed each year.

VAT reimbursement

The mechanism of VAT taxation and VAT refund is well described by Kuhn and Nievievskyy (2004). Zero rate VAT is used to avoid double-taxation both in the country of exports and the country of imports. In cases where VAT on the export operation is not refunded, it amounts to an ad-valorem tax which has to be paid by the exporter.

The policy of VAT exemption was applied in Ukraine for years. Traders purchase goods from producers with VAT[6], though it cannot be deducted due to the absence of taxable revenue, in this way VAT increases the cost of goods (Otten, 2012). The situation on VAT refund in Ukraine varied from year to year as displayed in Table 5. The table describes the *de jure* situation and the actual implementation of the policy instrument could be different.

Another mechanism of grain market regulation is price intervention in the grain sector. The Agrarian Fund purchases grain for the state intervention fund and also provides grain pledge loans. Furthermore, the Agrarian Fund sells flour at defined prices to authorised bakeries in order to maintain low bread prices for 'socially important' types of bread (OECD, 2013).

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6   The VAT rate in Ukraine is 20%.

Table 5: VAT refund rules for grain 2005–2016 in Ukraine[7]

Years	VAT regime	Beneficiaries
2005–2006	VAT refund regime was in force but there were problems with the actual payments to the traders (considerable VAT refund arrears were reported).	
August 2006	Discussions took place about stopping the reimbursement of VAT.	
2006–2008	The VAT reimbursement regime was in force, but there were payment delays and payments made fractionally.	
February 2009 –December 2009	The VAT was returned not in money form but in the form of grain from the Agrarian Fund of Ukraine.	
February 2010	The Agricultural Minister said that the VAT refund would be resumed through the Agrarian Fund in the form of grain.	
May 2010	The VAT refund through the issuance of domestic treasury bonds was approved but they were only issued in September 2010.	
Since 01.07.2011	Grain export was exempted from VAT until 1 January 2014.	No one was eligible for VAT reimbursement.
20.10.2011	0% VAT approved by the Verkhovna Rada (Parliament) of Ukraine.	The VAT refund regime had to come into force, but the Law was vetoed soon after.
04.11.2011	The president vetoed the Law on 0% tax adopted in October, so the previous regime of exemption from VAT came into force again.	No one was eligible for VAT reimbursement.

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7   VAT exemption means no reimbursement of VAT; 0% VAT means VAT is reimbursed.

Years	VAT regime	Beneficiaries
19.12.2013	The Law on Amendments to the Tax Code of Ukraine regarding several taxes № 713-VII of 19.12.2013 came into force on 1 January 2014.	According to this law, VAT had to be reimbursed as of 1 January 2014 if the grain was exported by grain producers, or if the grain was exported by companies which bought the grain directly from such grain producers. So, here the number of middlemen was restricted.
27.03.2014	The Law of Ukraine on Prevention of the Financial Disaster and Creation Conditions for Economic Growth in Ukraine № 1166-VII said that temporarily, till 1 October 2014, grain export was exempted from VAT, with the exception of the export of grain by agricultural enterprises.	Only producers could claim VAT reimbursement for the export of grain produced on the agricultural land that they owned or permanently used at the date of the export.
31.07.2014	The Law of Ukraine on Amendments to the Tax Code of Ukraine and some other Laws of Ukraine № 1621-VII of 31.07.2014 prolonged VAT exemption until 31 December 2014.	Only agricultural producers could claim VAT reimbursement for the export of grain produced on the agricultural land that they owned or permanently used, or rented according to the law at the date of the export.
28.12.2014	The Law of Ukraine on Amendments to the Tax Code of Ukraine and some other Laws of Ukraine with Regards to the Tax Reform № 71-VIII of 28.12.2014 stated that temporarily, till 31 December 2017, grain export was planned to be exempted from VAT.	All grain exporters were exempted from VAT payments. No one was eligible for VAT reimbursement.
25.12.2015	The Law of Ukraine on Amendments to the Tax Code of Ukraine and some other Laws of Ukraine with Regards to Provision of the Balanced Budget Revenues in 2016 № 909-VIII of 25.12.2015 brought back into force the 0% VAT on export.	As of 01.01.2016, all grain exporters are eligible for VAT refund on grain exports.

2.2.3 Description of
grain export policy measures in Kazakhstan

Export licensing August 2007–December 2011

Provided that the world market prices for grain would continue to grow and wheat exports from Kazakhstan would constantly increase, the Kazakh government introduced a grain export licensing system in August 2007 in order to have more control over the wheat market and grain prices. The authority's decision on the license took around ten days after submission of all the necessary paperwork. Under this system, only companies with their own production and storage facilities, and companies exporting at least 5,000 tonnes of grain were allowed to export. Export licensing was in place until January 2012 (Götz et al., 2015).

Export ban 2008

During the food crisis of 2007–2008, world grain prices increased significantly. In order to insulate domestic prices from the world market's price developments, the Kazakh government banned wheat exports from 15 April 2008 to 1 September 2008.

Transport subsidy

Kazakhstan is a landlocked country and is poorly connected to sea ports. Consequently, due to high transportation costs, Kazakh wheat exporters are barely able to compete with their Russian or Ukrainian counterparts in some of the key export markets. Therefore, in the years of bump harvests, grain exporters received transportation subsidies for grain going through Russian and Chinese territories between 2009 and mid-2012. To receive the subsidy, exporters had to use the transport services of the Centre for Transport Service (CTS). The subsidy rate varied over the years from USD 20/tonne of wheat in 2009 to USD 40/tonne in the following years. In May 2012, the subsidy rate was reduced to USD 27/tonne, and later that year in August, the transportation subsidy was terminated. This

policy is described in more detail in the OECD Review of Agricultural Policies: Kazakhstan 2013 (OECD, 2013a).

2.3 CURRENT STATE OF KNOWLEDGE ON THE REASONS AND EFFECTS OF EXPORT RESTRICTIONS

Reasons for export restrictions

The reason for export taxes and export restrictions might appear more difficult to understand than for import tariffs. Nevertheless, export restrictions are a common practice among many countries. Argentina implemented an export tax on beef, Indonesia on palm oil, Pakistan on raw cotton, Madagascar on vanilla, coffee, pepper, and cloves (Bouët and Laborde Debucquet, 2010), and Ukraine, Russia and Kazakhstan restricted the export of grains.

Among the justifications for the use of export restrictions Bouët and Laborde Debucquet (2010) present:
- the terms of trade effect: when export restrictions are implemented in order to raise world prices for products for which the country is one of the major exporters;
- food security reasons to protect consumers from food price inflation;
- support of the downstream processing industry if the exported product is used as an input for this industry;
- export taxes might be used as a government revenue extraction mechanism;
- or for income redistribution from domestic producers to domestic consumers;
- stabilisation of domestic prices (Bouët, Laborde Debucquet, 2010).

Empirical analysis of export restrictions

A large body of literature on the effects of export restrictions has been written by colleagues from IAMO. The effects of export restrictions on domestic markets can be compared by considering the degree to which the world market price changes are transmitted to producer prices on the domestic markets. Götz et al. (2014) use a regime-switching model to capture the influence of export controls on price transmission. They use two indicators in order to measure the impact of the export controls: the price insulating effect and price level effect. The authors found that the price insulating effect of the export ban varied regionally in Russia: from −60% in the North Caucasus district to −19% in the Volga district. Price damping effects were observed in the North Caucasus, Central, Black Earth and Volga districts of Russia. In Ukraine the average price insulating effect was 31%, whereas the price damping effect was 16%. The price level effect was lowest during the export tax regime compared to export quota regimes (Götz et al., 2014).

While the export ban damped wheat prices in the port region of the North Caucasus by 42%, the end consumer bread prices in Moscow were damped by only 3%. Therefore, the authors conclude that export restrictions only have a limited effect in insulating domestic prices from world market prices. They offer the following reasons as to why the governmental policies failed: black market trade, the temporary nature of export controls (traders keep the grain in storage), and the availability of price information to farmers in the RUK via internet despite the absence of physical trade (Götz et al., 2014).

Another reason for a less than theoretically expected price drop due to export restrictions might be that the middlemen get the surplus. Götz et al. (2015) found that mills 'did not transmit the price-reducing effects from the wheat price to the flour price' and benefitted from the export controls in Russia, Ukraine and Kazakhstan. Djuric et al. (2012) found the middlemen effect for Serbia, where bakeries benefitted from the export ban in 2007–2008.

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Jones and Kwiecinski (2010) analyse the impacts of the short-term restrictive measures of ten different countries on the trade flows in and out of the domestic market between 2006–2008 in order to evaluate their effectiveness in meeting stated policy objectives. They found that by implementing grain quotas, Ukraine limited export volumes but was not able to insulate the domestic market from the world price increases. Thus, consumers had to face rising prices while producers were unable to benefit from rising world prices.

Argentina reintroduced export taxes on agro-industrial products in early 2002 with the goal of collecting resources to alleviate the high (above 50%) poverty rate. Nogues (2008) describes those export barriers and answers the question as to whether the implemented policies met the intended objectives, based on simulations of the socio-economic impacts of the elimination of export barriers from a macroeconomic and microeconomic perspective. Using a macroeconomic approach and with the help of an estimation of the poverty-GDP elasticity based on data from 1998 to 2006, the author uses the World Bank general equilibrium model GTAP-Agr to calculate the impact the elimination of trade barriers in the agro-industrial sector would have on GDP. It was found that the simulated elimination of export taxes would result in a GDP growth rate varying from 2.8 to 4.6% and a decline in poverty between −1.4 and −6.9%, depending on the simulation scenario. Micro-simulation estimates show similar effects on the incidence of poverty. The paper also discusses the possible effects of the liberalisation of the agro-industrial sector 'on production and employment in the primary agricultural and agro-industrial sectors', as well as fiscal and income effects. The elimination of export taxes would have a direct negative effect on government revenue, but a positive effect would also stem from the additional collection of income and other taxes incurred through the expansion of production that would take place following the elimination of export barriers. After abolishing the export tax, producer prices would go up and thus, stimulate a production increase, additionally also resulting in increased employment (Nogues, 2008).

Götz et al. (2013) investigate the influence of export restrictions on market uncertainty in Ukraine. They conclude that instead of decreasing market uncertainty, multiple governmental interferences have led to increased market uncertainty and additional price volatility on the Ukrainian wheat market. Their findings are also supported by Liapis (2013) who suggests that frequent temporary measures not only contribute to market instability both on the domestic and international markets but also 'raise concerns about supplier reliability in import dependent countries that may last long beyond the duration of the policy'.

Warr (2001) uses a disaggregated general equilibrium approach for the analysis of welfare and distributional effects in the case of an export tax on rice in Thailand. The model is based on available estimates of the elasticity of the international demand for Thailand's rice export. The results suggest that the poor population, both in urban and rural areas, suffers from the export tax on rice. Although poor households are able to benefit from lower consumer prices for rice, as it is a staple food, they are nevertheless affected by decreases in producer prices. This is because the rice production industry is an important employer of unskilled labour and an export tax causes their wages to be lowered. It was found that negative producer price effects were larger than positive consumer price effects for the rural and urban poor in Thailand. Therefore, the efficiency of this policy remains questionable (Warr, 2001).

Mitra and Josling (2009) demonstrate theoretically that export restrictions lead to a decrease in welfare, both in exporting and importing countries in the long- as well as in the short-run. In order to empirically estimate the change in world welfare caused by export restrictions, the authors consider the case of an Indian rice export ban implemented in 2008. Using annual data from 1980 to 2006, the authors estimate the coefficients to the short-run demand and supply functions. Based on time trends from the period 2001–2007, the authors make projections of the world GDP and world price as well as Indian GDP. Using these projections, Mitra and Josling (2009) estimate price and quantity consumed for the world, rest of the world (ROW) and India in 2008 under different scenarios: a) no rice export restriction; and b) rice export ban by India in 2008.

Their results show a significant decline in consumer welfare in ROW as a result of the restriction and despite an increase in producer surplus in ROW, the Indian rice export ban led to a net economic welfare loss. The authors make policy recommendations and offer alternative measures to achieve food security, namely: raise agricultural production, use innovative supply strategies, implement domestic demand management measures, make bilateral, regional and multilateral negotiations more effective and introduce a so-called 'exporters' code' (Mitra and Josling, 2009).

2.4 THEORETICAL ANALYSIS FROM A WELFARE ECONOMICS PERSPECTIVE

In order to compare different policy measures, Bullock and Salhofer (2003) offer a method for finding an optimal Pareto efficient combination of two policy measures, focusing on the welfare outcomes of those policies, although they do not compare export restrictive instruments. They consider agricultural policy analysis in three different 'spaces': 'policy instrument space', 'price-quantity space' and 'welfare outcome space'. The authors mention three challenges of normative policy analysis: selection of the policies to be examined; mapping the policies from the policy instrument space to the welfare outcome space; and proper ranking of the policy instruments and outcomes. The policy instrument space shows potential policy instruments that the government might employ, the price-quantity space includes welfare (surplus) measures, and the welfare outcome space depicts the potential distribution of welfare between different social groups. The welfare outcome space contains 'surplus transformation curves' which depict continuous sets of welfare outcomes. Using policy instrument and welfare outcome spaces and applying a Pareto criterion, the authors show how to find an optimal combination of two policy instruments. Finding the optimal combination of two policy instruments requires the policy-makers to give weight to farmers and non-farmers,

or decide on the welfare level/welfare ratio for farmers/non-farmers that they want to achieve according to their government objectives, which might be not so explicit.

Further below I show the effects of different policy instruments employed by the RUK governments using the price-quantity space. I do not depict export restrictions in the policy instrument space or in the welfare outcome space. Depicting all policy interventions applied by the RUK governments in one policy instrument space would be tricky, as those include many various measures, non-reimbursement of VAT, quotas, bans, taxes, subsidies etc. Given such variety of policies, the policy instrument space has to be not two- but multi-dimensional. It becomes even more challenging when different instruments are combined simultaneously. I do not depict the effects of the policy instruments in the welfare outcome space as I'm interested not only in the effects on the welfare of consumers and producers in the domestic country but also in the effects on the rest of the world (ROW) in the case of a large country.

The welfare analysis of agricultural policy shows the changes in welfare measures among producers and consumers, as well as the budgetary burden felt by taxpayers. Welfare measures can be used to assess the effects of a policy or to compare different policy instruments. Using a social welfare analysis, I will show and compare the effect of different policy instruments on producers, consumers and the government budget in the price-quantity space. I use a partial equilibrium approach to show the effect of export policies on the wheat market, but the consequences for other markets are not considered. It is true that export restrictions might also indirectly affect factor markets (e.g. labour, land, transportation services, etc.) as well as other agricultural markets (e.g. oilseeds, fattening) but these effects and interactions between the markets are ignored in the partial equilibrium setting (Tirole, 1994). Here a partial equilibrium setting is chosen because the main goal of this essay is to compare direct effects on the grain market and a partial equilibrium model is more appropriate for the analysis of the single market. Furthermore, data requirements for a partial equilibrium model are much lower than for a general equilibrium model.

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Kuznetsova (2007) claims that the impact of export restrictions on the economy is different depending on the 'model assumptions' such as small or large country case, long or short term effect of the observed restrictions, static or dynamic framework and exchange rate regime.

In this section I will present the short-term effects of export bans, export taxes, export quotas, VAT reimbursement policies and transport subsidies for both scenarios: the assumption of a *large country* with effects on the formation of world market prices and the assumption of a *small country* without effects on world market prices. The practical relevance of the assumption might differ from period to period and will depend on the import market selected for analysis. I concentrate on the short-term effects of export restrictions because the policies in the countries of interest are changing quickly. They are often implemented when the sowing decisions for the season have already been made and usually do not last longer than one season. I assume a perfectly inelastic supply of grain on the domestic market because farmers cannot adjust their sowing decisions for the current season and the marketed supply of grain is inelastic in the short-run. On the contrary, the supply on the world market is elastic because grain from the RUK countries during periods of restrictions can be substituted by grain of other origins as there is a constant grain harvest around the globe at any point in time, as well as grain stocks from which the wheat can be sourced. For the analysis I also assume perfect competition on the market and homogeneity of product.

Generally, Ukraine's share on the world wheat market can sometimes reach around 10% (in 2008/09 MY), for Russia the share fluctuates between 3% in the years when export ban was in place to around 14% (in 2014/15 MY), and Kazakhstan had an average share of 5% on the world wheat market during the period between 2005/06 MY and 2014/15 MY. Because export restrictions were introduced simultaneously by at least two countries of the RUK region, it is hard to distinguish whether disruptions in the supply to the world market and subsequent price reactions happened due to the restriction in Ukraine or in Russia or Kazakhstan, the other big suppliers of wheat on the world market. For example in 2007/08 MY, both Ukraine and Russia restricted their exports in the form of quotas

and taxes, respectively and by the end of that marketing year Kazakhstan introduced an export ban on wheat.

2.4.1 Export ban

An export ban on wheat exports was applied by Kazakhstan in 2008 and by Russia in 2010. During the designated period, no wheat was allowed to be exported from the country.

The amount produced is Qs and the amount consumed inside the country under free-trade conditions is Qd. The amount $QdQs$ is the export amount. An export ban for wheat increases the supply of grain on the domestic market to Qs. An excess supply of grain decreases the grain price on the domestic market from Pd to Pd'. The gain in the consumer surplus is $PwDEPd'$. The decrease in producer revenues due to foregone exports is equal to the rectangle area $PwFEPd'$. Thus, the aggregated welfare loss is described by the area DFE.
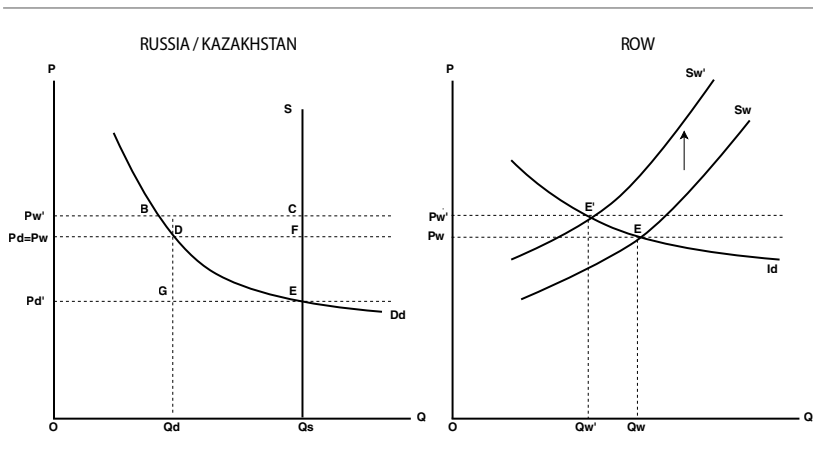
Figure 8: Effects of an export ban on the Russian/Kazakh and world markets (large country case)
Source: own depiction

In the large country case the ban will lead to a shift of the supply curve on the world market (from Sw to Sw'), which will result in increased world prices for grain (Pw'). However, this price increase will not be felt in the exporting country.

The magnitude of the price distortion on the domestic market depends on the price elasticity of the good. Wheat belongs to inelastic staple goods; therefore, an export ban on wheat leads to greater price distortions and greater welfare loss. According to data from 1996, own price elasticity for bread and cereal products in Kazakhstan was −0.324040 and in Russia −0.326250 (in Ukraine −0.370090) (Seale et al., 2003).

The effect of the export restriction also depends on the behaviour of the stakeholders (farmers/traders), whether they prefer to store grain and wait for the export restriction to be lifted, or whether they expect a new harvest and do not have enough storage facilities. The restriction also might not reach the intended results if the export of processed grains (e.g., flour) is allowed. Exporters will then export flour instead of grain.

In the long-run, if producers are afraid that the export ban might stay in place for a longer time and they are able to change their decisions about land cultivation (if the ban takes place before the start of the sowing season), they might allocate the land to different crops.

In the long-run, high world prices will be offset at least partly by a growing supply of the product to the world market (from the rest of the world), which implies a price reduction.

The small country case differs in the sense that the world price is not affected by the export ban. After the implementation of the export ban, no grain export is allowed and all grain stays on the domestic market (Qs), which results in a price decrease to the level Pd'. The gain in the consumer surplus is $PdCEPd'$. The decrease in producer revenues is equal to the area $PwBEPd'$. Thus, the aggregated welfare loss is described by the area CBE.
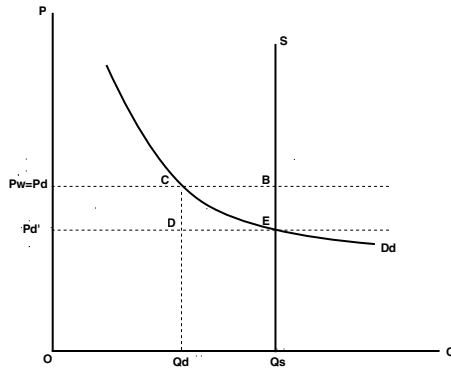
Figure 9: Effects of an export ban on the Russian/Kazakh markets (small country case)

Source: own depiction

2.4.2 Export tax

Export tax is a common measure among RUK countries to protect domestic grain markets. Russia imposed an export tax on grain in 2007–2008 and 2015–2016, and Ukraine used an export tax to avoid threats to domestic food security in 2011 (more details on the policy measures implemented in RUK are provided in the Annex 2). Further below I will theoretically explain the mechanism behind export taxes using the example of Ukraine.

Between June and October 2011, an export tax on wheat was implemented as an ad valorem tariff of 9% subject to a minimum amount of EUR 17/tonne. As wheat prices did not fall below EUR 189 during the period of application, the minimum amount has always been surpassed. Therefore, I concentrate on the ad valorem tax below.

Implementing an export tax reduces export supplies, as quantities close to the margin lose competitiveness on the world market. As a direct consequence, the domestic supply of wheat increases. Producers cannot adjust their level of production in the short-run and I assume the
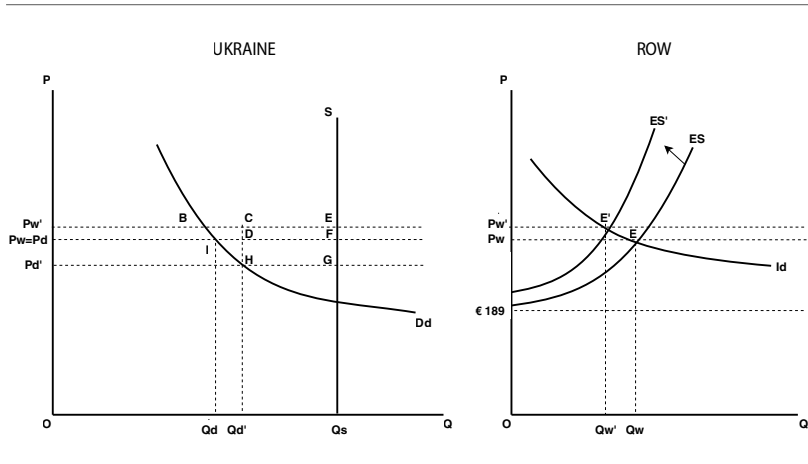
Figure 10: Effects of an export tax on the Ukrainian and world markets

Source: own depiction

post-harvest aggregated supply of wheat to be fixed. In this analysis I exclude the cost of storage to illustrate the mechanism behind taxes and quotas. An export tax would increase the costs of Ukrainian wheat on the world market, represented by a shift of the export supply curve *(ES)* to *ES'* in Figure 10.

As a result, Ukrainian wheat exports would fall from Q_w to Q_w'. Whenever demand on international markets *(I_d)* is not perfectly price elastic (i.e. assuming a large exporter), the world market price will increase from P_w to P_w'. Thus, the tax burden will be distributed between exporters and international consumers. Due to the increased domestic supplies, domestic prices will go down to the point P_d' where domestic demand equals supply minus exports *(Q_d')*.

The new level of exports is the distance $Q_d'Q_s$ and the government gains made through the collection of export tax revenues is described by the rectangle DFGH (before adjustment of the world market price). The gain in domestic consumer surplus is $P_d'P_dIH$. The loss in domestic producer surplus is P_dFGP_d'. The deadweight loss here is the area *IDH*. If the

loss area *IDH* is smaller than the rectangle *DCEF*, which is an incoming transfer from the importing country which partly 'pays' the export tax, the exporting country can benefit from the implementation of the export tax. Kuznetsova (2007) shows that the possible income for the exporting country grows the lower the elasticity of supply and demand in the importing country (i.e., the rest of the world) is and the more elastic supply and demand of the exporting country is. To be clear, such a terms of trade effect can only appear in a large exporter case.

In the medium-term, which is not shown in Figure 10, the terms of trade will result in another upward price adjustment on the domestic market. However, compared to a free trade scenario, the depressed domestic price will reduce incentives for producers and will result in lower wheat production in the future.

In the case of a small country (Figure 11), after implementation of the export tax the domestic price will go down to the level of the world market price (P_w) minus the export tax. The quantity supplied to the domestic market increases and the level of exports declines by Q_dQ_d'. The government gains by collecting the export tax revenue described by the
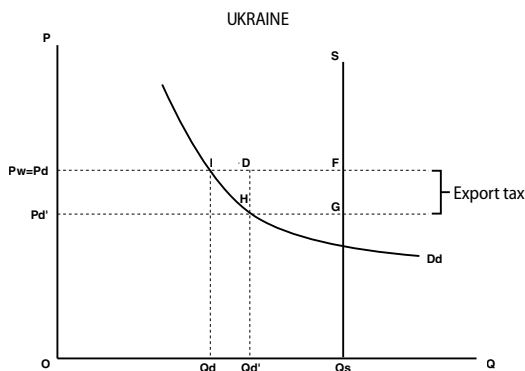
Figure 11: Effects of an export tax on the Ukrainian and world markets (small country case)

Source: own depiction

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rectangle $DFGH$. The gain in domestic consumer surplus is $P_d'P_dIH$. The loss in domestic producer surplus is P_dFGP_d'. The deadweight loss for the economy is the area IDH.

2.4.3 Export quota

After the introduction of a quota, the export is restricted to the amount $Q_d'Q_s$ (equals $0Q_w'$ on the export market). Assuming a short-run perfectly inelastic total supply, the introduction of a binding quota will result in an increased supply to the domestic market by Q_dQ_d'. Subsequently, the domestic price will drop to P_d' resulting in an increase in domestic consumption. The loss in domestic producer revenue is $P_d'P_dBD$, the gain in domestic consumer surplus is $P_d'P_dCD$, and summing up these effects, a net welfare loss DCB on the domestic market is observed.

The effect of an export quota on the world market is similar to that of export taxes. As soon as the quota is fulfilled, the export supply curve becomes perfectly price inelastic. In the case of a price elastic demand and a binding quota, the world market price will increase if the economy under consideration represents a large exporter. Looking at the distribution of the additional export revenues, exporters or governments benefit depending on the quota's implementation. In the case of distribution for free, exporters are the main beneficiaries. The administration of the quota in 2006 was reported to be highly non-transparent, and thus created opportunities for corruption (Cramon and Raiser, 2006). In 2010/11, export quotas were implemented on short notice, and their distribution came along with massive corruption. 'The majority of the export licenses were distributed to a state-owned company in 2010. Foreign grain trading companies did not receive any export licenses unless they paid bribes and thus experienced high economic losses due to foregone exports' (Götz et al., 2013).

In the small country case, the effects are very similar, with the exception of the reaction of world market prices. By imposing a quota, the government restricts exports to the distance $Q_d'Q_s$, thus increasing domestic

UKRAINE   ROW
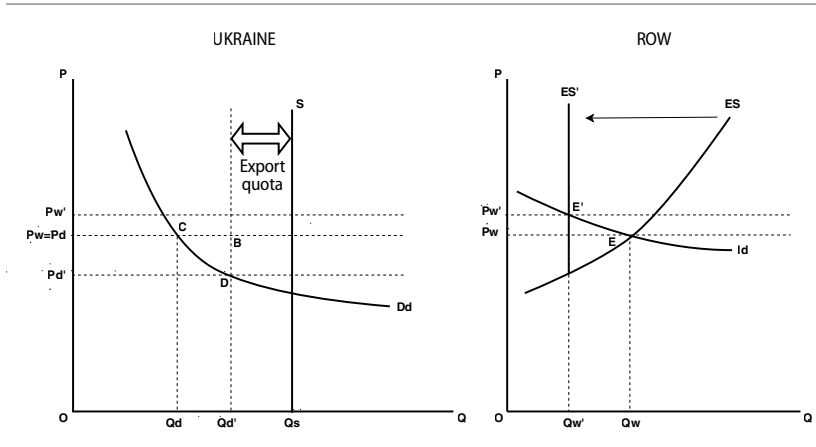
Figure 12: Effects of an export quota on the Ukrainian and world markets (large country case)

Source: own depiction
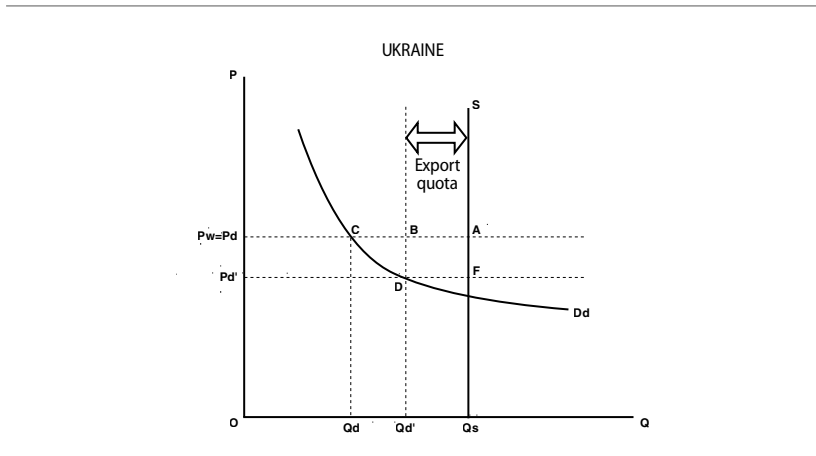
UKRAINE

Figure 13: Effects of an export quota on the Ukrainian market (small country case)

Source: own depiction

supply. As a result, the domestic price drops to P_d'. Producer surplus decreases by $P_d'P_dAF$. If there is no licensing of exports, then exporters will earn the amount of area $DBAF$. Finally, consumers gain the surplus indicated by the area $P_d'P_dCD$. In all, these effects result in a deadweight loss of the amount of the DCB area.

2.4.4 VAT reimbursement

In the case of 'zero VAT', prices for traders and farms should be equal to $P_t = P_f$, because VAT paid is reimbursed afterwards. Here I do not take into account claims that VAT was usually only partially reimbursed.

I will first look at what happens when export VAT is not reimbursed. Traders buy grain from farmers with VAT. But since export is exempted from VAT reimbursements, exporters cannot claim for VAT refund which they paid to the farmer. Therefore, to remain competitive on the world market, an exporter has to offer a lower price to the farmer.

Further below, the situation is depicted graphically. When there is no reimbursement of VAT, it has the same effect as an ad-valorem export tax. Traders buy less wheat because export becomes less attractive, the price paid by the trader goes up to P_t' and the price received by the farmers goes down to P_f'. A reimbursement for domestically sold wheat would cause the domestic supply to increase and is expected to result in lower prices for domestic end consumers. However, the export supply curve would shift upwards resulting in a lower exported quantity (e.g. from Q_w to Q_w') which would be sold at a higher price.

The effects on the traders and producers depend on the assumption of a large country. In a small country case, the whole burden of the VAT exemption would lie on the farmers and they would receive a price net off the amount of VAT (Figure 15). If a large country is assumed and the world market price reacts, then both traders and farmers would share the burden (Figure 14).
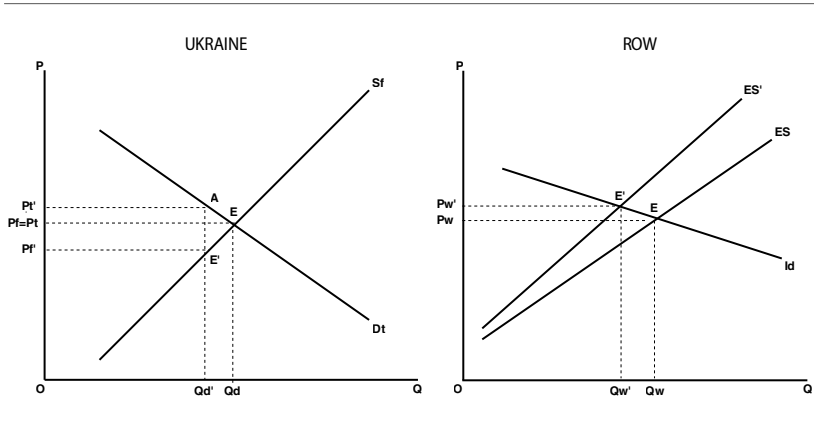
Figure 14: Effects of the exemption of VAT policy (large country case)

Source: own depiction
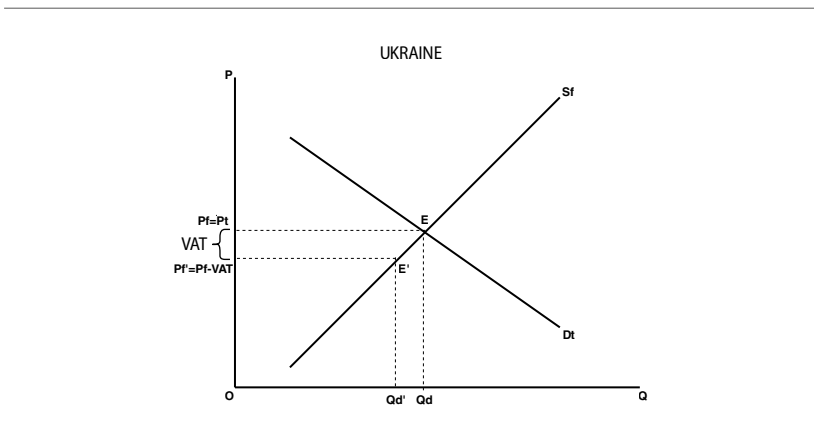
Figure 15: Effects of the exemption of VAT policy (small country case)

Source: own depiction

2.4.5 Transport subsidy

Here I consider short-term effects and do not consider any long term rise in production caused by the transport subsidy that might lead to additional employment.
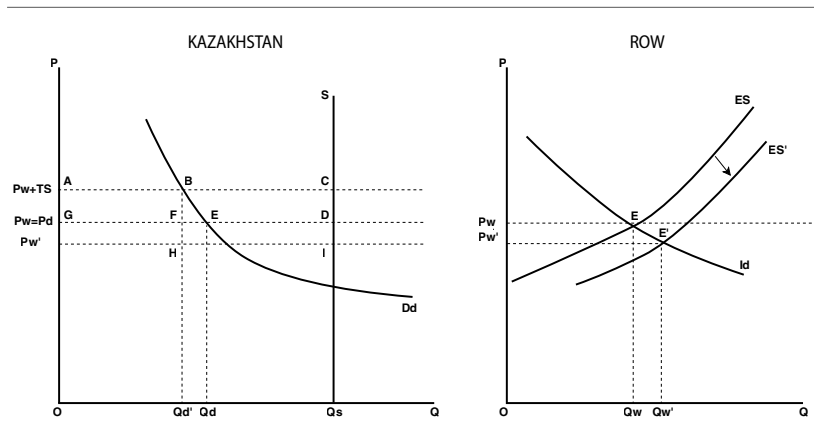
Figure 16: Effects of a transport subsidy on the Kazakh and world markets (large country case)

Source: own depiction

A transport subsidy *(TS)* decreases the costs of wheat export from Kazakhstan and encourages the flow of wheat across the border. Home exporters receive the price *(Pw+TS)* for each tonne of wheat exported. This means that the export of wheat from Kazakhstan increases and amounts to $Qd'Qs$. This leads to an increase in producer revenue by *ACDG*. Producers cannot adjust their level of production in the short-run, therefore, the domestic supply of wheat decreases to the level Qd'. Due to the rise in price, consumer surplus decreases by *ABEG*. The cost of the transport subsidy to the government equals *BCDF*.

The aggregate welfare effect for the country is found to be negative, i.e. the export subsidy leads to a reduction in the national welfare of the

exporting country. The area *BEF* represents a deadweight loss to the economy.

On the world market a transport subsidy shifts the export supply curve from *ES* to *ES'*. The additional supply on the world market results in the decrease of the world price for wheat (large country case). This leads to a terms of trade loss for the exporting country (*HFDI* rectangle) due to the reduction in the world price from *Pw* to *Pw'*. The exporting country loses this price difference on every tonne of grain exported. On the other hand, consumers in the importing countries will gain from the reduced prices.

The effects of the transport subsidy under a small country assumption are the same as those described above except for the loss in terms of trade.
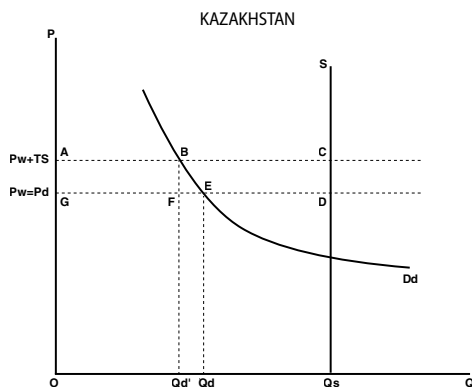
Figure 17: Effects of a transport subsidy on the Kazakh market (small country case)

Source: own depiction

2.5   METHOD FOR EMPIRICAL ANALYSIS

Policy measures can be divided into tariff and non-tariff measures (NTM). Among the policy instruments used by the RUK governments, export taxes and export subsidies belong to the group of tariff measures. Many of the recent trade restrictions such as export quotas, export ban, State Trading Enterprises and others belong to the group of non-tariff trade measures. As the policies applied by the RUK governments on their respective grain markets include tariff and non-tariff measures, the comparison of their effects becomes very challenging.

Deardorff and Stern (1997) provide a classification of non-tariff measures in their work, as well as a discussion of the methods for measuring the size of non-tariff barriers (NTB), depending on the type of barrier. They nicely summarise the methods into the following categories: frequency-type measures (inventory listings of observed NTBs); price-comparison measures (tariff equivalents or price relatives); quantity-impact measures (using the estimates of models of trade flows); and measures of equivalent nominal rates of assistance (Deardorff and Stern, 1997). The positive characteristics of each measure as well as their drawbacks are described by Movchan and Eremenko (2003) and Deardorff and Stern (1997).

Previous literature suggests that tariff equivalent is the most viable measure as it allows for the direct comparison of tariff and non-tariff barriers. The method, however, has its shortcomings, as it can capture not only the effect of the trade restriction but also other market effects such as interaction of supply and demand. Nevertheless, it also has advantages over other approaches such as frequency-type measures or coverage ratios.

Tariff equivalents of the NTMs in the previous literature concentrate mainly on the price comparison, and 'price gap' between the distorted and non-distorted price. In this study I use an alternative approach, estimating the 'quantity gap', the disruption to the trade flow of goods in the

presence of the policy intervention. It has its advantages over the 'price gap' approach because sometimes export prices are not observable, as in the case of export bans, where the price without export barriers must be assumed, and adjustments for the effect of the quality of the good on price, transport costs, and wholesale and retail margins must be made.

The method of tariff equivalents does not show which population group is most affected as a result of the policy intervention and does not provide information on the distributional effects of the policies; it provides estimates as to which policy instrument is more restrictive than the other.

In what follows I explain how I calculate the tariff equivalents of the grain market policies applied by the RUK governments. A change in exported quantity resulting from a change in the world market price is determined by the elasticity of export supply η:

$$\eta = (\Delta Q_x / Q_x)/(\Delta P_w / P_w). \tag{1}$$

Here, Qx denotes the average monthly export volume during the base period and ΔQx is the change of the exported quantity $(Qr - Qx)$. Qr is the average monthly wheat export during the period when the export control measure is implemented. The base period should describe the exported quantity had trade interventions not been in place. The choice of the base period can be difficult because periods without export restrictions might be distant in time from the period of restrictions, therefore, the export volumes might be affected by many other factors.

In a free market case, the world market price is equal to the domestic price plus transaction costs, which are neglected in this analysis.

$$P_w \geq P_d \tag{2}$$

In case of export tariffs in place, the world market price should be at least equal to the domestic price times the tariff rate $(1+t)$:

$$P_w' \geq (1+t)P_d \tag{3}$$

Using the Equations 2 and 3 and assuming a strict equality of domestic and world market prices, one can derive the following expression:

$$\Delta P_w / P_w = (P_w' - P_w)/P_w = [(1+t)P_d - P_d]/P_d = t \qquad (4)$$

To calculate the tariff equivalent of a quota, I substitute $\Delta P_w / P_w$ in the first equation by t and get:

$$\eta = (\Delta Q_x / Q_x)/t \qquad (5)$$

Rearranging (5) gives an expression to calculate the export tariff equivalent for other policy instruments, which I will use for the further analysis.

$$t = (\Delta Q_x / Q_x)/\eta \qquad (6)$$

Other things being equal, a more negative export tax equivalent would imply a more restrictive policy measure. The minimum value of the tariff equivalent depends on the export supply elasticity. Where export elasticity equals 0.5, the minimum value is −2 when the export is prohibited. When the export tax equivalent turns positive, it implies a trade supportive measure, i.e. export subsidy.

Due to the absence of recent estimates of export supply elasticities for RUK grain export, an export elasticity of 0.5 is assumed based on earlier estimates for the US (Koo, 1984). The value is close to other estimates reported by Haniotis et al. (1988) for the US. Any other export elasticity will affect the size of the effects in a linear way but not the direction and the comparison across the three measures. Results of a simulation over different elasticity values are presented in Annex 3.

In the estimations further below, as a base year for each country I chose a marketing year without any export restrictions. If there were several years to choose from, I picked the one where the average monthly export was closest to the 'average' marketing year without restrictions.

2.6 RESULTS OF THE EMPIRICAL ANALYSIS

Russia

In this estimation, exports from Russia during the periods of export in-
terventions is compared to the base year 2008/09 MY when the average
monthly export of wheat equalled to 1,471 thousand tonnes. The base
year 2008/09 MY was chosen because during this year the grain export
was unrestricted throughout the whole marketing year.

The export tax came into force on 12 November 2007 and remained in
place till 1 July 2008. In between, the tax for wheat was raised from 10%
to 40%. The average monthly export of wheat in this period was
548,546 tonnes.

Table 6: Tariff equivalent of export duties and export ban in Russia

Export regulating measure	Q_r [t]	ΔQ_x [t]	t
Export tax 2007/08	548,546	−922,884	−1.25
Export ban 2010/11	150,060	−1,321,370	−1.80
Export tax Feb–May 2015	571,944	−899,486	−1.22
Export tax July 2015–Sept 2016	2,219,081	747,650	1.02
Q_x (base period 2009/10 MY) [t]			1,471,431

Source: own estimations based on GTIS (2016) data

The ban on wheat exports from Russia was in place from 15 August
2010 until 1 July 2011. The average monthly export calculated for the pe-
riod August–June (150,060 tonnes of wheat) was mainly affected by the
exports of grain in the first half of August 2010. Later, some exports were
still sent to countries like Azerbaijan, Uzbekistan, Armenia, Kyrgyzstan
and Chad.

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During the export tax regime from 1 February to 15 May 2015, the average monthly export was 571,944 tonnes of wheat. A new export tax came into force on 1 July 2015 and remained in place until 26 September 2016. The rate of the duty was much lower and, therefore, the average monthly wheat export in this period was very substantial at 2,219,081 tonnes.

The estimation results show that the export ban had the highest restrictive effect on exports, which was the expected result. The export tax in 2007/08 was slightly more restrictive than the one applied in early 2015, with respective tariff equivalents of −1.25 and −1.22. The tariff equivalent for the export tax from July 2015 to September 2016 was positive, i.e. the average monthly exported quantities were higher than in the base period of 2008/09 MY.

Ukraine

As the base period for Ukraine, I am using the average export per month for the 2009/10 MY which amounts to 763,078 tonnes of wheat. All measures will be compared to this base period by calculating hypothetical tariff equivalents for the export quota, export taxes and the VAT non-reimbursement policy.

Export quotas were in force from October 2006 to May 2008 and from 4 October 2010 to 25 May 2011 (8 months). The average monthly export of wheat during the quota regime was 105,881 tonnes and 262,057 tonnes, respectively.

The export tax period started in June 2011 and lasted until 7 October 2011. I took only full months into account and the average monthly export between June–September 2011 was 587,441 tonnes.

VAT on exports was not reimbursed between 1 July 2011 and 1 January 2014. The average monthly export of wheat during this period was 630,938 tonnes.

I also calculated a tariff equivalent for the VAT non-reimbursement policy for the period following the abolition of the export tax, from

October 2011 to 1 January 2014. The average monthly export of wheat during this period was 643,840 tonnes.

I compared all policy measures related to wheat export in Ukraine to the 2009/10 MY. The results confirm that quotas in 2006 and in 2010 had a more restrictive effect on export than export taxes in 2011. The effects of the non-reimbursement of VAT are very close to the effects of the export tax in 2011 (at the level of 9%), but here it is necessary to point out that most of the time these two measures were implemented simultaneously. Therefore, I also calculated the tariff equivalent of VAT non-reimbursement excluding the period of export taxes (from October 2011 to 1 January 2014). Because of that, a slight decline in the tariff equivalent in absolute terms from 0.35 to 0.31 can be observed.

Table 7: Tariff equivalent of export quotas, duties and VAT non-reimbursement policies in Ukraine

Export regulating measure	Q_r [t]	ΔQ_x [t]	t
Quota October 2006–May 2008	105,881	−657,197	−1.72
Quota October 2010–May 2011	262,057	−501,021	−1.31
Export tax (simultaneous with cancelled VAT refund)	587,441	−175,637	−0.46
VAT non-reimbursement July 2011–December 2013	630,938	−132,139	−0.35
VAT non-reimbursement after abolition of export tax	643,840	−119,238	−0.31
Q_x (base period 2009/10 MY) [t]			763,078

Source: own estimations based on GTIS (2016) data

Kazakhstan

The average monthly export between April and August 2008 (105,263 tonnes) happened, presumably, during the first half of April 2008, when export was still allowed. Unfortunately, weekly data is not available. Therefore, I show the results for both periods, taking into account export in April 2008 and without it. The magnitude of the tariff equivalent

estimates changes, but not the sign, suggesting the restrictive power of the export ban.

The average monthly export during the period of the transport subsidy was 412,886 tonnes of wheat. The tariff equivalent for the transport subsidy is positive, which is a reasonable result, as it was applied to support wheat exports from Kazakhstan.

The results for Kazakhstan also incorporate the effect of export licensing, which was in place from 2007 until 2011, so it overlapped with other export control measures.

Table 8: Tariff equivalent of export ban and export subsidies in Kazakhstan

Export regulating measure	Q_r [t]	ΔQ_x [t]	t
Export ban Apr 15–1 Sept 2008	105,263	−273,564	−1.44
Export ban May–1 Sept 2008	0	−378,826	−2
Export transport subsidy Nov 2009–Aug 2012	412,886	34,060	0.18
Q_x (base period 2013/14 MY) [t]			378,826

Source: own estimations based on GTIS (2016) data

2.7 DISCUSSION AND CONCLUSIONS

Some cautionary remarks have to be made with regard to the empirical results. First, the results heavily depend on the choice of base year for comparison. For any year where exported quantities were very low, the tariff equivalent might turn positive. For example, if I consider 2005 as the reference year for Ukraine, there is no negative sign of the tariff equivalent for export taxes and the VAT-non-reimbursement policy. The same is observed for the most recent export tax in Russia (July 2015–September 2016). Such a result does not imply that these policies increased exports from the country. Second, export volumes depend not only on the policy instruments implemented, but also on the grain harvest in a specific year. Third, the tariff equivalent estimates might also include the effects of other industry barriers, not only the effect of the specific export restriction I am trying to estimate. They might be reflected in the estimates to a different degree: constant barriers (e.g. language) versus varying barriers (e.g. administrative barriers, preferences, trade deals, personal networks). Constant barriers can be neglected with regard to export restrictions within one country, while the timing of the varying barrier, if it coincides in time with the export restriction, can affect the tariff equivalent estimate. Finally, macroeconomic conditions might also affect domestic and international demand and result, subsequently, in higher or lower than 'normal' exports. However, there is no 'natural' export quantity for Ukraine, Russia or Kazakhstan. Thus, any base year should ideally represent an average harvest, an average domestic market situation and an average world market situation in the absence of any policy measure restricting exports. Alternatively, instead of using a base year, exports from a neighbouring country with similar geographical and socio-economic conditions that did not restrict its exports, might be used as a measure of what exports would have been in the absence of export barriers. But in the context of this study, due to the fact that Ukraine and Russia had overlapping export restrictions and Kazakhstan has different geographic conditions, the choice of such a country is not possible.

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Based on the theoretical analysis, it has been shown that although consumers might benefit from export restrictions, the overall welfare of the country decreases when export restrictions are introduced. But as can be seen in the case of the RUK countries, theoretical results have to be put into the context of the situation. The governments did not reach their goal of insulating domestic prices from the world market price effects. During export restrictions, domestic prices for wheat, flour and bread kept rising.

There can be several reasons for increasing consumer prices:
- Traders and producers, committed to export, don't expect stable agricultural trade policies. They might keep more grain in stocks and wait for better prices or they find ways to export their goods instead of supplying to the domestic market. For example, during the quota regime 2006–2008 for wheat in Ukraine, companies were exporting flour, and the world price signals were still transmitted to the domestic market.
- Millers and other processors exert their market power and reap the benefits of the export restriction, i.e. it's not the consumer who benefits from the export restrictions.

Policies of export restrictions, if they are efficient in decreasing the price for grain and bread for the final consumer, will provide lower prices for the whole population, not only to those in need, at the expense of grain producers. In the long-term, grain producers will reallocate the land for different crops, and unstable restrictive government policies implemented for a long period might result in grain production stagnation. Moreover, unstable policies damage the country's image as a reliable partner, provides disincentives to invest and increases price volatility.

Any type of restrictions undermines trust in the market and leads to welfare losses to the economy, therefore free trade is the best scenario. While the argument has been often made that consumers will suffer from free trade, I will illustrate a positive situation here. Under the assumption of the complete absence of barriers to grain exports and homogeneity of

grain, exports from the country will increase as soon as prices abroad net of transport costs exceed domestic prices. Increasing export activity will result in increasing domestic prices. Obviously, in the welfare economic setting above, farmers will benefit from such a situation and consumers will experience a decline in welfare. However, such a static effect neglects a number of adjustment processes. In the short-run, grain will be released from stores and economically less valuable uses of grain will look for substitutes. Subsequently, the additional quantity available on the market will restrict a further increase of prices. At the same time, more expensive grain will be less competitive on the world market. Thus, demand for expensive grain exports from abroad would decline, too. Important for the long-run is the incentive for farmers to increase grain production in the next season. If the assumption of homogenous grain quality is relaxed, there will be even more opportunities for substitution of higher quality (more expensive) wheat with lower quality wheat which additionally will buffer the transmission of increasing world market prices to local consumers. Thus, price spikes which harm consumers might appear in the short-run but cannot last, under the assumptions stated above, more than a few months.

The tariff estimates in the presented analysis compare the restrictive power of various export restrictions. The results are in line with the theory and show that the export taxes are less distorting than export quotas or export bans. During the export tax regime, signals from the world market are still transmitted to the domestic market and traders can react to them.

The analysis presented above has to be interpreted carefully. While the ranking of tariff equivalents is unaffected by the underlying assumptions, the size varies conditionally to the size of the export supply elasticity and the assumed quantity reduction. The tariff equivalents represent a gross measure and could be further decomposed in effects due to changes in world market prices and the pure policy effect. Due to data limitations, this task is beyond the scope of this thesis. The approach towards reaching this will be discussed in Chapter 5 in the outlook for future research.

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2.8 POLICY RECOMMENDATIONS

Export restrictions in the RUK countries over the last years did not have the desired effect on consumer prices and did not solve issues of food security, therefore the government should avoid implementing ad hoc measures in the future. Every intervention brings uncertainty to the market and might result in an increased volatility of prices. Here, the governments of the RUK countries should focus their policies towards directly helping the most vulnerable consumers, instead of distorting market mechanisms. As an alternative policy option for the RUK governments, it is advised to use consumer-oriented measures for the people in need, for example, direct income transfers.

One example of the unintended cross-effects of an unstable agricultural policy is the disincentive to store grain. Price stability could be easily enhanced by a transparent and predictable market environment. Storage fulfils a crucial function in this respect. However, storage only pays if the policy environment is stable and managers are assured that they will be able to build up expectations over the near future.

In my opinion, the role of the government in the market should be predominantly to create an enabling environment and to ensure equal rights to all market participants and eliminate incentives for corruption. It is advised to facilitate trade and not create additional administrative barriers, like grain quality certifications or delayed wagon supply. In particular, the government can support market development by increasing transparency. Therefore, it is suggested to the governments of the RUK countries to put more effort and resources into improving state agricultural statistics, including developing a reliable operational monitoring system for the grain balance.

The following key recommendations aim at supporting the development of a more competitive grain market while at the same time realising food security for the most vulnerable households:

1. Stop the practice of unannounced official and unofficial export restrictions.

2. Design and introduce a set of indicators to monitor food security in the country.

3. Design safety nets for the poor to compensate them for increases in bread prices and shift to a targeted food support system.

3 COMPARATIVE
ANALYSIS OF GRAIN
STATE TRADING
ENTERPRISES IN
RUSSIA, UKRAINE
AND KAZAKHSTAN

3.1 INTRODUCTION

Research has long been conducted on state trading enterprises (STE) in connection to their compliance with WTO regulations. According to the WTO definition, STEs include: 'Governmental and non-governmental enterprises, including marketing boards, which have been granted exclusive or special rights or privileges, including statutory or constitutional powers, in the exercise of which they influence through their purchases or sales the level or direction of imports or exports'.

The main points of criticism of STEs relate to their market power, pricing policies and non-transparent activities. Dixit and Josling (1997) describe the main concerns for importing and exporting STEs. For importing STEs, the issue of tariffication is important, while exporting STEs have concerns related to discriminatory pricing, exclusive rights to sell and purchase commodities, and unfair competitive advantages.

For example, reports on the Canadian Wheat Board's (CWB) and the Australian Wheat Board's (AWB) activities claimed that these boards were able to extract premium prices for grains and decrease marketing costs, but usually these reports were commissioned by the boards themselves and used information that was not publicly available. A detailed analysis (Informa Economics, 2008) of the CWB's performance showed the opposite: Canadian farmers received lower prices for wheat than their American colleagues, and handling and marketing costs for crops traded through the Canadian Wheat Board were higher than for non-board crops.

The CWB and the AWB are two well-known examples of grain state trading enterprises. The Canadian Wheat Board had a mandate to be a single-desk seller of Canadian wheat, durum, and barley for human consumption in the domestic and world markets, and feed wheat for export (Schmitz and Furtan, 2000). The Australian Wheat Board was the sole exporter of Australian wheat. However, state trading is not limited to only grain export, and it has also been observed in the cocoa and coffee sector as well as on import markets, for example the Japanese Food Agency and Korean State Mandated Imports.

In the cocoa and coffee sector, there were many marketing boards in the main producing countries. They set the purchasing prices, were in charge of quality control, and exported the product. After market liberalisation during the early '90s, many countries moved from state trading to industry supervision. Following a structural adjustment programme, Ghana restrained from liberalising its cocoa trade and maintained the functioning marketing board, Cocobod, which controlled all export and quality assurance. The quality of Ghana's beans was distinctive and they earned price premiums (Kaplinsky, 2004).

The effects of the STEs depend on their objectives. 'In the case of the OECD countries, the bias is generally towards producers: in developing countries the bias is generally towards consumers' (McCorriston and MacLaren, 2005a). While pursuing a cheap food policy in many developing countries, state trading involves taxing producers and subsidising consumers (Ingco and Ng, 1998). Taxation of agricultural production may provide disincentives to produce, which could be especially harmful in the context of the investigated countries (RUK) as a large share of agricultural land was abandoned after the collapse of the Soviet Union (Schierhorn et al., 2013).

Russia, together with other former USSR countries, inherited a complex system of centralised exports and imports. Foreign trade organisations exercised a foreign trade monopoly for the state during Soviet times. Although these trade organisations no longer exist, many former Soviet Union countries have organisations comparable to state traders. Russia, Ukraine and Kazakhstan have functioning STEs in the grain sector: the State Food and Grain Corporation of Ukraine (SFGCU), the open joint-stock company 'United Grain Company' (UGC) in Russia and the joint-stock company Food Contract Corporation (FCC) in Kazakhstan. These three institutions historically shared many similarities with each other. They were created to promote the development of the grain markets, as well as the export potential of their respective countries. They all are or were involved in sourcing grain for state reserves. They also evolved into exporters themselves.

The STEs in Russia, Ukraine and Kazakhstan differ from wheat boards such as the CWB or the AWB. The ones I am investigating in this study do not have a monopoly power either on the export market, or on domestic markets. They don't have a single-desk status and therefore it makes it more challenging to analyse their impact on their respective domestic markets.

The functioning of state trading enterprises in RUK and some of their features might be explained by the socialist legacy of these countries. The distribution of property rights, and the arrangement of coordination mechanisms, which determine the behaviour of economic actors, differ between socialist and capitalist countries (Kornai, 1998). Although the countries no longer have all the attributes of the socialist system, some of the features can still be observed to a certain extent, as is the case for a transition economy.

There has been little research carried out on state trading in Kazakhstan, Russia and Ukraine. The involvement of state trading enterprises (STE) in grain trade may have distorting effects on the domestic markets and export of these countries (Ingco and Ng, 1998; Informa Economics, 2008). As these three countries are potentially among the largest suppliers of grain on the world market and will affect global food security, the functioning of the grain STEs in the RUK countries should be carefully inspected.

The objective of this chapter is to compare the grain STEs across the RUK countries. In what follows I would like to answer the following research questions:

1. How can the grain STEs across the RUK countries can be compared consistently?
2. Do the grain STEs in the RUK countries enjoy any benefits due to their ownership status?
3. Considering the different features of the RUK grain STEs, do they distort grain trade on their respective markets?

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In this essay, in Section 3.2, the existing literature on the topic is presented. In Section 3.3, criteria for the comparison of state trading enterprises in Russia, Ukraine and Kazakhstan will be developed. In Section 3.4, the main similarities and differences between the grain STEs in RUK and their influence on the domestic grain markets of their respective countries will be described. After conclusions and discussion (Section 3.5), policy advice is provided in Section 3.6.

3.2 LITERATURE REVIEW

Both developed and developing countries employ STEs to pursue their policy objectives. Among reasons for the creation of STEs, one can distinguish several groups:

- food policy reasons: food security, price discrimination favouring consumers;
- support of farmers: price support for important agricultural products, price discrimination between the domestic and foreign markets in order to get better prices for producers;
- foreign exchange earnings; and
- market development reasons: economies of scale in grain marketing, inefficient marketing system, intention to decrease marketing costs, engagement in market development and attracting new customers (Akiyama et al., 2003).

One of the most recent studies on STEs, by the OECD (2015), shows that the rationale for the state ownership of companies has not changed over the years. According to Dixit and Josling (1997), developed countries see STEs as a way of achieving their objectives of income support and price stabilisation for producers. Developing countries pursue state trading as a means to achieve food security.

The dominant share of the literature on STEs refers to the functioning of the STEs according to GATT/WTO principles and discusses state trading issues in the GATT/WTO framework (McCorriston and MacLaren, 2001).

There are several concerns that exporting STEs may circumvent GATT/ WTO provisions of non-discriminatory treatment and commercial consideration and participate in unfair trading (GAO, 1995).

State trading enterprises must be reported to the WTO. As mentioned by McCorriston and MacLaren (2001), around 70% of all reported STEs operate in the agricultural sector. However, not all STEs are reported to the WTO and the STEs that are analysed in this thesis belong to this group. One of the reasons provided in the literature for underreporting is weak enforcement of GATT provisions. Another reason is that a country might not consider the company as an STE 'within the meaning of the working definition set forth in the Understanding on the Interpretation of Article XVII of GATT 1994', so there is no need to notify it to the WTO as an STE (according to the 'Replies to questions posed by the European Union regarding the Russian United Grain Company').

Dixit and Josling (1997) offer a qualitative framework for analysing the impacts of STEs and assessing their trade effects. They develop a scheme for the classification of STEs in their study. Using this classification scheme that 'provides qualitative indications (or ordinal ranking) of the trade impacts', they categorise STEs into four types depending on their ability to distort trade. The scheme includes the following elements: trade balance, market control, policy regime, products range, and ownership and management structure. Using such criteria as the market control mechanism and the policy regime, the authors concluded that the AWB belongs to Type III with a moderate potential for trade distortion, whereas the CWB belongs to Type IV with a high potential for trade distortion. In addition, the authors discuss tariff equivalents and subsidy equivalents methodology in order to assess the trade effects of STEs and mention cases where tariff equivalent methodology might not fully capture the trade impact of STEs.

It has been proven in the literature that the effects of the importing STEs are similar to the effects of import tariffs (McCorriston and MacLaren, 2010) and exporting STEs act like export subsidies. For example, STEs that restrict imports into a country affect domestic prices in a similar way to an import tariff, while an STE that expands exports affects domestic prices in

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the same way as an export subsidy. However, the trade distorting effect of the importing STE can also change from that of an import tariff to that of an import subsidy, for the exporting STE the trade distorting effect can change from that of an export subsidy to that of an export tax.

Among the direct effects of STEs are restricted market access, effects on price formation and competition on the market. If an STE has an exclusive right to import (or to export), it restricts market access to the domestic market (to the world market) for other importers (exporters). STEs that behave as a monopoly/monopsony and/or have market power affect the price of the product. Non-transparent behaviour of STEs and their soft budget constraints hinder competition on the market.

STEs can also distort trade flows relative to a free trade situation as was mentioned earlier. The 'trade-distorting impact can be positive or negative depending on the nature of exclusive rights' according to McCorriston and MacLaren (2005). The authors consider four cases of exporting STEs: the single-desk STE; the single-desk STE in the presence of a domestic producer price support programme; the single-desk inefficient STE (compared to a private firm); and the STE that has exclusive rights to export but cannot sell in the domestic market (licensed firm). They calculate the export subsidy/tax equivalents of trade distortions caused by the STE for the variable number of firms (n) operating on the market in the benchmark case. The subsidy equivalents for the cases of the single-desk STE and inefficient single-desk STE are positive but diminish if the market becomes more competitive, i.e. the number of the firms n in the benchmark grows. For the other two cases, the single-desk STE in the presence of a producer price support programme and the STE with exclusive rights to export but without monopoly/monopsony power on the domestic market, the subsidy equivalents turned out to be negative, meaning that the effect of the exporting STE changed from an export subsidy to an export tax.

The welfare effects of removing the exporting single-desk STE were also considered by McCorriston and MacLaren (2005) who compare them with three cases of regulation of the post-STE market. In the case when the deregulated market is competitive, removing the STE results in an

overall increase in welfare. If the STE is replaced by an oligopolistic market structure, then overall welfare would rise. Even if the single-desk STE is removed and replaced by an export cartel, such deregulation would also lead to a welfare growth. In the cases where the STE has the rights of a licensed firm, the overall welfare would decrease if this licensed firm was deregulated irrespective of the post-STE market environment under consideration. These results are representative of environments with relatively small domestic markets and high dependence on exports. Under different assumptions the net outcome of the analysis might be different (McCorriston and MacLaren, 2005).

Considering importing STEs, McCorriston and MacLaren (2006) conclude that the overall welfare would increase if the importing STE in a developed country was removed. The findings hold also for 'consumer-biased' developing and least-developed countries, but the magnitude will be smaller (McCorriston and MacLaren, 2006).

McCorriston and MacLaren investigate the impact of STEs in several studies. The authors show through the example of the importing state trading enterprise, Japanese Food Agency, that state trading enterprises might be a useful policy instrument when directed at income re-distribution, but lead to the overall loss of welfare in society. They calculate tariff equivalent and consider three cases where an STE has the exclusive import rights and different levels of power at the domestic market: a) exclusive rights on the domestic market, b) competitive domestic market, and c) excluded from procurement in the domestic market. The authors conclude that the more extensive the exclusive rights the parastatal enjoys, the greater the level of trade distortion (McCorriston and MacLaren, 2005a).

The distorting effects of the STEs depend on the nature of the exclusive rights that STEs have and the market situation after deregulation of the STE. From a welfare economic perspective, single-desk STEs are especially critical and their removal would result in the highest overall welfare gain.

In addition, functioning STEs can affect the efficiency of economic reforms in the country. McCorriston and MacLaren (2001) conclude that

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effects from trade reforms, such as reducing export subsidies and import tariffs, will be limited in countries with STEs if the impact of state trading enterprises remains unchanged.

Many governments and researchers are worried that STEs exert market power on both domestic and international markets. While there are concerns that exporting STEs may have market power on the world market, Abbot and Young (2003) conclude that the low market shares of most exporting STEs contradict the concerns over the market power of the STEs. However, their market power may be greater than indicated by their market share, if products are differentiated, or markets are highly segmented.

Domestic market power was considered by many authors to be 'an essential precondition for STEs to influence the market' (Ackerman and Dixit, 1999), therefore, eliminating the market power of the STEs would eliminate concerns about their ability to distort domestic markets. However, Young (2005) argues that without monopoly powers, STEs are unable to achieve their goals while competing with the private sector.

While concerns about state trading have been mentioned by many authors, Rutten (2007) comments on the potentially positive roles of STEs in developing countries. The main role of STEs in developing countries is to remedy market inefficiencies and any trade impacts are a secondary effect of their operations.

Among the benefits of replacing STEs with competitive markets, researchers mention: product innovation, closer distance between consumers and producers, elimination of price distortions, trade-based food security, lower marketing and handling costs, increase in welfare (IPC, 1999; McCorriston and MacLaren, 2005).

Concerning the STEs in the RUK countries, the World Bank (2009) prepared an analysis of the likely impact of the United Grain Company (UGC) in Russia, right after the company began operations, and concluded that concerns that the UGC would influence world grain markets were not justified. The analysis covers the period after the collapse of the Soviet Union up to 2008. The authors analyse STEs in Canada and Australia and discuss options for Russia based on the theory of market power and rents. The

authors also offer alternative ways to achieve domestic food security and a better functioning grain market. The authors do not quantify the effects of the STEs and do not provide the methodology that could be used for assessment.

As a part of their study on the wheat export economy in Ukraine, Kobuta et al. (2012) describe state operators that were functioning in the Ukrainian grain sector and their development during the period between 1990 and 2011. The description is based upon the documents of the Cabinet of Ministers of Ukraine, the report of the Accounting Chamber of Ukraine, etc.

Some authors such as Dixit and Josling (1997), Ingco and Ng (1998) provide a taxonomy for ranking the STEs depending on their ability to distort trade. But it appears that no comparison of the Russian, Ukrainian and Kazakh grain STEs has been made. Hence, what distinguishes the present study from the above-mentioned studies is that it is the first one to compare state trading enterprises in three former Soviet Union countries based on a wide set of criteria. I also account for the location of the decision making power in the STEs, whether it is found inside or outside of the company.

3.3 CONCEPTUAL FRAMEWORK (CRITERIA FOR ASSESSMENT)

To compare the STEs and assess the scope of their influence on the domestic markets of their respective countries, a set of criteria was developed, based on the studies of Dixit and Josling (1997), Ingco and Ng (1998), FAO (2002) and the OECD (2001).

FAO (2002) claims that the extent of trade distortion effects caused by STEs depends on three major things: to which extent the STE can exercise its market power; regulatory or institutional distance from the government; and trade orientation of the STE.

Among the criteria that need to be taken into consideration to evaluate trade distorting capacities of STEs Ackerman and Dixit (1999) name the extent of domestic market control, influence on international trade, and control over substitute products.

Dixit and Josling (1997) offer the following criteria for STE classification and for analysing and understanding their market effects: trade balance, market control, policy regime, product range, and ownership and management structure.

Ingco and Ng (1998) evaluate the extent of STE control and potential distortionary effects on trade based on '(1) the number of commodities covered under STE operations; (2) market share of STEs on key products; (3) whether the STE has monopoly control or exclusive rights; and (4) existence of nontariff measures used by the STEs'. Based on these indicators, they ranked the operations of STEs in individual countries as 'strong', 'medium' and 'weak'.

Veeman et al. (1998) divide all STEs into three different types depending on their effects on contestability. The classification criteria to measure market contestability include market concentration, trade shares, price differences and rents, the relationship between the STE and the government, and the level of transparency of the STE.

I consider the structure of the ownership of the STEs, the type of activities in which they are involved, their role on the market and their preferential access to infrastructure and markets, political networks and soft budget constraints as important criteria for assessing the market distorting effects of STEs.

All criteria are grouped into three categories depending on the actor that has the power to make decisions, whether it is the government or a representative (CEO) of the company.

- *Internal decisions* are those that the company can make and alter on its own, such as the type of activities in which the company is involved; the company's role on the market which is comprised of its market share and influence on price formation on the market.

- *External decisions* are those made by the government like ownership structure of the company; preferential access to infrastructure, inputs and export (sales) market granted to the company; political networks with which the STE is associated; and soft budget constraints.
- *Hybrid or mixed decisions* are those that both internal and external actors have influence on, such as role on the market: the STE can have a monopoly and/or monopsony power on the domestic market and have a single-desk exporter status provided by the government. Moreover, the guaranteed floor price or the ceiling price can be set by the government.

Assessing the trade distorting effects of STEs poses significant conceptual and measurement challenges. The data requirements for calculating the tariff equivalent are very high. To calculate the tariff equivalent and consider three cases where an STE has the exclusive import rights and different levels of power at the domestic market, one has to know: domestic demand elasticity, elasticity of substitution, elasticity of domestic supply, export supply elasticity, total sales of the domestically-procured good and of imports, number of competitors, domestic retail prices and retail prices of imported wheat, import price, sales of domestically produced and imported wheat, and assume the policy bias level (towards producers or consumers) (McCorriston and MacLaren, 2005a). An advantage of the framework offered in this essay is accessibility of data.

The above-mentioned STEs will be assessed according to the following criteria which are observable:

Internal decisions

- TYPE OF ACTIVITIES

I assume competitive market conditions prior to state trading. If one STE is involved in several sections of the supply chain, it may have a more distorting influence on the market. If a firm controls the market for a product

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and its substitutes, then it has a greater capacity to distort trade. Therefore, an STE that controls one product is preferable to one that controls multiple products (Dixit and Josling, 1997). More activities will allow the STE to counter trade losses and gains across activities as a consequence of vertical/horizontal integration. It is also important to note that vertical/horizontal integration is a common feature of private companies and can be substantiated by commercial reasons. The CWB, the AWB, and the New Zealand Dairy Board controlled exports of more than one product (Ackerman et al., 1997).

• ROLE ON THE MARKET

The larger the share of the STE on a given market, the more market power it can potentially exert in relation to its suppliers, customers and competitors, under the assumption of no access for new competitors, etc. In the extreme case, the STE has a single-desk status and can discriminate between sources of supply, i.e. offer different prices for different types of farmers. If this is the case, welfare losses compared to perfect competition are likely to occur.

External decisions

• OWNERSHIP STRUCTURE

I assume that an STE with the partial involvement of commercial ownership is more likely to move toward free trade than an STE owned by the government. A privately owned firm is expected to return a profit for the owner or shareholders. Fully publicly owned firms might have additional objectives identified by the government or other public actors. Therefore, ownership might have an effect on the firm's objectives. Both types of ownership can cause market distortions depending on the extent of the market power that they are able to exercise. The ownership structure is also related to the issue of soft and hard budget constraints discussed further.

- PREFERENTIAL ACCESS TO INFRASTRUCTURE, INPUTS AND EXPORT (SALES) MARKET

An STE that enjoys preferential access to services has advantages compared to its commercial competitors. It is able to distort competition on the market under consideration as well as other markets in which it engages. If the state trading company has a right to source grain from farmers first, it faces less uncertainty of supply, compared to the processors and other exporters. That gives the STE an advantage for making long-term agreements with importing partners. However, commercial exporters can procure grain from various countries to fulfil their commitments. The preferential right to deliver products under intergovernmental agreements can potentially affect the access of other players to those export markets.

- POLITICAL NETWORKS

Association with any political forces means that the STE is expected to submit to the political goals of that political actor. The STE might become a means of achieving government targets. An STE that is associated with any political network is less likely to conform to commercial criteria and more likely to distort trade.

A close affiliation with a political network might distort the fair distribution of quotas and might be associated with rent seeking behaviour at the market. It also means lack of transparency and potential corruption in order to influence political decisions. The temptation to use political influence to control bottlenecks in the grain marketing system arises.

To identify the political networks, it might be important to look at the hiring procedure for the CEOs of state trading enterprises, whether it is an open recruitment process or the CEO is assigned by the government. When the government assigns the CEO, preference might be given not to the person with the best qualifications for this position, but according to the candidate's attachment to the political party, friendship or relative connections, etc. An open recruitment process, on the contrary, is usually based on merit, not on the contacts of the applicant. In an open recruitment process economic motives play a more important role. I assume

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that a CEO assigned by the government might be less independent in terms of decision-making and his decisions might be biased by political preference. Therefore, an open recruitment process should be preferable as the decisions of the CEO should reflect the needs of the company, not the wishes of the various policy actors.

- SOFT BUDGET CONSTRAINTS

Many STEs operate in so called strategic industries, such as bread, grain, other food sectors, the spirits industry, military equipment, ports, etc. and therefore their activities are financially supported by the state even if the companies are making losses. Tax concessions, waivers of social contributions, and government underwriting are considered to be soft budget constraints, a term introduced by Kornai (1998). When an STE enjoys preferences which are not available to private firms and without which the STE could have made losses, it distorts competition. It allows state traders to undertake pricing risks not available to a commercial enterprise. In a market economy, every private firm faces hard budget constraints, i.e. a firm that is making losses cannot survive (Kornai, 1995).

If an STE receives funding from the government at a favourable rate or at a zero rate, this may lead to considerable burdens on public finance. But if the funding comes from the banks or from the capital market, at the same interest rate as for the private sector, there shouldn't be any issues (Rutten, 2007).

The softness of the budget constraint is also related to the type of property rights. Private ownership is associated with hard budget constraints, whereas state ownership is very prone to use state financial resources to bail-out firms with state ownership.

Political pressures and soft budget constraints make it difficult for the company to think of efficiency (especially in the long-run), to adjust to demand in a timely manner, and to make proper investment decisions. At the same time, competitors get the signal that the STE has privileges and the rules of the game on the market are not fair and clear. They are demotivated to invest in infrastructure and sector development, because they are uncertain about their future on the market.

According to Kornai (1998), the socialist system is characterised by the dominant position of state and quasi-state ownership, the preponderance of bureaucratic coordination, soft budget constraints, weak responsiveness to prices, quantity drive, etc. whereas among the features of the capitalist system are: the dominant position of private property, the preponderance of market coordination, hard budget constraints, strong responsiveness to prices, etc. The functioning of state trading enterprises in RUK and some of their features might be explained by the socialist legacy of these countries. As mentioned in Kornai (1998), it is not enough that only one of the features is present to make a country a socialist or a capitalist country, it is a sequence of all mentioned features: the distribution of property rights, the arrangement of coordination mechanisms, which determine the behaviour of economic actors. Although the countries do not have all the attributes of the socialist system anymore, some of the features can still be observed to some extent: that happens in the case of a transition economy.

In the case of the Canadian Wheat Board, the government was underwriting their debts, and the organisation had a soft budget constraint, meaning that Canada also possessed some features of a socialist system. Only combination of all features determine a position of the country in their transformation from planned to market economy, moving from a soft budget constraint to a hard budget constraint is a crucial indicator of that transformation.

The above-mentioned criteria are defined as following:
- Type of activities: is the company involved in the trade of grain substitutes, downstream and upstream industries?
- Role on the market is measured as the market share of the STE and whether the company can influence price formation on the market, i.e. is a price leader.
- Ownership structure is reflected as the share of the STE owned by the state.

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- Preferential access to infrastructure, inputs and the export market is measured as the legal preferential rights of STEs in market access and sourcing of inputs.
- Association of the STE with a political network is documented based on open-access data and press reports.
- The question of whether the STE enjoys any soft budget constraints is answered based on the available information from the literature and the press.

3.4 COMPARATIVE ANALYSIS OF THE GRAIN STEs IN THE RUK COUNTRIES

3.4.1 Description of the grain STEs in the RUK countries

Ukraine

In the case of Ukraine, the analysis focuses on the State Food and Grain Corporation of Ukraine (SFGCU). Although the State Food and Grain Corporation of Ukraine is not the only state operator on the Ukrainian grain market, it is the only one that participates in grain export from Ukraine.

Among its main tasks, the company names: management of the state assets; development of infrastructure for grain storage, processing and shipping; as well as attraction of investors to agricultural sector; and expanding export directions of Ukrainian grain (State Food and Grain Corporation of Ukraine).

The State Food and Grain Corporation of Ukraine owns about 10% of certified storage capacities and its port terminals can ship up to 12% of the average annual volumes of Ukrainian grain export. The processing enterprises of the SFGCU are capable of satisfying up to 15% of the Ukrainian domestic market demand for flour, cereals and fodders.

The other state actors on the grain market of Ukraine are the Agrarian Fund of Ukraine and the State Reserve Agency of Ukraine. The Agrarian Fund participates in the regulation of food prices and forms the state intervention fund, while the State Reserve Agency of Ukraine forms government orders at the food market and keeps material reserve in order to ensure food security.

The State Food and Grain Corporation of Ukraine was established in 2010 in order to reorganise the state joint-stock company, Khlib Ukrainy and settle its financial problems. Khlib Ukrainy was the predecessor of the SFGCU and was founded in 1996. The Cabinet of Ministers of Ukraine became a holder of the issued nominal shares. Until the establishment of the Agrarian Fund, Khlib Ukrainy was an active state operator dealing with the state purchase of grain. Later, the company was engaged in the provision of agricultural producers and commercial companies with services related to the acceptance, processing, handling, storage, shipping and transfer of grain and oil crops, as well as the production of flour, cereals and mixed fodder. Khlib Ukrainy had a subsidiary called KhlibInvestbud. On the basis of KhlibInvestbud the State Food and Grain Corporation of Ukraine (SFGCU) was established.

Currently KhlibInvestbud is an organisational unit of the State Food and Grain Corporation of Ukraine. In the 2010/11 marketing year, KhlibInvestbud was among the five largest grain traders of Ukraine and obtained one-fifth of the grain export quota, amounting to 224,000 tonnes for wheat export and 653,000 tonnes for corn. In 2010–2011 KhlibInvestbud was involved in a system of state forward purchases of grain. The Agrarian Fund purchased grain through KhlibInvestbud.

In 2013, the SFGCU started exporting grain itself, not through its subsidiary KhlibInvestbud. In addition, the SFGCU was the first to begin supplying Ukrainian grain to the Chinese market and implementing intergovernmental agreements on grains export. During the 2013/14 MY the State Food and Grain Corporation of Ukraine had a share of 9% of total grain export from Ukraine (State Food and Grain Corporation of Ukraine).

In 2015, officials from the State Food and Grain Corporation of Ukraine were accused of embezzling state funds which led to the loss of half

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a million USD incurred by the state structure. SFGCU officials purchased 55 thousand tonnes of corn from European suppliers at an intentionally inflated value[8]. Currently there is an ongoing debate in Ukraine whether state companies should be privatised or not.

Russia

The 'United Grain Company' (UGC) is a Russian state-owned agricultural company, established on 20 March 2009 on the basis of the Agency for Food Market Regulation. The UGC's functions include: development of grain market infrastructure, implementation of the export potential of Russian grain on the world market, and trade and procurement activities on the domestic grain market. Since its creation, the United Grain Company remains the agent in state intervention purchases of grain.

In May 2012, the Board of Directors of the UGC chose Summa Group as a strategic investor. Summa Group purchased a stake in the company at a rate of 50% minus one share. Shareholders of the UGC elected the Board of Directors of the company: four representatives of the state and three representatives of Summa Group.

According to the most recent figures, the company owns 12 grain elevators with a total capacity of 1.8 million tonnes and 14 processing plants with a capacity of 1.2 million tonnes, as well as one of the largest Russian port handling companies, JSC 'Novorossiysky Combinat Khleboproduktov' (United Grain Company).

Kazakhstan

The national company, Food Contract Corporation (FCC) is a Kazakh state-owned company that manages state reserves of grain; is involved

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8   Security Service of Ukraine http://www.sbu.gov.ua/sbu/control/en/publish/article;jsessionid= F085BA0AFECD6676A48FD46F7C75D11F.app1?art_id=140154&cat_id=140089

in the formation, renewal, storage, transportation and sales of the state reserves of grain. Among the other tasks of the FCC is development of the domestic grain market through exchange trading tools and forward purchases of grain and the development of export. The FCC continues to handle government-to-government transactions.

The FCC, in addition to acting as a government agency, also undertakes commercial grain trading. Around three-quarters of total wheat purchases carried out by the FCC between 1998 and 2011 were commercial purchases (OECD, 2013a).

The State Food Contract Corporation was established in 1995 in order to purchase grain into the state resources, develop new credit and payment mechanisms in the agricultural sector and ensure the food security of the country. Kazakhstan used the State Food Contract Corporation as its sole export agency, but opened trade to private firms in the 1990s (Ackerman and Dixit, 1999). In 1997, the State Food Contract Corporation was reorganised into the Food Contract Corporation joint-stock company with 100% state share in its authorised capital. In 2006, the ownership of the Food Contract Corporation (FCC) was transferred to the Holding KazAgro JSC (Food Contract Corporation).

The FCC has been able to provide better access to finance, at very competitive rates, build a good reputation on the international market and open new marketing opportunities (Rutten, 2007).

The FCC receives annual budgetary transfers to the company, generates financial resources from commercial operations, obtains a 3% commission for selling state resources and receives loans from domestic and external banks. In some cases, the company may receive additional transfers from the National Fund, as in 2009–2011 during the highly uncertain situation on the grain markets (OECD, 2013a).

The FCC is also a managing company for the United Grain Holding (UGH). The UGH was created in 2013 as an instrument of support for producers. Joint cooperation within the UGH includes the production of grain, its subsequent sales on the domestic and foreign markets and the distribution of revenues among the members of the UGH.

3.4.2 Comparative assessment of STE characteristics

To compare the three STEs, it is also necessary to make a brief comparison of the market environments in which they operate. The relevance of analysing the domestic market environment was also stressed in the OECD report on state trading enterprises in agriculture (2001), because some distortions might be related to the market environment not to the activities of the STE. The grain export markets in these countries are highly concentrated: the ten largest exporters export 60% to 90% of all grains. On the domestic markets of these countries, representatives of multinational companies compete with domestic traders. Companies like Toepfer, Cargill, Bunge, Glencore, and Louis Dreyfus Commodities are among the major exporters. High market concentration does not necessarily indicate imperfect market conduct if the entry of new players is not restricted and has an impact on the performance of the different firms (Veeman et al., 1998).

Among the major problems for grain trading companies in recent years were undeveloped transport and storage infrastructure, lack of rail-cars during the bumper-harvest years, overregulation of the grain market, absence of the reimbursement of VAT on export, lack of qualified personnel, etc. For domestic trading companies, a lack of finance sometimes also constitutes a problem, whereas international traders can receive financing from their parental organisation.

In 2001, the OECD reported that the national and regional governments of the Russian Federation and Ukraine control domestic procurement and, to varying degrees, export and import transactions (OECD, 2001).

In what follows, the activities of the State Food and Grain Corporation of Ukraine (SFGCU), the Food Contract Corporation of Kazakhstan (FCC) and the United Grain Company of Russia will be compared. Similarities and differences between them will be discussed.

Internal decisions

- TYPE OF ACTIVITIES

All three STEs are involved in purchasing grain from farmers and selling it, grain handling and processing, storage of grain, sourcing of grain for the state reserve, providing other firms with grain storage, handling services and grain export. They also possess grain terminals in ports.

While the SFGCU and the UGC don't offer grain transport services, the FCC owns a specialised subsidiary, KazAstykTrans, for this service. KazAstykTrans offers services of grain transportation by railway. It was created to ensure the availability of transport for the transportation of grain by the Food Contract Corporation. KazAstykTrans is the official expeditor of the Kazakh national railway company 'KazakhstanTemirZholy'.

If the companies control upstream or downstream activities, they obtain new opportunities for market manipulation. At the same time, it must be mentioned that vertical and horizontal integration are common features of private grain traders, and are driven by commercial reasons (FAO, 2002). In terms of the type of activities, STEs do not differ much from private grain traders but they do differ in other areas.

- ROLE ON THE MARKET

Since none of the STEs in the RUK countries has a single-desk status and they don't have exclusive rights to export or to procure grain, their opportunities to influence domestic consumers and processors are limited. Influence on foreign consumers is limited due to their relatively small share in world export which in the long-run can be easily substituted from other destinations. The shares of the STEs in the export of grain are quite small. The share of KhlibInvestbud (on the basis of which the State Grain and Food Corporation of Ukraine was established) in the 2011/12 MY was 14% of the total grain export, and in recent years the SFGCU has exported around 8–9% of grains (see Figure 18). UGC exported around 5% of grain in the 2011/12 MY, and in the 2014/15 MY, its share dropped to 3% (Figure 19).

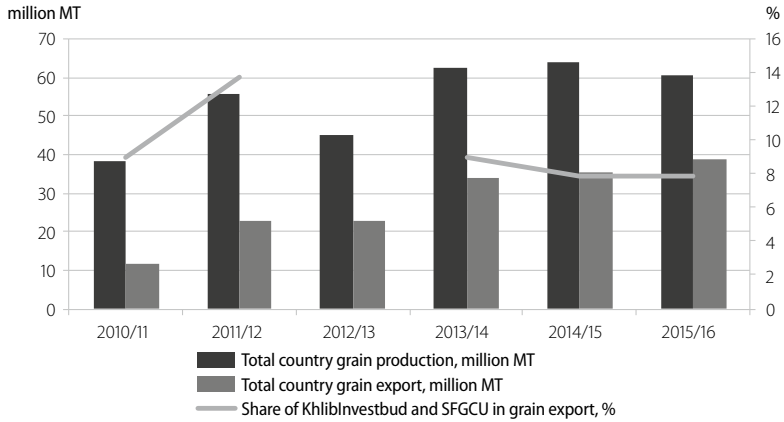million MT   %

Figure 18:   KhlibInvestbud's (2010–2013) and the SFGCU's (2013–2016) shares in grain export from Ukraine

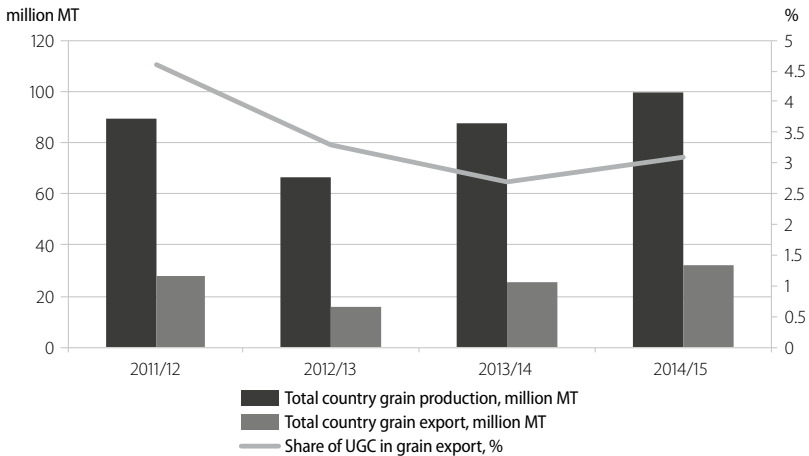Source: data from Delo.UA (2012), GrainUkraine, Latifundist (2014), USDA

million MT   %

Figure 19: The UGC's share in grain export from Russia
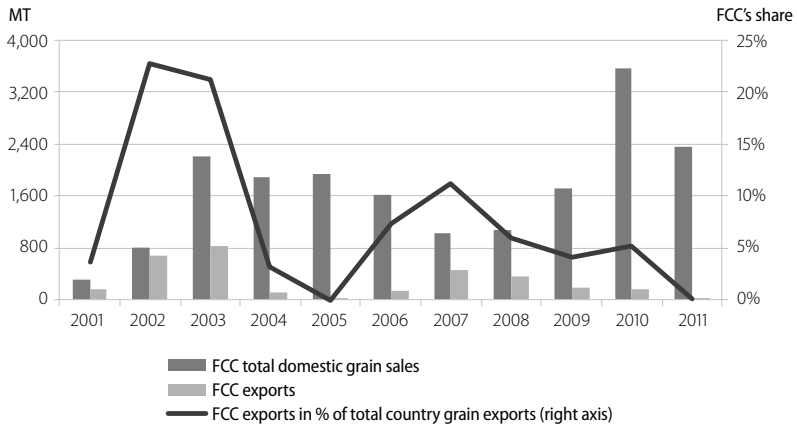
Source: data from USDA, Agroinvestor (2015)

Figure 20: The FCC's share in grain export from Kazakhstan (2001–2011)

The FCC's shares in grain export varied over the years, from 23% of total grain export in 2002 to 0% in 2011 (Figure 20).

Even if these STEs had a single-desk status, they wouldn't reach a 25% share of the world grain export, a threshold considered necessary to influence the world grain market (Carter and Wilson, 1996). In case they had a single-desk status, they would only be able to influence the world market and cause an increase in prices in the short-run.

Despite a relatively small share in exports from Kazakhstan, 'the FCC has substantial market power on domestic market given the scale of its operations and priority access to storage and transport services related to its function as an agent operating state grain resources' (OECD, 2013a). The authors obtained data on the FCC's grain purchases and sales for the period from 1998 to 2011 (Figure 21) and found that the FCC withdrew 29% of the harvest from the market in 2009, when the grain harvest was abundant. In 2011, the FCC purchased 20% of the total grain production. In the 2010 drought year, the FCC released onto the market an

thousand MT
FCC's share

5,000 — 40%
4,000 — 32%
3,000 — 24%
2,000 — 16%
1,000 — 8%
0 — 0%

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011

FCC total domestic grain purchases   FCC purchases in % of total grain production (right axis)
FCC total domestic grain sales   FCC sales in % of total grain production (right axis)
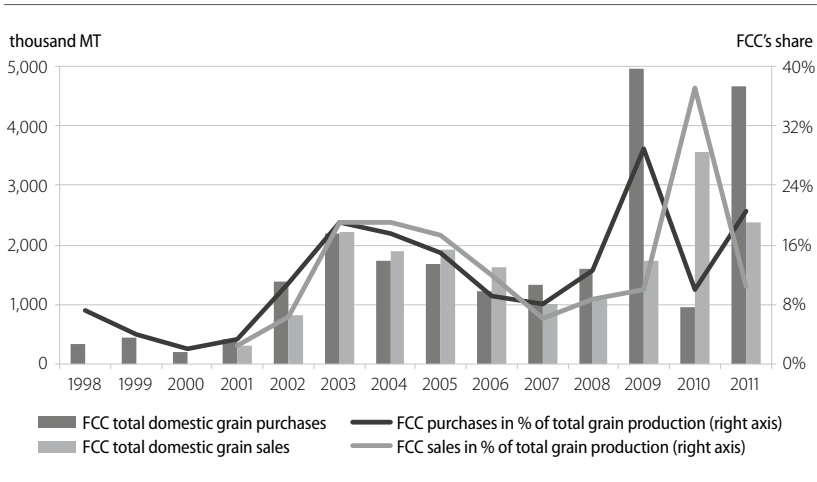
Figure 21: The FCC's grain purchases and sales, 1998–2011

amount of grain that equalled 37% of that year's total grain production (OECD, 2013a).

Market power, the extent to which the company can choose its prices, can arise either from the large market share or from the preferential rights that the company enjoys. Therefore, it is linked to one of the next criteria.

For a consistent comparison between the countries it is necessary to have data on grain purchases and sales across all three STEs. Unfortunately, due to limited data access such data is not available for the Russian UGC and the Ukrainian SFGC.

External decisions

- STRUCTURE OF OWNERSHIP

Whereas the Ukrainian and Kazakh STEs are under full state ownership, the Russian United Grain Company has a mixed structure of ownership: state and commercial ownership, where 50% plus one share belong to the state. Summa Group, a diversified private holding with significant investments in port logistics, engineering, construction, telecommunications and the oil and gas sectors, owns the rest of the shares.

- PREFERENTIAL ACCESS TO INFRASTRUCTURE, INPUTS AND EXPORT (SALES) MARKET

The Food Contract Corporation has a priority claim for storage and transport facilities. It also pursues a price stabilisation strategy in the wheat market. When the harvest of wheat is good, the FCC sets prices higher than market prices. In times of poor harvest, the FCC offers prices lower than market prices, but makes deliveries mandatory (Petrick et al., 2014). Producers with a grain area of over 250 hectares are obliged to sell grain to state grain resources through priority sales of grain to the FCC. Purchase quantities and prices are set annually by the government (OECD, 2013a). As a result of this regulation, the FCC has a greater certainty regarding sources of supply than its competitors *(sourcing of inputs)*.

The Ukrainian STE has a specific right to supply grain to China according to the intergovernmental agreement between Ukraine and China *(market access)*.

Food aid to other countries is provided through the United Grain Company and other enterprises are excluded from this process *(market access)*. One of the initial aims of the UGC, which has never been fulfilled, was to crowd out international traders from the Russian market *(market access)*.

- POLITICAL NETWORKS

Political networks are hard to trace, but some evidence has been found by journalists. In the case of Ukraine, during the allocation of the export quota for grain in 2010, the STE Khlib Ukrainy received one-fifth of the quota. The quota was allocated opaquely and all exporters were notified of the quota regime when they were no longer able to apply for it. The STE Khlib Ukrainy was often associated with the Minister of Agriculture at that time, Mykola Prysiazhnyuk.

In Russia, the CEO of Summa Group (the company that holds 50% minus one share of the United Grain Company), Ziyavudin Magomedov, was a classmate of Arkady Dvorkovich (assistant to the President of the Russian Federation and later Deputy Prime Minister). They studied together at the economic faculty of the Moscow State University.

The hiring procedure for the CEOs of the STEs in Russia, Ukraine and Kazakhstan is different in each country. In the United Grain Company, the Director General is assigned for three years during the general meeting of shareholders. In the State Food and Grain Corporation of Ukraine, the Chairman of the board is assigned by the Ministry of Agrarian Policy and Food of Ukraine. In early 2015, the process of hiring was changed and became more transparent. The procedure for hiring the CEO of the Food Contract Corporation of Kazakhstan is unclear.

- SOFT BUDGET CONSTRAINTS

In 2005, the Ukrainian Government provided special conditions for state operators trading in grain (the SJSC KhlibUkrainy and the State Committee of Ukraine for State Material Reserve), in particular, the reduction of tariffs for transportation, VAT reimbursement at export operations within a three-day period, the opportunity to avoid the costs for a number of services at export, etc. But later that year, equal conditions for all market players were established (Kobuta et al., 2012).

It is hard to provide evidence on soft budget constraints in the RUK countries. Data with performance indicators is not available for all years and is not disaggregated by the type of activity. For example, an STE may provide services of grain storage and transportation, in addition to the

purchase and export of grains, and from the consolidated financial report it is not clear which activities are profitable and which bring losses.

According to the OECD (2013a), the FCC receives annual budgetary transfers and a 3% commission for selling state resources, as well as loans from the shareholder (Holding KazAgro JSC). In the years of high uncertainty on the grain markets (2009–2011), the FCC received additional transfers from the National Fund.

The Russian government allocated RUB 5.038 billion from the federal budget in 2010 to provide subsidies for the payment of the costs and expenses arising from the sale of grain from the Federal Intervention Fund of Agricultural Products, Raw Materials and Food, and the remuneration of these activities (sales). It was approved by the decree #68 of 20.02.2010, which set the rules for granting subsidies. Subsidies are granted to state agents selected by the Ministry of Agriculture of the Russian Federation for the sale of grain from the Intervention Fund.

The subsidy amount is the difference between the purchase price of grain paid by the Intervention Fund, taking into account all transaction costs, and the sale price of grain at a single delivery basis. The amount of the subsidy also includes remuneration for the sale of grain from the Intervention Fund[9].

All three cases above are examples of soft budget constraints. Further below, a summary of the comparative analysis is presented in Table 9.

A common feature of the operations of the STEs in the RUK countries is the lack of transparency and limited access to any financial information on their activities. Results of the analysis show that the Ukrainian, Kazakh and Russian grain STEs enjoy certain preferential rights. Based on the analysis of the following criteria: type of activities, role on the market and preferential rights, it can be concluded that the Kazakh Food Contract Corporation is the most potentially trade distorting enterprise among the three STEs. Abuse of its preferential access to infrastructure and the inputs market, price leadership on the domestic market and involvement

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9   http://www.zol.ru/z-news/showlinks.php?id=54541

in a large number of activities along the supply chain makes the Kazakh Food Contract Corporation the most potentially trade distorting grain STE across the RUK countries. Its activity hinders market competition and restricts the access of its competitors to infrastructure facilities. The Russian United Grain Company has the least distorting impact on the market, if any. It is the only STE among the three with the participation of private capital.

Table 9: Summary of the comparative analysis of grain STEs

Criteria	United Grain Company	State Food and Grain Corporation of Ukraine
Structure of ownership	50% plus one share belong to the state, the rest belongs to Summa Group	State ownership
Type of activities	Export, storage, handling, processing, port grain terminals, management of state reserves, intervention purchases	Handling, storage, export (part of the export transactions executed through private traders), processing, port elevators, management of state reserves
Role on the market	Small share in exports from the country (2–5%)	Small share in exports from the country (9%)
Preferential access to infrastructure, inputs and export markets	Exclusive right to provide food aid	KhlibInvestbud received 1/5 of the quota in 2010. Right to issue certificates for export under governmental contract to China
Political networks	The CEO of Summa Group was a classmate of Arkady Dvorkovich (assistant to the President of Russia and later Deputy Prime Minister). The Chairman of the board is assigned by the Board of Directors; the Director General is assigned for three years during the general meeting of shareholders.	KhlibInvestbud was associated with the former Minister of Agricultural Policy and Food, Mykola Prysiazhnyuk. The Chairman of the board is assigned by the Ministry of Agrarian Policy and Food of Ukraine.
Soft budget constraints	+	+

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10 Corporate structure since 1998, single-desk export status removed in 2012

11 Private company, owned by wheat growers since 1999, single-desk export status removed in 2007, currently owned by Cargill Australia

Food Contract Corporation	CWB (historically)[10]	AWB (historically)[11]
100% state ownership (Holding KazAgro JSC)	100% state	100% state
Storage, export, handling, port terminal, management of state reserves, intervention purchases, granting of loans, its daughter company provides transportation services	Storage, transferring, shipment, export	Handling, storage, shipment, export; Relied on private traders and MNEs to execute part of export transactions
Price leader on domestic market, Share in exports extremely variable (0–23%)	Single-desk export	Single-desk export
Priority claim for storage and transport facilities, Priority sales of grain to the FCC by producers with a grain area over 250 hectares (for state grain resources)		
+	+	+

3.5   CONCLUSIONS AND DISCUSSION

In this essay I analysed the characteristics of the grain STEs in the RUK countries using a comparative perspective. Based on previous literature, a set of criteria was developed which helped to assess the potentially market distorting aspects of these STEs. None of the STEs in the RUK countries has a single-desk status on the domestic or export market, hence their opportunities to influence domestic consumers and processors, as well as the world market are limited. However, the Food and Contract Corporation of Kazakhstan has preferential rights for grain purchases on the domestic market and priority claim for storage and transportation facilities and thus can distort trade and influence its domestic competitors.

The grain STEs in Russia, Ukraine and Kazakhstan receive financial benefits not available to private firms. The softness of budget constraints and the way in which state trading enterprises function in the RUK countries might be explained by the socialist legacy of these countries.

In Ukraine, political networks helped the company KhlibInvestbud to obtain a part of the export quota in 2010. Political networks influenced the choice of the investor for the STE in Russia.

The goals of the STEs could be achieved in a more efficient marketing framework. Literature findings show that the bureaucratic structure of STEs increases administrative expenses and leads to a slow flow of information, which results in false decisions.

State trading enterprises might only be the instrument of government policy for administering grain procurement and trade and not the main cause of the market distortions. The elimination of STEs might not necessarily lead to market deregulation. In many cases, government regulation would be implemented anyway, either through the state trading enterprise or another channel.

Unfortunately, without data on the domestic market shares of the STEs, it is hard to make any conclusions concerning the market structure in the RUK countries should the STEs cease to exist. In the case of exports, STEs create more competition for multinational traders.

More transparency on price formation and the operations of the STEs is required to ensure that state trading enterprises are not engaged in price discrimination practices and do not distort competition. However, it is possible that private traders also engage in these practices.

Conditional to better access to data on prices and quantities traded by the STEs and their competitors, as well as their market shares, it would be possible to analyse whether the role of the STE on the market is changing. It would also be possible to assess the trade impact in the form of the tariff-equivalent and monitor whether the STE functions efficiently, procures grain at market prices and is not engaged in fraudulent activities.

3.6 IMPLICATIONS

The presence of STEs that enjoy specific rights and privileges might hinder the development of the competitive market. The non-competitive behaviour of the STE on the market leads to negative externalities such as a bad image of the country in the eyes of investors. Therefore, I suggest alternative policy options towards realising the goal of the STE, whether it is a better functioning market, domestic food security, consumer protection or producer support.

As an alternative policy option to ensure food security for citizens in the future, it is advised to use targeted consumer-oriented measures to reach the people in need, for example, direct income transfers.

Governments should avoid soft budget constraints and preferential rights for STEs. Preferential rights for STEs might discourage investments from private traders into infrastructure and market development. To achieve better functioning markets governments should ensure open competition on the grain markets without any entry barriers. Transparent and stable rules on the market will provide long-term incentives for investments in the sector. The governments of the RUK countries can support market competition by increasing transparency around the activities of the STEs and their sources of finance.

The STEs should restrain from using unfair market practices. Clear delineation between the functions of the STEs as market intervention agencies and profit-making grain traders is required. Otherwise, a conflict of interest may appear.

The Netherlands requires certain questions to be answered before a new state-owned organisation (SOE) can be created. These include: 'how the new SOE will contribute to the national public interest; whether the new SOE has a well-defined policy objective, preferably laid down in law and regulations; whether the new SOE will likely provide the State adequate returns on its investment; and how the government will assess the new SOE's performance and value of the state's ownership in the enterprise' (OECD, 2015). It is advised for the Russian, Ukrainian and Kazakh governments to follow a similar procedure when establishing or assessing the activities of state-owned enterprises to make sure that STEs are efficient.

4 BUSINESS CONSTRAINTS IN THE FOOD SECTOR OF RUSSIA, UKRAINE AND KAZAKHSTAN

4.1 INTRODUCTION

A predictable institutional and policy environment is considered from the point of view of business as the most important public good (Hellman et al., 2000). A business environment, as a combination of policies, institutions, physical infrastructure, human resources, and geographic features, can influence the efficiency of firms and industries and encourage investments; it can play a key role in the stability and security of the firm's future (Eifert et al., 2005; Dethier et al., 2008). On the contrary, a poor business environment, unpredictable changes in policies, corruption, and capture of the state by political and economic elites have a significant negative impact on FDI inflows and sales growth (Kaufmann et al., 2003; Jensen, 2002). Inappropriate policy and institutional frameworks are among the most relevant factors associated with the poor performance of the agricultural sector in developing and transition economies (Chang, 2012).

The World Bank Group, in their project, Doing Business, assesses different world economies on their ease of doing business. 'A high ease of doing business ranking means the regulatory environment is more conducive to the starting and operation of a local firm…. The rankings for all economies are benchmarked to June 2016'.

The Ease of Doing Business ranking 2017 shows that Kazakhstan has the best situation among the three countries currently being examined: it was ranked 35 from 190 economies, the Russian Federation was ranked 40 and the worst situation was found to be in Ukraine, which was placed at 80[12] (Doing Business Ranking, 2017).

Studies on the business environment in transition economies are not unusual but most of them are quite outdated and use the BEEPS data from 1999. All of them investigate obstacles in the economies of the countries in general, but do not look specifically at the agri-food sector, although sector effects were found to be present among the determinants of state intervention in enterprises, bribe tax, time tax and state benefits (e.g. Hellman and Schankerman, 2000).

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12 Detailed ranking for the years 2016 and 2017 can be found in the Table 31.

To deal with the identified research gap, I focus on the business environment in the agri-food sector of three post-Soviet countries, namely Russia, Ukraine and Kazakhstan. They are important suppliers of grain to the world market, therefore it is important to eliminate different barriers to export, both at the border and inside the country. Although the countries share a similar past, their developments and current level in the Ease of Doing Business ranking are different.

A variation across sectors within one country might exist because of the peculiarities of the sectors. The analysis of the business environment in the agricultural sector of developing countries makes an interesting case because of the dualistic structure of agricultural production in those countries, where large commercial farms (agroholdings) co-exist 'alongside smaller farm structures, variously described as 'family', 'smallholder', 'semi-subsistence' or 'peasant' farms' (OECD, 2011). The agricultural sector also has other specifics like seasonality and frequent political interference in agricultural markets. The agricultural sector is frequently excessively regulated because the trade of agricultural products is often associated with the food security of the country. But general problems such as corruption, an unfair court system and poor public services might be persistent irrespective of the sector of operation.

In this essay I pursue two major objectives:
1. Identify the major obstacles for grain traders in Russia, Ukraine and Kazakhstan.
2. Find out whether there are differences between the countries in this respect.

Additionally, to expand the understanding of the barriers in the agri-food sector, I aim to reach some minor objectives:
- Identify the barriers in the food sector of Russia, Ukraine and Kazakhstan;
- Compare the barriers faced by grain traders and the food sector;
- Identify and explain the determinants of obstacle perception.

A combination of qualitative and quantitative approaches is used to examine the business environment in the agri-food sector. Two waves of a grain exporter survey conducted in Russia, Ukraine and Kazakhstan are used for the qualitative analysis of the obstacles in the grain trading sector. Within the framework of GERUKA project, interviews with grain traders in Ukraine were conducted in 2013 to find out about the business environment inside the country, as well as the obstacles and barriers they face on the way to their export destination. In 2014, such interviews were conducted in Russia and Kazakhstan. Additional responses to the key questions were obtained in 2016 within the AGRICISTRADE project. The survey focuses mainly on the institutional and infrastructural impediments for grain export and the strategies employed by grain exporters for dealing with them. The research is complemented by the econometric analysis of the business environment in the agri-food sector, using the Business Environment and Enterprise Performance Survey's (BEEPS) data for the years 2012–2013.

It is important to answer the above-mentioned questions because the findings may assist the government in determining the most necessary changes for improving the business environment and opportunities for firms in the sector, as well as boost their performance and growth. In order to prioritise reform efforts, it is important to assess whether all subpopulations of firms are suffering from the same obstacles (Ayyagari et al., 2008).

The structure of this chapter is as follows: based on the literature review, theoretical framework will be presented in Section 4.3. In Section 4.4, data and methodology will be described. The results will follow in Section 4.5. Discussion of the results, conclusions and some policy recommendations will be provided in Section 4.6.

4.2 LITERATURE REVIEW

The business environment (also called the business climate or investment climate) consists of a variety of elements such as institutions, 'infrastructure, access to finance, security (meaning the absence of corruption and crime), and the regulatory framework, including competition policies and the protection of property rights' (Dethier et al., 2008).

There is a large strand of literature on the business environment. In this section, the main findings from existing global and regional studies that are relevant for the countries of interest will be presented. These include studies naming the major obstacles, possible factors for explaining why these obstacles are persistent, and the effects of the obstacles on a firm's performance indicators. I focus on the results relevant to my study region in order to see what developments can be observed in the business environment over the last decades. This is furthermore due to the fact that results from developed economies are not generalisable for countries in transition, due to their country specifics.

Studies on major obstacles for doing business

Brunetti et al. (1997) conducted a survey among 3,685 firms in 69 countries on institutional obstacles to doing business. Among them, 650 firms in 10 CIS countries were surveyed. Their findings show that firms in the CIS countries in 1996–1997 named tax regulations and/or high taxes as the most important obstacle for doing business, followed by policy instability and corruption obstacles.

According to Kaufmann et al. (2003), taxes and regulations are the leading constraint in the CIS countries, followed by financing, political instability and inflation. Their analysis is based on the World Business Environment Survey (WBES) of 10,032 enterprises in most regions of the world, collected in the years 1998–2000, where at least 100 firms were surveyed in each country. In the CIS countries, 1,760 enterprises were surveyed, out of them 36% in the manufacturing sector, 49% in services/commerce, 5%

in the agricultural sector, 7% in construction, etc. The authors found that in the CIS countries, 80.6% of respondents faced a serious constraint of high interest rates and 58.7% lacked access to long term loans. Over 60% of enterprises in the CIS countries were worried because of unpredictable economic and financial policies. Sixty per cent of CIS firms reported that they seldom or never received advanced notification of changes in laws and policies. Corruption was considered a serious obstacle in about half of the CIS companies. Twenty-nine per cent of the surveyed firms in the CIS countries frequently or always made irregular additional payments to government officials to get things done. Nearly two-thirds of enterprises (63%) in the CIS countries were not satisfied with public services provided by the government, especially public health, parliament, and public works/roads.

Determinants of obstacle perception

Kaufmann et al. (2003) investigate the way firm characteristics affect managers' perceptions of the obstacles. Their regression analysis shows that smaller, younger, private firms tend to face more severe business constraints than older, larger, exporting and/or state-owned ones. Corruption is a bigger constraint for exporters, small and young firms, and those with government and public ownership. Older firms are more constrained by political instability.

The relation between firm size and perception of the obstacles is examined by Schiffer and Weder (2001). Based on observations of 10,090 firms from a survey covering 80 countries and one territory, the authors find that smaller firms experience more obstacles than larger ones. Significant effects were found in the areas of financing, taxes and regulations, exchange rate, inflation, corruption and street crime, meaning that smaller firms experience significantly more problems than larger firms in these areas. When looking at transition economies, taxes and regulations, followed by financing, inflation, and policy instability or uncertainty were reported as the biggest obstacles. But, counterintuitively, it was observed

that in Poland and Ukraine large firms reported more problems in the area of financing than smaller firms (Schiffer and Weder, 2001).

According to Krkoska and Robeck (2008), the perception of institutions as obstacles to business operations is worse in East Germany than it is in West Germany. Such a significant difference in perception does not, however, exist between East Germany and Central European transition countries. Companies both in East Germany and in Central Europe consider public administration, and access to finance and labour markets as significant business obstacles. Krkoska and Robeck (2008) use the BEEPS data to find out whether the transition from planned to market economy in East Germany differed significantly from the transition in Central Europe, and whether the integration of East Germany with West Germany helped to create significantly better institutions than in other former centrally planned economies. The authors use data from the 2004/2005 survey in their regression analysis. The results show that despite the successful transfer of the formal institutions from West to East Germany, the differences in the quality of the institutions and the perception of the institutions by managers remained substantial. The quality of institutions in Central European countries is still ranked the lowest.

To evaluate the quality of governance, Hellman and Schankerman (2000) use the 1999 BEEPS data from 20 countries, including CIS and CEE countries. Between 125 and 150 enterprises were interviewed in each country, and in Russia, Ukraine and Poland the samples were larger. In Russia, 550 enterprises and in Ukraine, 250 firms were interviewed. 'State capture' and 'grabbing hand' were two major problems for the transition economies to deal with. 'State capture' reflects how widely firms are affected by the sale of parliamentary or judicial decisions and to what extent the firms influence (in the form of illicit private payments) the formation of rules and regulations. The authors find that Russia and Ukraine belong to high capture states where 'more than 30 per cent of the firms report a significant impact from the sale of legislation at the national level'.

Hellman et al. (2003), in their work, measure state capture and influence, and identify the costs and benefits from such activities at the firm

level across 22 transition economies, using data from the 1999 Business Environment and Enterprise Performance Survey. The authors find that *influential firms* are generally large, state-owned firms, while *captor firms* are usually large private firms with no state-owned predecessor. The difference between influence and state capture is defined by the way in which the firm has an impact on the formation of rules laws etc. Influential firms derive their power from their firm size, state ownership and their economic effect on the well-being of their communities, etc. without necessarily having to make private payments. As such, potential votes for politicians are traded in for economic advantages for the firm. In the case of captor firms, they make unofficial private payments to public officials in order to influence the rules of the game. The politicians receive private economic gains and the firms receive rents.

According to their findings, Kazakhstan belongs to a low-capture group of countries, while Russia and Ukraine are in a group of high-capture economies. In Ukraine and Russia, influential firms prevail over captor firms (27.7% vs 12.3% and 11.6% vs 9.2% of the sample correspondingly). In Kazakhstan, captor firms prevail over influential firms (6.1% vs 4.3% of the sample). The authors discover that these two groups of firms demonstrate a higher sales and investment growth 'at the expense of other firms in the economy'.

Hellman and Schankerman (2000) study the level of state intervention in the decision-making processes of enterprises, which is a common feature of transition economies. The level and areas of state intervention are studied based on the firms' responses to the 1999 BEEPS survey. The most common area for state intervention is pricing, followed by investment, sales and wages. In more advanced transition economies (in terms of liberalisation and privatisation), the state intervenes in the areas of employment and wages, whereas in less advanced countries with slower reforms, the state intervenes in sales and prices. The authors stress that it is not only the extent of government intervention that creates obstacles in the business environment, but also the nature of the intervention. The authors find differences in the extent of state intervention across different types of firms. Small and medium-sized firms are less likely to face

state intervention compared to large firms. The state intervenes less in private firms than in state-owned ones. The authors do not find a statistically significant difference between the levels of state intervention in privatised firms compared with new entrants (Hellman and Schankerman, 2000).

Time spent by senior management dealing with government officials in the application and interpretation of regulations and laws is called 'time tax'. In Russia, senior management spends around 13% of its time dealing with laws and regulations. In Ukraine and Kazakhstan, the time taxes are even higher, 16.8% and 15.2% correspondingly. The time tax is not found to be significantly smaller for smaller firms, but it is significantly less for start-up and privatised firms than for state-owned firms (Hellman and Schankerman, 2000).

In their work, Hellman and Schankerman (2000) claim that bribes are a substitute for state control over the company's decision-making processes. The 'bribe tax' is the amount of bribes paid by the company as a proportion of the company's annual revenues. By comparing the average level of the bribe tax and the average degree of state intervention in each country, the authors find that in the countries with a greater level of state intervention, the bribe tax is higher. They also find a positive relationship between the degree of state intervention and the time tax.

The level of the bribe tax and the frequency of bribe payments differ across countries. The level of the bribe tax calculated for bribing firms is the highest in Ukraine (6.5%), followed by Kazakhstan (4.7%) and Russia (4.1%). The share of firms paying the bribes frequently is also the largest in Ukraine (35.3%) versus 29.1% in Russia and 23.7% in Kazakhstan. The authors also find that small companies in transition economies are taxed more and pay bribes more frequently than large ones. Private sector firms, especially new entrants, pay higher bribes and more frequently than state-owned companies (bribes substitute state intervention). The authors find that firms in Ukraine and Kazakhstan are supported by implicit rather than direct subsidies. It is also found that more advanced countries prefer direct subsidies. The results show that larger firms are more likely to receive subsidies and that it is more likely that state-owned

firms will receive direct subsidies while privatised firms receive higher implicit subsidies (Hellman and Schankerman, 2000).

Effects of the business obstacles on firms' performance

Kaufmann et al. (2003) analyse the extent to which business environment attributes and firm level attributes affect sales growth over a three year period. The export status and larger size of the firm are found to positively and significantly affect sales growth, while the age of the firm is negatively associated with growth. The authors find that financing (high interest rates, lack of access to long term loans, bank paperwork, collateral requirements, etc.), high taxes, corruption and lack of consultation on policies are statistically significant and negatively associated with sales growth. Among firm attributes that positively affect investment growth are exporter status and younger age of the firm. Business environment attributes such as decline in predictability of changes in economic policies over the last three years, corruption, high taxes and financing have a statistically significant negative impact on investment growth. Poor business environment conditions result in a sales and investment growth over 10 percentage points lower than in countries with 'positive ratings in the categories – financing, corruption, high taxes and business consultation' (Kaufmann et al., 2003).

Among other factors of the business environment that affect a firm's performance is crime. Krkoska and Robeck (2009) conduct 'an analysis of crime against enterprises in 34 mostly transition and emerging countries in Europe and Asia, also including several mature market economies in Europe for comparison'. They find that crime has a negative and statistically significant effect on investments ('as a share of profits in the previous year'). Enterprises that perceive crime as a bigger obstacle by a factor of 1 are more likely to receive investments that are 2.1 percentage points lower (Krkoska and Robeck, 2009). Crime leads to higher security costs, and a loss of resources which could have otherwise been used for productive use, investments in company development, etc. (Dethier, 2008).

Earlier studies suggest that a higher level of economic reform and low-capture of the state by political and economic elites have a large positive impact on FDI inflows, and sales growth for all firms (Jensen, 2002; Hellman et al., 2003). Slinko et al. (2002) find that at the regional level in Russia, state capture has a negative effect on small business growth, regional tax revenues, federal tax arrears, and regional public spending on social services.

A summary of the reviewed literature is provided below (pp. 114–119).

Table 10: Summary of the literature review

Authors	Dataset and year of data collection/data coverage	Countries covered
Brunetti et al. (1997)	3,600 entrepreneurs 1996–1997	The survey was conducted in 69 countries, among them 10 CIS countries.
Dethier et al. (2008)		
Hellman et al. (2000)	BEEPS 1999	20 countries, mainly CIS
Hellman et al. (2003)	BEEPS 1999	20 countries, mainly CIS
Hellman and Schankerman (2000)	BEEPS 1999 more than 3,000 firms	20 countries, mainly CIS

Iryna Kulyk

After descriptive analysis of the sample, general obstacles to doing business in different regions are identified. Tax regulations/high taxes were found to be the most important obstacle for CIS countries.

In general, 12 out of 15 obstacles received higher average score, i.e. were perceived as more severe obstacles, in developing countries compared to developed countries.

Literature review on the impact of the business climate on productivity and growth in developing countries using enterprise surveys.

The authors suggest how to advance research on business climate and growth, and possible improvements in survey design.

The objective of the paper is to understand the linkages between corporate sector and national governance and how such interactions shape the business environment in different countries.

Special attention is given to the issues of state capture and other forms of corruption. Firms in Azerbaijan, Kyrgyzstan, Moldova, Bulgaria, Ukraine and Russia reported suffering the most from different forms of grand corruption.

State capture and influence are the main focus of the paper. State capture and influence bring substantial private gains to captor and influential firms on the one hand. On the other hand, they have considerable negative externalities for all other firms in the economy, especially in high-capture economies.

The authors study the quality of governance across countries. The results show that the quality of various dimensions of governance varies greatly between countries, but even more so within countries.

The authors also measure state capture and its pervasiveness and concentration across countries. State capture is found to have a negative influence on the

Table 10: Summary of the literature review (cont.)

Authors	Dataset and year of data collection/data coverage	Countries covered
Kaufmann et al. (2003)	WBES End of 1998–middle of 2000 10,032 enterprises	80 countries and one territory
Krkoska and Robeck (2008)	BEEPS 2004–2005	West Germany, East Germany and Central European transition countries: the Czech Republic, Hungary, Poland and the Slovak Republic

Iryna Kulyk

quality of governance; it is also negatively associated with the progress of economic reforms.

The relationship between the level of state intervention, time tax and bribe tax is also examined. While the substitution effect between state intervention and corruption payments is found at the micro level within countries, across countries the level of state intervention, time tax and bribe tax are positively correlated and complement each other.

Taxes and regulations, financing, policy instability, and inflation are named as the leading constraints to operation and growth for firms worldwide. However, differences between regions, and industrialised and developing countries exist. Both firm attributes and business environment attributes affect sales growth and investment growth.

The authors aim to answer the question whether corruption is less harmful to business operations when it is predictable. They find no significant relationship between the degree of unpredictability of corruption and the degree of under-reporting of revenues by the firm.

The authors look at whether the transition from planned economy to market economy in East Germany differed significantly from the transition in Central Europe. The results show that despite the successful transfer of formal institutions from West to East Germany, the difference in institutional performance remains substantial. The difference in perception of obstacles to business between East Germany and the CEE countries, however, is found to be comparatively smaller. The quality of the institutions in the Central European countries is still ranked the lowest.

Investment behaviour also differs between the studied countries, and enterprises in East Germany are found to be the least active in this respect.

Table 10: Summary of the literature review (cont.)

Authors	Dataset and year of data collection/data coverage	Countries covered
Krkoska and Robeck (2009)		34 transition and emerging countries in Europe and Asia, several mature market economies in Europe
Slinko et al. (2002)	Panel data for 1992–2002. Financial and other statistical data from the Russian Enterprise Registry Longitudinal Data set 2001, on (45,000) large and medium-size firms in 77 regions of Russia (1992–2000). Legislative data covers the 978 largest regional enterprises (1992–2002) in 73 regions of Russia. Regional budgetary data for 1996–2000.	73–77 regions of the Russian Federation

Iryna Kulyk

The focus of the paper is on the relationship between enterprise attributes and the experience with crime. The results show that crime remains a more significant problem for enterprises in transition countries compared to mature market economies in the EU. Micro enterprises as well as enterprises in the service sector, such as transport companies, hotels and restaurants, and firms with lower standards of business conduct are more likely to be targeted by crime. Crime has both a direct and indirect negative statistically significant effect on investments.

The effects of state capture on small business development, regional growth, fiscal policies and firm performance at the regional level are analysed.
At the micro-level, state capture generates substantial gains for the captor firms in terms of sales, market share, employment, investment and productivity growth both in the long- and the short-term. The long-term growth of the captor firms is primarily extensive. At the regional (macro) level, state capture has adverse effects on the economy.

Critical discussion of the literature

Due to the fact that business environment indicators are usually perception-based, the possible weakness of the studies lies in the possible 'country perception bias' where respondents from one country tend to regularly rank some obstacles higher or lower. This issue is tackled by Hellman et al. (2000). To test for the perception bias, the authors compare the perception-based data with external objective measures of the obstacle. They choose 'exchange rate variability' and 'the number of telephone lines per capita' as external measures to the questions: 'How problematic is the exchange rate for the operation and growth of your business? (on a scale ranging from 1—no obstacle to 4—major obstacle)' and 'Rate the overall quality and efficiency of the services delivered by the telephone service (on a scale ranging from 1—very good to 6—very bad)' and compared the external measure with the mean response to the corresponding question. Hellman et al. (2000) find a significant relationship between the external and perception-based measures. This proves that the BEEPS perception-based data does not suffer significantly from country perception bias.

But the problem of individual perception in studies with cross-sectional data still remains because the manager might not assess the current state of the obstacles, but rather compare them with his own vision of 'how it should work/how it should be', and this vision might vary depending on the initial condition, and the manager's experience and worldview.

The literature review has shown that variation in perception and among the effects of obstacles on a firm's performance exists not only across different countries or regions of the world, but also within one country across different types of firms. Therefore, the findings are not easily generalisable and further research within a specific country and sector should be conducted in order to explain the variation and allow for the possibility of generalisations.

Iryna Kulyk

4.3 THEORETICAL FRAMEWORK AND DEVELOPMENT OF HYPOTHESES

In the following section, I will present my hypotheses based on theories and findings from the literature. The hypotheses will be tested later in Section 4.5.

The business environment, as a combination of policies, institutions, physical infrastructure, human resources, and geographic features, can influence the efficiency of firms and industries and encourage investments; it can play a key role in the stability and security of a firm's future (Eifert et al., 2005; Dethier et al., 2008).

'Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction. In consequence they structure incentives in human exchange, whether political, social, or economic' (North, 1990). Institutions include formal institutions such as rules and laws and informal ones such as norms of behaviour, conventions, codes of conduct, and enforcement mechanisms.

Institutions are 'rules and accompanying sanctions that can make interactions less risky and more predictable' (Groenewegen et al., 2010). Institutions are meant to reduce uncertainty and increase the predictability of behaviour of all participants in the transaction. Institutions also impose certain constraints on the behaviour of actors and provide enforcement mechanisms to prevent any behaviour that might harm others. When the institutions are non-transparent and the rules on the market are unclear, it leads to information asymmetries which some actors may use for their own advantage at the expense of others. Motives behind non-transparent institutions can be to protect the vested interests of powerful interest groups which results in lower economic welfare for the society (reduction in social surplus, deadweight loss).

Non-transparent institutions increase uncertainty, and dealing with uncertainties leads to higher transaction costs. Uncertainties make investors reluctant to invest, i.e. lead to lost development opportunities in the sector.

Enforcement mechanisms are very important for resolving disputes that occur during business transactions. When legal institutions are weak or non-existent and enforcement mechanisms are not in place, it can be challenging to resolve disputes. It imposes additional costs on firms to make sure the other party commits to an agreement.

There are many ways a state can affect the operation of a firm: uncertainty and risk, as a result of unpredictable policies, protection of property rights, compliance costs, taxation, bureaucratic procedures, security (law enforcement, incidence of crime and corruption). All these are important elements of the business environment that affect the activity of the firm and investors' intentions to invest and the state plays a determining role in the creation of a favourable business environment.

Effective regulation can address market inefficiencies, whereas uncertainty and unpredictable policy changes have 'a statistically significant negative effect on the investment growth' (Kaufmann et al., 2003).

The excessive number of permits and approvals that businesses need to obtain increase compliance costs, and the process to obtain the required documents can be time consuming. Exporters dealing with customs services, sometimes need to obtain export licenses and might face additional costs to get things done.

H 01: Thus, I will test whether exporters are more likely to name corruption as a major constraint.

It is assumed that state-owned and privatised (ex-state) firms have direct links, some formal ties, to the state due to their current or former ownership status (Hellman et al., 2003). Therefore, they might be more prone to suffer from political instability, due to their dependence on their connections to the state.

H 02: Therefore, it is necessary to look at whether state-owned and ex-state companies show a higher probability to report political instability as major constraint compared to initially private firms.

Not only the government may shape the business environment, but companies are capable of this as well. A firm can interact with the state in different ways, in the form of influence and state capture, as mentioned

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in the literature review. State capture is the capacity of private agents to affect policies and regulations according to their business interests through non-transparent methods and illicit payments (Hellman et al., 2000; Slinko et al., 2002), whereas influential firms derive their power from their firm size, and state ownership without necessarily private payments.

In the context of this theoretical framework, I will investigate whether firms that might have influence due to their size or close relations with the government experience obstacles differently compared to others. Both large and state-owned firms control more resources and are more likely to belong to a group of influential firms and they can successfully bargain for investments, loans, attractive interest rates and lobby tax breaks.

H 03: Thus, the hypothesis to be tested is: Larger firms show a lower probability to report access to finance and tax rates as major obstacles compared to smaller enterprises.

Originally private firms that do not have strong ties with the state, or small enterprises are less likely to be influential, and possibly more likely to pay bribes to deal with the regulatory framework.

H 04: Therefore, I will test the hypothesis that originally private firms or small firms are more likely to consider corruption as a serious constraint, and that they are more likely to make irregular payments and gifts more frequently.

In their work, Hellman and Schankerman (2000) claim that bribes are a substitute for state control over the company's decision-making processes. Hellman et al. (2000) find that small, new private firms pay larger bribes as a percentage of their revenue and more frequently than large state firms; medium-sized and privatised firms, which were formerly state-owned are in between those two groups. On the contrary, state-owned firms spend more time dealing with governmental regulations ('time tax') than privatised or originally private firms.

H 05: To check whether their findings still hold, the hypothesis that state-owned companies show a higher probability to face a larger 'time tax' will be tested.

Another issue discussed in the literature with regards to the interaction between the state and the agents is the theory of exit and voice introduced by Hirschman (1970), which was intensively applied to migration issues and in corporate governance studies. 'There are two main types of activist reactions to discontent with organizations to which one belongs or with which one does business: either to voice one's complaints, while continuing as a member or customer, in the hope of improving matters; or to exit from the organization, to take one's business elsewhere' (Hirschman, 1978).

Yakovlev (2006), in his study, uses the concept of exit and voice in his explanation of the development of business-state interactions in Russia. The 'exit' strategy means keeping a distance from the state. The author suggests that the 'development of independent private business in Russia can, to a certain degree, be regarded as an implementation of an "exit" strategy'. Alternatively, firms strive to change the 'rules of the game' in line with their own interests and closely integrate with the state in order to get special preferences and maximise their profits (Yakovlev, 2006).

In the context of this study, 'exit' means leaving the market if the firm is not satisfied with the given institutional environment, 'voice' describes the option of articulating the problems and barriers, and attempting to make changes in the institutional environment. Firms exiting the sample cannot be observed due to the cross-sectional type of data. However, foreign firms or firms with dependencies in other countries face lower opportunity costs of leaving the market than domestic firms. Foreign-owned companies might receive loans from their parent companies. Thus, the hypothesis to be tested is:

H 06: Foreign-owned firms show a lower probability to report any problem as a major obstacle compared to domestic private enterprises.

Any special preferences in the form of tax concessions, waivers of social contributions, or government underwriting are considered as soft budget constraints, a term introduced by Kornai (1998). The softness of the budget constraint is related to the type of property rights. Private ownership is associated with hard budget constraints, whereas state

ownership is very prone to use state financial resources to bail-out firms with state ownership (Kornai, 1998).

H07: Hence, the hypothesis to be tested is: state-owned companies show a lower probability to report finance and tax rates as major constraints than privately-owned firms.

Long-distance trade incurs higher transportation costs and possibly higher coordination costs.

H08: Therefore, it is expected that companies located in countries with a larger territory and a greater distance to markets will show a higher probability to perceive transport as a severe problem.

H09: It is also assumed that exporters are more dependent on transport compared to other firms and are more likely to consider transport as a major obstacle.

4.4 DATA AND METHODOLOGY

Description of data sets

For the analysis of the obstacles for grain export, I use three different datasets. First, interviews with grain traders were conducted within the GERUKA and AGRICISTRADE projects. Due to a small sample size, these two datasets will be used for a qualitative analysis. To see whether the results are generalisable for a larger sample and to make a more comprehensive analysis of the obstacles, I use the BEEPS survey's food sector subsample for an econometric analysis. The food sector is the closest to the agriculture sector, provided in the BEEPS database. Moreover, the questionnaires for the GERUKA and AgriCISTrade surveys were based on the BEEPS, therefore the results from three datasets are somewhat comparable.

Interviews with grain exporters

Within the GERUKA project (`http://projects.iamo.de/en/geruka/home.html`), I conducted interviews[13] with 13 Russian, Ukrainian and Kazakh grain exporters, as well as five expert interviews with representatives from associations in the grain sector and one certification company. The interviews in Ukraine were held in May 2013, and those in Russia and Kazakhstan took place in May–June 2014. The dataset does not represent a random sample. Grain exporters were approached at business conferences and via direct contacts, but only a few agreed to participate in the survey. I am aware of the possible selection bias, because smaller exporters might not be able to afford the conference fee, or may be located at a greater distance from the conference venue.

Most of the companies are not involved solely in exporting activities, some of them produce grain themselves and some are engaged in grain processing. Most of the companies also have their own storage facilities.

Four out of the five respondents from Ukraine belong to the top 10 largest Ukrainian grain exporters. The companies interviewed in Russia and Kazakhstan represent both large and medium grain exporters.

In spring 2016, additional answers were collected within the AGRICISTRADE project (`http://www.agricistrade.eu/`). These answers will be discussed separately to catch the changes that happened over the 2–3 year period. In total, nine companies involved in grain trading activities were surveyed in the study area: four in Ukraine and five in Russia. The questionnaires were distributed via local research partners. According to the project report, 'the sampling procedure had to be adapted to local conditions and does not represent a random sample. Furthermore the response rate was very low': in Ukraine the questionnaires were sent to more than 100 companies in the grain, meat and dairy sectors but the response rate was very low.

There is an overlap (one company) between the two surveys, therefore, I won't combine the answers into one dataset. Due to the small

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13   The questionnaire can be found in Annex 5.

sample size, these two datasets will be used for a qualitative analysis, not for an econometric analysis.

Business Environment and Enterprise Performance Survey

For an econometric analysis, data from the 2012–2013 Business Environment and Enterprise Performance Survey is used (http://www.enterprise surveys.org). According to the implementation reports, the data was collected in Ukraine, Russia and Kazakhstan by the World Bank and EBRD using a stratified sampling method on three levels: industry, establishment size, and region. According to industry stratification, the universe was stratified into one manufacturing industry, and two service industries (retail, and other services) in Kazakhstan and Ukraine, and into eight manufacturing industries and seven service industries in Russia. Size stratification was defined as the following: small (5 to 19 employees), medium (20 to 99 employees), and large (more than 99 employees). Regional stratification was defined in five regions throughout Ukraine and Kazakhstan and in 37 regions in Russia. To create a food sector subsample, I used the variable 'industry screener sector', and any observations not related to the food sector were dropped. To clean the data, the answers 'don't know' or 'refuse to answer' were replaced by missing values.

Additionally, I operationalised ownership in the following way: state-owned (more than 50% owned by the state), foreign-owned (more than 50% owned by foreign individuals), and with private domestic ownership. I operationalised firm origin as originally private (from the start), privatised (formed by privatisation of the former state-owned firms) and other (joint-stock companies, state-owned companies etc.). Exporter status was made as a binary variable. Here, the firm is considered as exporting if the share of direct exports is 10% or more of sales (Enterprise Surveys).

The sample covers 317 enterprises involved in the food sector in Russia, Ukraine and Kazakhstan. Detailed information on the sample composition is provided in Table 11. The majority of the respondents consists of originally private, non-exporter firms.

Table 11: Sample composition of BEEPS food subsample

Country	Russia		Ukraine		Kazakhstan	
	N	Share	N	Share	N	Share
Total N	130	100%	149	100%	38	100%
Firm origin: Originally private	92	71%	97	65%	34	89%
Firm origin: Privatised	29	22%	37	25%	2	5%
Firm origin: Other (state-owned, joint venture with foreign partners, private subsidiary etc.)	9	7%	15	10%	2	5%
Ownership: State-owned	3	2%	0	0%	0	0%
Ownership: Foreign-owned	5	4%	7	5%	4	11%
Ownership: Owned by private domestic individuals	122	94%	135	91%	34	89%
Location: Capital city	5	4%	17	11%	1	3%
Location: Other big city (with population over 250,000)	111	85%	61	41%	21	55%
Exporter	12	9%	11	7%	6	16%
Firm size: Small	26	20%	57	38%	13	34%
Firm size: Medium	56	43%	59	40%	15	39%
Firm size: Large	48	37%	33	22%	10	26%

Source: own compilation

Potential problems with perception-based dataset

There are potential problems that might arise from the perception-based data. Individual perceptions might not reflect the current state of the obstacles, but rather compare them with a subjective vision of 'how it

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should work/how it should be', and this vision might vary depending on the initial condition, individual experience and worldview. Therefore, different scores on the obstacles might reflect either the heterogeneous conditions in a country or the subjective perception of the situation.

Despite these issues, I will be using datasets with perception-based data as these perceptions are based on the experience of firms and it is difficult to find other types of data to answer questions on obstacles. Moreover, I am using three different datasets to verify my results. The number of observations in each survey is presented in Table 12.

<div align="right">**Table 12: Summary of the three data sets**</div>

Country	Russia	Ukraine	Kazakhstan
GERUKA survey	3	5	5
AGRICISTRADE survey	5	4	–
BEEPS	130	149	38

Description of methods

Interviews with grain traders will be used for the qualitative analysis of the business environment in the grain export of the countries of interest, and the main obstacles for grain export will be identified in the RUK countries. It will be complemented by the econometric analysis of the BEEPS survey where the effect of the firm characteristics on the perception of obstacles will be tested. Given that the dependent variables for the perception of obstacles are categorical, ordered probit models are used for these regressions.

A linear regression model could not be used because the assumptions of the model would be violated. A linear regression implies that the difference between categories 3 and 4 is the same as 2 and 3, while 'in fact they are only a ranking' (Greene, 2008).

Firms rated five major obstacles on a scale from No obstacle, Minor obstacle, Moderate obstacle, Major obstacle to Very severe obstacle.

So, the model for the five major obstacles has the following form:

$$y_i^* = x_i'\beta - \varepsilon_i \ where \ y_i = \begin{cases} 1 \ if \ y_i^* \ \leq \ \alpha_1 \\ 2 \ if \ \alpha_1 \leq \ y_i^* \ \leq \ \alpha_2 \\ 3 \ if \ \alpha_2 \leq \ y_i^* \ \leq \ \alpha_3 \\ 4 \ if \ \alpha_3 \leq \ y_i^* \ \leq \ \alpha_4 \\ 5 \ if \ \alpha_4 \leq \ y_i^* \end{cases}$$

'Time tax' and 'spread of bribery' had six response categories. For 'time tax' the question asked: 'In a typical week over the last year, what percentage of total senior management's time was spent on dealing with requirements imposed by government regulations?' and the response categories were: No time was spent, 1 to 5%, 6 to 10%, 11 to 25%, 26 to 50%, and More than 50%.

For 'spread of bribery' the question was: 'Thinking about officials, would you say the following statement is always, very frequently, frequently, sometimes, seldom or never true? It is common for firms in my line of business to have to pay some irregular 'additional payments or gifts' to get things done with regard to customs, taxes, licenses, regulations, services etc.' and the response categories were: Never, Seldom, Sometimes, Frequently, Very frequently, Always. For these two questions the model looks like the following:

$$y_i^* = x_i'\beta - \varepsilon_i \ where \ y_i = \begin{cases} 1 \ if \ y_i^* \ \leq \ \alpha_1 \\ 2 \ if \ \alpha_1 \leq \ y_i^* \ \leq \ \alpha_2 \\ 3 \ if \ \alpha_2 \leq \ y_i^* \ \leq \ \alpha_3 \\ 4 \ if \ \alpha_3 \leq \ y_i^* \ \leq \ \alpha_4 \\ 5 \ if \ \alpha_4 \leq \ y_i^* \ \leq \ \alpha_5 \\ 6 \ if \ \alpha_5 \leq \ y_i^* \end{cases}$$

where y_i is unobserved, x represents the vector of explanatory variables, and β is the vector of coefficients that is being estimated together with $\alpha_1, \alpha_2, \alpha_3, \alpha_4,$ and α_5.

For a number of reasons, the use of simpler econometric models is not appropriate and results in inconsistent outcomes. First, the discrete nature of the dependent variable limits the choice of econometric model. Second, simpler models would result in the loss of information. For instance, a binary probit model requires converting categorical variables into binary indicators, which might result in the loss of some important details. The choice of the conversion strategy to binary indicators is also questionable, because if the responses 'No obstacle' are placed in one group and all other responses are placed in another group, it would result in very unevenly distributed responses. If the answers 'No obstacle', 'Minor obstacle', and 'Moderate obstacle' are placed in one group and 'Major obstacle' and 'Very severe obstacle' in another group, it would provide room for data manipulation and would not make the interpretation of the results easier. A count data or multinomial logit/probit models are not used because the critical information contained in the ordering of the categories of the dependent variable would be lost. An ordered logistic regression could have been used instead of the ordered probit model as both models produce similar results, but the interpretation of the coefficients is different[14].

After the estimation of the models, marginal effects will be calculated. The marginal effect in the ordered probit model is specific for each answer category, and there is no single marginal effect. To avoid overloading the reader, in Table 19 I present the marginal effect for only one answer category. For five major obstacles, the marginal effect shows the probability of assessing them as a major obstacle. In the case of Time tax, the marginal effect shows a probability of being in the group that answers: 26 to 50%. In the case of the Spread of bribery, it is a probability of being in the group answering: frequently.

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14 https://stats.idre.ucla.edu/stata/dae/ordered-logistic-regression/

4.5 RESULTS

In this section, a descriptive analysis of the obstacles faced by grain traders and the food sector of Russia, Ukraine and Kazakhstan will be presented first, followed by the econometric analysis of the BEEPS to find the determinants motivating the perception of the obstacles.

4.5.1 Descriptive analysis of the obstacles

Table 13 presents the major obstacles faced by grain traders (GERUKA and AGRICISTRADE surveys) and the food sector (BEEPS). The obstacles named by respondents in all three surveys are as follows: tax rates, corruption/bureaucracy, political instability and transport. These results are in line with earlier findings by Brunetti et al. (1997) and Hellman and Schankerman (2000), showing that firms in the CIS countries still face similar problems as almost two decades ago.

Brunetti et al. (1997) discovered that tax regulations and/or high taxes were named the most important obstacle for doing business in CIS countries, followed by policy instability and corruption obstacles. Hellman and Schankerman (2000) found that taxes and regulations, exchange rate, inflation, finance and policy instability were among the major obstacles for the operation and growth of business in Russia, Ukraine and Kazakhstan.

Corruption and bureaucracy

Corruption and bureaucracy were named among the five major obstacles by Ukrainian and Russian exporters in the GERUKA survey, but the mean value of the responses was higher in Ukraine (Figure 22). Whereas, in Ukraine, exporters reported that informal gifts or payments were often expected/required to obtain veterinary or phytosanitary certificates or during inspections, unofficial payments in Kazakhstan were only necessary if the company wanted to speed up the process, and if the company

Rank / Years	GERUKA N=13 2013–2014	AGRICISTRADE N=9 2016	BEEPS N=317 2012–2013
Sample group	Grain exporters	Grain exporters	Food sector
RUSSIAN FEDERATION			
1	Contract enforcement	Customs	**Tax rates**
2	Access to **transport**	Certificates	**Transport**
3	Lack of qualified workers (3)	Political instability	*Access to finance*
4	**Corruption/bureaucracy** (3)	**Corruption/bureaucracy**	Electricity
5	**Tax regulation** (3)	**Taxes**	Corruption
		Access to credits	
		Quality of railway **transport**	
UKRAINE			
1	*Certification requirements and permits*	**Corruption/bureaucracy**	*Tax rates*
2	*Railway transport*	**Political instability** (2)	**Corruption**
3	**Political instability**	*Taxes* (2)	**Political instability**
4	**Corruption/bureaucracy**	Quality of *railway transport* (3)	Access to finance
5	Lack of qualified workers	Customs (3)	Informal competitors
		Access to *transport* (4)	
		Contract enforcement (4)	
		Certificates (4)	
KAZAKHSTAN			
1	Contract enforcement		Electricity
2	Lack of qualified workers (2)		Corruption
3	**Tax regulation** (2)		**Transport**
4	Quality of railway **transport**		Access to finance
5	Quality of storage/elevators		**Tax rates**

Note: Obstacles in bold are common in all three datasets, obstacles in italics are common for at least two datasets. If the mean values of the answers are the same for several obstacles within one survey, their 'shared' rank is written in brackets.

Kazakhstan N=5
- Quality of storage/elevators
- Quality of railway transport
- Tax regulation
- Lack of qualified workers
- Contract enforcement

Ukraine N=5
- Lack of qualified workers
- Corruption/bureaucracy
- Political instability
- Railway transport
- Certification requirements and permits

Russia N=3
- Tax regulation
- Corruption/bureaucracy
- Lack of qualified workers
- Access to transport
- Contract enforcement

0   0.5   1   1.5   2   2.5   3   3.5   4

0—no obstacle   4—very severe obstacle

Figure 22: Mean values of exporters' responses to the barriers for grain export in Russia, Ukraine and Kazakhstan, top five obstacles (GERUKA, 2013–2014)

Source: GERUKA survey

was able wait the official period for getting the documents, no additional payments were required. According to the AGRICISTRADE survey, corruption and bureaucracy still remained high on the agenda of grain exporters in 2016. In Ukraine, grain traders ranked it the highest.

The problem of corruption in the RUK countries is not recent. Hellman et al. (2000), in their analysis of the 1999 BEEPS survey, showed that nearly 40% of firms surveyed in Ukraine agreed that it is common for firms to pay 'additional payments' to get things done. More than 30% of firms in Russia and around 27% of respondents in Kazakhstan also agreed with that statement. Overall, nearly 70% of companies in Russia and Ukraine and slightly more than 70% of firms in Kazakhstan admitted that they have at some point paid bribes. The major share of bribes paid by the RUK countries were spent on dealing with issues related to licenses and taxes.

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Using the 2012–2013 BEEPS data, I found that around 35% of firms in the food sector in Ukraine rate corruption as 'very severe' or a 'major obstacle' (Table 16). The shares of such enterprises in Russia and Kazakhstan are around 26% and 22% respectively.

As can be concluded from the three surveys, both grain traders and food enterprises suffer from corruption and bureaucracy. The problem seems to be most critical in the agri-food sector of Ukraine.

The negative effects of corruption are widely known: it discourages domestic and foreign direct investments, and has adverse effects on the country's economic growth and the productivity of firms (Jensen et al., 2010). Corruption not only increases the cost of doing business, it makes it highly unpredictable and damages the image of the institutions. According to the Business Environment and Enterprise Performance Survey, still around 10% of the responding firms frequently make informal gifts or payments to deal with customs and courts. The most widespread type of bribery is to deal with taxes; one-fifth of the firms in Ukraine reported that they frequently make informal gifts or payments to deal with them.

Table 14: Frequency of informal gifts/payments for the following purposes (percentage* of firms responding 'frequently', 'very frequently', 'always')

	Russia	Ukraine	Kazakhstan
To deal with customs/imports	9.65% (N=114)	10.92% (N=119)	15.15% (N=33)
To deal with courts	6.09% (N=115)	9.32% (N=118)	15.15% (N=33)
To deal with taxes and tax collection	9.32% (N=118)	20.8% (N=125)	15.15% (N=33)

*Shares refer to the total number of answers, excluding the 'don't know' category.

Survey question: 'Thinking now of unofficial payments/gifts that establishments like this one would make in a given year, please tell me how often would they make payments/gifts for the following purposes' — Response Categories: Never, Seldom, Sometimes, Frequently, Very frequently, Always.

Source: own calculation based on 2012–2013 BEEPS survey

In 2012–2013 BEEPS survey, firms were asked to what extent the following practices have had a direct impact on their business:

- private payments/gifts to parliamentarians;
- private payments/gifts to government officials;
- private payments/gifts to local/regional officials.

The data makes it possible to report the proportion of firms in the sample 'affected' by state capture. As it can be seen from Table 15, firms suffer mostly from state capture at the regional level; around 15% of firms in Ukraine and Kazakhstan and nearly 6% of Russian companies reported that payments to local officials had a significant impact on their establishments. Hellman and Schankerman (2000) reported that, in 1999, more than 30% of the firms in Russia and Ukraine and more than 10% of the enterprises in Kazakhstan were significantly affected by the sale of legislation at the national level (parliamentary votes, presidential decrees).

Table 15: Percentage of firms affected by state capture

(share* of firms responding 'major impact', 'decisive impact')

	Russia	Ukraine	Kazakhstan
Private payments to parliamentarians	3.92% (N=102)	6.48% (N=108)	3.13% (N=32)
Private payments to government officials	6.00% (N=100)	7.55% (N=106)	6.25% (N=32)
Private payments to local/regional officials	5.88% (N=102)	15.39% (N=117)	15.15% (N=33)

*Shares refer to the total number of answers, excluding the 'don't know' and 'does not apply' categories.

Survey question: 'It is often said that firms make unofficial payments/gifts, private payments or other benefits to public officials to gain advantages in the drafting of laws, decrees, regulations, and other binding government decisions. To what extent have the following practices had a direct impact on this establishment?' — Response Categories: 1 – No impact, 2 – Minor impact, 3 – Moderate impact, 4 – Major impact, 5 – Decisive impact.

Source: own calculation based on 2012–2013 BEEPS survey

Tax regulation

Tax regulation is also among the major problems for grain exporters. As reported by Kazakh exporters, VAT is reimbursed only partially and re-imbursement takes a very long time. There are companies that receive VAT reimbursement automatically, but it is very hard to become one of those companies, and 'sometimes it is behind the legislative framework' (Exporter 9; Exporter 10; Expert interview 1, Kazakhstan 2014).

In Russia, according to the expert, it was hard to get any VAT reim-bursements 5–6 years ago, but now the problem of VAT reimbursement can be solved by a 2% bribe (Expert interview 4, Russia 2014).

For companies in the food sector of Russia and Kazakhstan, tax regu-lation ranks even higher than for grain exporters. Tax rates were found to be a major problem for around 50% of food manufacturing enterprises in Russia, 38% in Ukraine and 8% in Kazakhstan (Table 16).

Political instability

In 2013–14, political instability was an issue that was ranked high only by Ukrainian grain exporters. They suffered from political instability[15] (answers collected in May 2013) more than their colleagues in Russia and Kazakhstan. As they reported, it was hard to predict the government's next steps with regards to grain market regulation. Therefore, negotia-tions between grain traders and the government in the form of a Memo-randum of Understanding (MoU) were considered to be the most effec-tive way of regulating the grain market, since an MoU includes adequate limits that are revised from time to time when yield and stocks informa-tion is updated. Amendments to the Memorandum are made through-out the year because at the beginning of the marketing year no one has a clear overview of the stocks farmers, mills, and bakeries have and how

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15 Here, political instability means instability of fiscal, agrarian, and trade policies, etc., not the political crisis and Euromaidan revolution which started later that year.

much grain is stored at non-certified elevators. This Memorandum allows the situation on the grain market to be predicted and for a company to plan its own operations (Exporter 2, UA 2013). The company may sell grain in accordance with the contracting and stops procurement when the export of grain from Ukraine is close to the limit indicated in the Memorandum (Exporter 3, UA 2013).

Political instability still remained high on the agenda of Ukrainian grain exporters in 2016 and Russian grain exporters reported it as the third major obstacle for doing business which might be explained by the grain export regulations implemented by the Russian government in 2015–2016, and prior administrative barriers to export (for more details check Section 2.2).

Among food manufacturing firms, again only respondents in Ukraine ranked it among the top five major obstacles for doing business (Table 16). Analysis of the 2012–2013 BEEPS data shows that around 27% of firms in Ukraine reported political instability as a significant constraint, followed by nearly 19% of firms in Russia and around 3% in Kazakhstan. As it can be seen, the situation has reversed over the last decade, considering the study by Hellman et al. (2000). They found that the rules, laws and regulations were the least predictable in Kazakhstan and economic/financial policies were quite unpredictable in Russia, while in Ukraine the situation was better where around 20% of the firms reported that the policies, rules and regulations were predictable. Similar results were reported by Brunetti et al. (1997) where almost 80% of entrepreneurs in the CIS countries complained about unpredictable changes in rules and policies which seriously affected their business. The authors also found that during the first five years of transition, the predictability of laws and policies increased only in one out of the ten surveyed CIS countries.

Transport

In 2013–2014 Russian, Ukrainian and Kazakh grain exporters named transport among the top five obstacles: both access to transport and

its quality impeded the operations of grain traders. Transport problems were ranked higher in Russia and Ukraine compared to Kazakhstan. In 2016, the quality of railway transport was ranked third, while access to transport was ranked fourth among Ukrainian grain exporters (Figure 23). For Russia, the problem of transport did not appear in the top five list.

In Ukraine, exporters complained mainly about the lack of wagons. The fleet of wagons needs to be expanded and renewed because 'the average age of the grain hoppers is 27 years, while the standard operation period is 30 years' (World Bank Group, 2015). As reported by the World Bank Group (2015), rail accounted for 61% of grain transportation in Ukraine, 36% of grain was transported by road and only 3% by river transport.

The lack of rail-cars could be compensated by the acquisition of company-owned rail-cars, but there are several threats connected to this. Traders are discouraged to invest in private rail-cars because they do not know what the rules of the game will be tomorrow. They do not know if they will be allowed to transport their grain in their rail-cars using tracks that belong to the state company Ukrzaliznytsya. Thus, a clear-cut regulation highlighting this issue is needed (Exporter 3; Exporter 9, Ukraine 2013). Moreover, the railway tariffs for private rail-cars are higher. 'Tariffs for the use of private hoppers are USD 3–7/tonne higher than for UZ hoppers' (World Bank Group, 2015).

In Russia, access to rail transport is problematic, as reported by the respondents in 2014, and the company is required to apply for rail transportation at least one month in advance. Previously it was 45 days in advance. If only one rail-car out of 10 arrives at the place of shipment, the contract is considered to be executed, but the company has to wait for another nine rail-cars or locomotives and must pay money for the idle time (Expert interview 4, Russia 2014).

Kazakh exporters complained about the shortage of rail-cars in the bumper-harvest years, the bad quality of the rail-cars, and the high tariffs which were set by KazAstykTrans, the Russian-Kazakh limited partnership company (50% of shares belong to the Food Contract Corporation, and 50% to Promtrans) (Exporter 10; Expert interview 2, KZ 2014). Another

issue with the rail-cars arises sometimes after the rail-car is already loaded and prepared for shipment when it appears that in the database of the railways this rail-car is to be disposed of and no longer exploited (Expert interview 3, KZ 2014).

For food manufacturing companies, the situation is slightly different from the grain exporting sector. Food enterprises in Ukraine do not name transport among the top five obstacles, although for 11% of them it is a major or very severe problem. In Russia, this percentage is almost three times higher, and around 29% of respondents perceived transport as a major or very severe problem, compared to 16% in Kazakhstan.

Contract enforcement

In 2013–2014, contract enforcement was reported as a major obstacle by grain exporters in Kazakhstan and Russia (GERUKA survey). As mentioned by one of the interviewees, contract enforcement was problematic on the supply side: international traders fulfil their obligations according to the contracts, but small farmers do not always deliver goods. This incurs a fine, but it often happens that the farmers have neither the money to pay the fine nor goods to deliver (Exporter 6, Russia 2014).

This is also a reason why contracts are mainly made on the spot market, because if the forward contract is concluded at a price that is higher than the current market price, then traders try to forget about the contract. And if the price in the contract is lower than the current market price, then farmers avoid fulfilling the contract (Expert interview 4, Russia 2014). Therefore, forward contracts with wheat suppliers are not widespread in these countries. Russian exporters purchase 80–100% of grain on average at the spot market.

In 2016, contract enforcement was ranked the fourth major obstacle by Ukrainian grain exporters (AGRICISTRADE survey, Figure 23). Again in 2016, the companies were asked whether they procure grain at the spot market or using forward contracts. In all three countries, the preferred way was to buy grain at the spot market. The main reasons were contract

enforcement problems, delayed grain deliveries and risks related to grain market volatility. Insights from two surveys of grain exporters reveal that firms lack trust in forward contracts.

Certification requirements and permits

Whereas certification requirements and permits were ranked the highest in Ukraine in 2013–2014, they were not mentioned among the five major obstacles by Russian and Kazakh grain exporters. As can be concluded from the interviews, the grain certification system in Ukraine was considered to be a corrupt and fiscal function. Until recently, grain traders also had to provide quality certificates for grain and products processed from it. The decision to grant the certificate could take up to three days. Grain was quality checked at least twice: once at the elevator before loading for transportation to the port, and the second time during customs clearance when re-loaded onto the ship. Moreover, if one grain parcel was transported to the port by two trucks, then two certificates were necessary – one for each vehicle. Multiple checks, often lengthy and complicated, increased the waiting time for the rail-cars, because the turnover of the rail-cars was reduced. The grain quality certificates, which are not recognised by the importing countries, were perceived as an additional financial burden for exporters. Thus, the problem of double-certification came about (in 2013): exporters were required to pass a quality inspection conducted by the State Inspectorate of Agriculture of Ukraine, as well as have a separate certification of grain carried out by an independent surveyor according to accepted international standards. In contrast to the grain quality certificate, veterinary and phytosanitary certificates are accepted in other countries (Exporter 3, UA 2013). In 2014, some certification procedures including obligatory certification by the State Inspectorate of Agriculture of Ukraine were eliminated.

Certification of the storage services for grain and processed products was also recently abolished. This procedure had to be fulfilled each year,
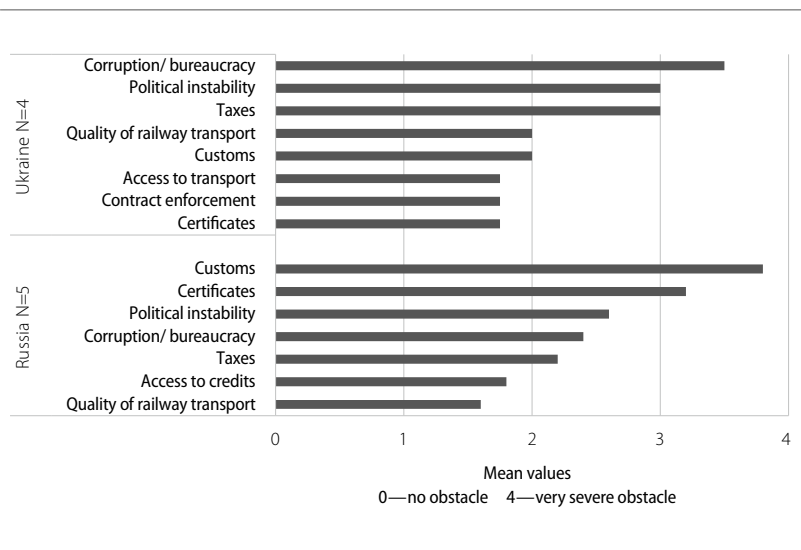
Figure 23: Average rating of the obstacles in Russia and Ukraine (AGRICISTRADE, 2016)

although market players lobbied for it to be valid for an unrestricted period of time.

The abolishment of an obligatory grain certification allows grain producers and traders to save costs during the transaction and decreases incentives for corruption. This is an important step in facilitating the grain trade as it decreases the waiting time for the rail-cars and other transport and leads to the more efficient use of transport. Before the abolition of these certificates, the Ukrainian Grain Association reported that, according to data from Ukrzaliznytsya, a grain rail-car was on the tracks only 15% of the time, the rest of the time it was either being loaded or unloaded or was waiting for the documents. Moreover, 50% of the idle time was caused by the delayed issuance of the grain quality certificate[16].

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16 https://latifundist.com/novosti/17498-vnutrennyaya-sertifikatsiya-zerna-znachitelno-utrudnyaet-logistiku--ekspert

Certification issues became of lesser importance after the elimination of the obligatory grain quality and grain storage certification and the simplification of other certification procedures as reported by the Ukrainian grain exporters in 2016 within the framework of the AGRICISTRADE survey.

Lack of qualified workforce

A lack of qualified workers was reported among the five major obstacles for doing business by grain exporters in all three countries in the 2013–2014 (GERUKA survey). As mentioned by one of the interviewees from Ukraine, a lack of highly qualified specialists is a significant problem and the process of finding the proper person can take a long time. It was also underlined that the level of education provided by Ukrainian universities does not correspond to the requirements of the trading companies. In Kazakhstan, during interviews with grain traders, the respondents reported that finding qualified personnel is also problematic, but there is a state programme to improve this. The government provides funding for the construction of plumbing, roads, schools, hospitals and entertainment centres to improve the quality of life in rural areas that, in turn, might attract qualified workers to rural areas (Exporter 13, Kazakhstan 2014).

Quality of storage/elevators

The quality of storage/elevators was reported among the major obstacles by Kazakh grain traders in 2013–2014. Most of the elevators require investments into the modernisation of the infrastructure (Exporter 11, Kazakhstan 2014). Moreover, grain theft and the loss of grain quality at the elevators were common problems for all interviewed Kazakh exporters, but the losses were usually very small. Among other storage-related problems, the contamination of the grain with bugs and harvest mites during storage was mentioned (Expert interview 3, Kazakhstan 2014).

Customs

In spring 2016, within the framework of the AGRICISTRADE project, a survey was conducted among grain trading companies in Russia and Ukraine (Figure 23). The answers revealed that customs were one of the most prominent obstacles on the way to grain export from Russia which was a new development compared to the earlier GERUKA survey. It can be explained by the fact that the Russian government introduced an export duty for wheat export in February 2015 that remained in force until September 2016.

Table 16: Top five obstacles in Russia, Ukraine and Kazakhstan (BEEPS survey)

Obstacle	Obs	Mean	Median	% of firms rating obstacle 'very severe', 'major'
Russian Federation				
Tax rates	127	2.503937	3	50.39%
Transport	130	1.476923	1.5	29.23%
Access to finance	124	1.419355	1	26.61%
Electricity	130	1.376923	1	30.77%
Corruption	117	1.324786	1	25.64%
Ukraine				
Tax rates	147	1.92517	2	38.1%
Corruption	145	1.882759	2	35.17%
Political instability	147	1.707483	2	26.53%
Access to finance	148	1.331081	1	18.24%
Informal competitors	141	1.283688	1	21.28%
Kazakhstan				
Electricity	38	1.552632	1	31.58%
Corruption	37	1.216216	1	21.63%
Transport	38	1.157895	1	15.79%
Access to finance	36	1.027778	1	8.34%
Tax rates	38	0.921053	1	7.89%

Survey question: 'To what degree is . . . (tax rates, corruption, political instability etc.) an obstacle to the current operations of this establishment?' — Response Categories: 0 – No obstacle, 1 – Minor obstacle, 2 – Moderate obstacle, 3 – Major obstacle, 4 – Very severe obstacle.

During the 2012–2013 BEEPS survey in Russia, Ukraine and Kazakhstan, managers of the food manufacturing companies rated the obstacles by their severity from 0 denoting 'no obstacle' to 4 denoting 'very severe obstacle'. The results exposed the obstacles that were not so common for grain exporters, such as access to finance, electricity and informal competitors.

Access to finance

Nearly 27% of food manufacturing firms in Russia, 18% in Ukraine and 8% of respondents in Kazakhstan reported that access to finance was a major or severe problem (Table 16). Among grain exporters, Russian traders in 2016 rated access to credits as the sixth major obstacle. The interviews showed that exporters that are daughter companies of international traders do not have problems with access to finance; they can source the money from their mother companies. Smaller, local exporters complain more often about problems with access to credits, i.e. finance.

Informal competitors

More than 20% of firms in Ukraine reported that they consider informal competitors as a very severe or major obstacle for doing business. Companies operating without formal registration try to avoid paying taxes and pose unfair competition for officially registered firms.

Summary

To sum up the findings from the interviews with grain traders, among the problems shared by grain exporters in the different countries are:
- Obsolete railway transport and problematic access to it, especially in bumper-harvest years;
- Lack of qualified personnel;
- VAT reimbursement in all countries due to delayed or only partial reimbursement;
- Problems with contract enforcement hindering the development of forward agreements for grain procurement;
- Corruption for the acceleration of certain procedures, e.g. VAT reimbursements etc.

A more detailed outlook of the different dimensions of governance can be found in Figure 24. From the figure it can be concluded that Ukrainian exporters in 2013–2014 operated in a less favourable environment than their competitors in Russia and Kazakhstan, because they rated the obstacles higher on average than Russian or Kazakh exporters.
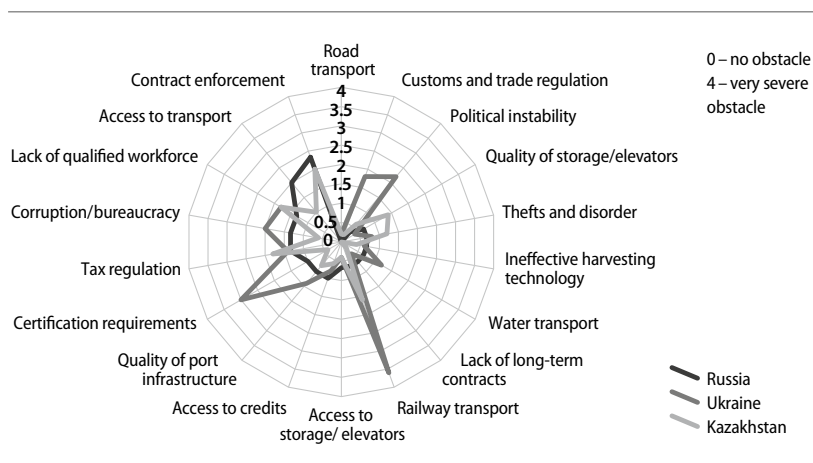
Figure 24: Dimensions of governance, by country

Source: data from GERUKA survey, 2013–2014

Comparing the GERUKA and AGRICISTRADE surveys, it can be observed that in 2016 the major obstacles for grain exporters differed from those in 2013–2014. The ranking of the problems changed over time, some obstacles were eliminated (obligatory grain quality certification in Ukraine), while other restrictions were implemented (export duties in Russia).

The interviews with the grain exporters and the BEEPS survey revealed that both grain exporters and firms in the food sector suffered from tax rates, access and quality of transport, corruption/bureaucracy and political instability. Additionally, grain exporters complained of a lack of qualified workers and contract enforcement problems, while companies in the food sector struggled more with access to finance. An in-depth analysis of the determinants of the perception of obstacles in the food sector may shed light on the determinants shaping grain exporters' perceptions (Section 4.5.2.).

Inspections

Besides information on major obstacles, grain traders were also asked about inspections held in their companies, as inspections might serve as an additional source of corruption in the CIS countries.

Based on the AGRICISTRADE survey conducted in 2016 among Russian and Ukrainian grain traders, it was found that the main areas where companies undergo inspections are fire safety and the financial and economic activity of the company (Figure 25). Almost all inspections were foreseen except for inspections in the area of environmental protection in Russia.

The inspections can be very time-consuming and require resources that could otherwise be spent more efficiently. One of the largest Ukrainian grain exporters 'Nibulon' publicly provides detailed information on inspections conducted in their company since 2011 (more details are provided in Box 1).
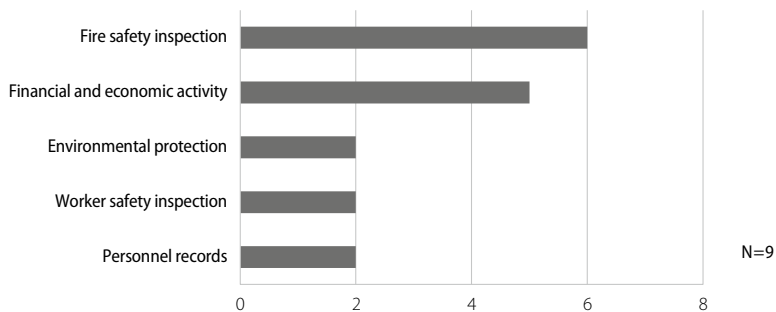
Figure 25: Number of companies that underwent inspections in the following areas over the last MY (AGRICISTRADE, 2016)

Box 1: Inspections as reported by Ukrainian grain exporter 'Nibulon'
During 2015, the total number of inspections was 124, which is 60% less than in 2014.
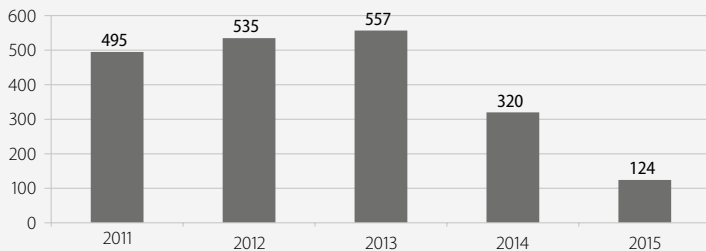
Total number of inspections by state authorities during 2011–2015

The figure below shows that the highest number of inspections took place in the area of fire safety, followed by inspections of financial and economic activity, and the production and storage of agricultural products. A large share of the total inspections was unplanned: more than 60% of the

inspections of financial and economic activity and nearly 40% in the area of agricultural production and storage were not planned.
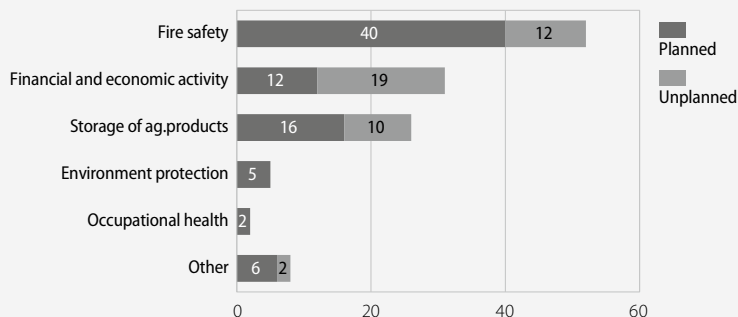
Number of planned and unplanned inspections in 2015 by the areas of activities

Source: data retrieved from the website of Nibulon

The total duration of all inspections in 2015 amounted to 370 days, which is 35% less compared to the previous year. Most of the time was spent dealing with inspections in the area of financial and economic activity (145 days) and fire safety (100 days). The duration of the inspections in different areas varied from 1 to 30 days (Nibulon, retrieved on 22.10.2016).
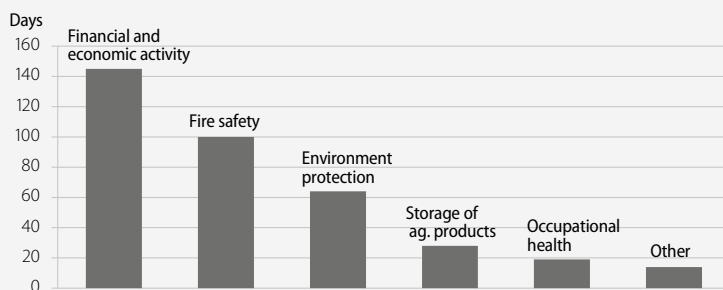
Duration of inspections in 2015 by area of activities

Source: Nibulon

Attributes necessary for smooth export transactions

Excessive regulations and controls lead to additional financial and time costs and are considered by exporters as an impediment to their business. It is, however, also necessary to determine the factors that contribute to the smooth running of the export business. Interviewees were asked to rate five attributes, namely, access to information, compliance with paper requirements, family/friends, good partners and good social network, by their importance.

The results show (Figure 26) that good partners and access to timely information are the most important factors while 'compliance with paper requirements' was ranked third (AGRICISTRADE survey) or fourth (GERUKA survey). But, as mentioned by the exporters, usually a combination of all factors is necessary for the smooth running of the export business.
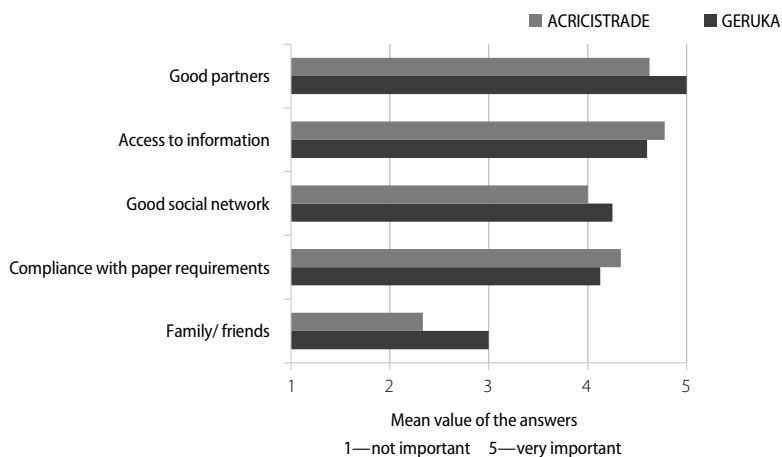
Figure 26: Importance of the following attributes for conducting export transactions smoothly

Source: GERUKA and AGRICISTRADE surveys

Sources of market information

As information is very important for doing business, it was relevant to find out the sources of market information that exporters usually use. In 2013–2014, professional publications and newsletters were at the top of the list (GERUKA), while in 2016 foreign media occupied the first place (AGRICISTRADE). In general, the findings can be summarised by a quote from one of the exporters: 'There is no universal source of information they [exporters] can rely on. Each of the agencies is good at some specific field. Some of them provide good forecasts of the yield and some have good analyses of price development, etc.' (Exporter 1, Ukraine 2013), i.e. exporters use multiple sources of information.
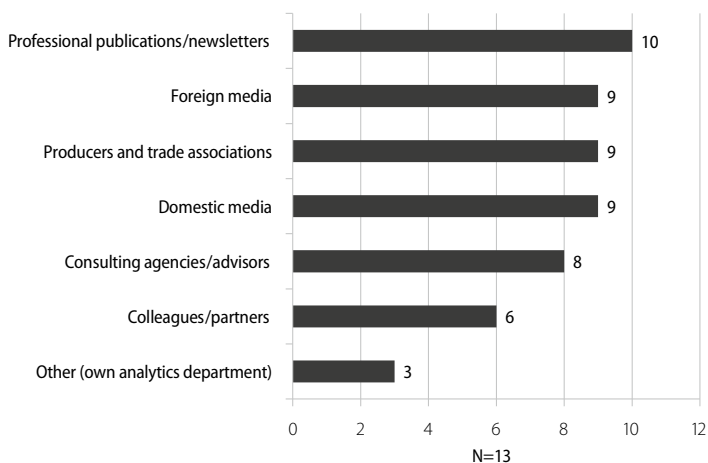
Figure 27: Sources of information used by grain traders in the RUK countries (GERUKA)

Source: data from GERUKA survey
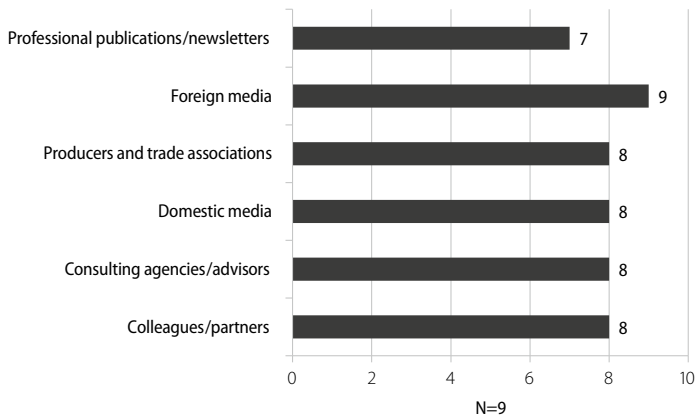
Figure 28: Sources of information used by Russian and Ukrainian grain traders (AGRICISTRADE)

Source: data from AGRICISTRADE survey

4.5.2 Determinants of obstacles based on BEEPS survey analysis

In this section, the results of the econometric analysis undertaken at the enterprise level are presented. The results of the regression analysis show how such firm characteristics as exporter status, ownership, firm size and firm origin affect managers' perceptions of the major obstacles in RUK, namely corruption, political instability, tax rates, access to finance and transport. I also check whether firm characteristics affect the frequency of paying bribes and the amount of time spent dealing with governmental officials. Country differences are controlled for by the use of country dummies.

Below, the frequency distribution of answers between the different categories is presented for each of the seven dependent variables (Figure 29). For four out of the seven dependent variables (corruption,

Survey question: 'To what degree is ... (tax rates, corruption, political instability etc.) an obstacle to the current operations of this establishment?' — Response Categories: No obstacle–0, Minor obstacle–1, Moderate obstacle–2, Major obstacle–3, Very severe obstacle–4.

For 'Time tax' the question was: 'In a typical week over the last year, what percentage of total senior management's time was spent on dealing with requirements imposed by government regulations?' and the response categories were: No time was spent, 1 to 5%, 6 to 10%, 11 to 25%, 26 to 50%, More than 50%.

For 'Spread of bribery' the question was: 'Thinking about officials, would you say the following statement is always, very frequently, frequently, sometimes, seldom or never true? It is common for firms in my line of business to have to pay some irregular "additional payments or gifts" to get things done with regard to customs, taxes, licenses, regulations, services etc.' and the response categories were: Never, Seldom, Sometimes, Frequently, Very frequently, Always.

Figure 29: Frequency distribution of answers

Source: own representation of data retrieved from the Enterprise Surveys (http://www.enterprisesurveys.org), The World Bank

political instability, access to finance, and transport) the largest share of answers (around 30–40%) indicates that firms do not consider them as obstacles for doing business. The median firm considers these obstacles as minor ones. For the other three dependent variables, namely tax rates, time tax and the spread of bribery, the distribution of answers between the categories looks different (Figure 29). The median firm considers tax rates as a moderate obstacle. The senior management in a median firm spends 6 to 10% of their time dealing with the requirements imposed by government regulations. Around one-quarter of the firms reported that senior management spends more than 25% of their time fulfilling these requirements. The median firm claims that it is 'sometimes' common for firms in its line of business to have to pay some irregular 'additional payments or gifts' to get things done. Nearly 18% of firms admitted that, in their business, firms pay bribes frequently or even more often. It should be noted that the number of observations for each model is different (Table 17). Firms were more willing to answer questions on transport and access to finance and the least willing to assess time tax and the spread of bribery.

The correlation between the obstacles is not very high (Table 18), except for the political instability–corruption pair (61%) and the access to finance–tax rates pair (47%). This indicates that these five obstacles capture different effects. A relatively high correlation between political instability and corruption shows that countries with higher political instability are more prone to corruption. Both political instability and corruption are relevant in Ukraine, but after checking for a correlation between these obstacles within each country it was found that they are highly correlated in Russia as well.

Table 17: Descriptive statistics of the dependent variables

Obstacle	Obs	Mean	Std. Dev.	Median
Corruption	289	1.60	1.41	1
Political instability	295	1.34	1.31	1
Access to finance	298	1.33	1.30	1
Tax rates	302	2.07	1.36	2
Transport	307	1.19	1.26	1
Time tax	263	2.32	1.50	2
Spread of bribery	279	2.51	1.30	3

Survey question: 'To what degree is … (tax rates, corruption, political instability etc.) an obstacle to the current operations of this establishment?' — Response Categories: No obstacle−0, Minor obstacle−1, Moderate obstacle−2, Major obstacle−3, Very severe obstacle−4.

For 'Time tax' the question was: 'In a typical week over the last year, what percentage of total senior management's time was spent on dealing with requirements imposed by government regulations?' and the response categories were: No time was spent−0, 1 to 5%−1, 6 to 10%−2, 11 to 25%−3, 26 to 50%−4, More than 50%−5.

For 'Spread of bribery' the question was: 'Thinking about officials, would you say the following statement is always, very frequently, frequently, sometimes, seldom or never true? It is common for firms in my line of business to have to pay some irregular 'additional payments or gifts' to get things done with regard to customs, taxes, licenses, regulations, services etc.' and response categories were: Never−1, Seldom−2, Sometimes−3, Frequently−4, Very frequently−5, Always−6.

Source: own representation of data retrieved from Enterprise Surveys
(http://www.enterprisesurveys.org), The World Bank

Table 18: Correlation between the obstacles across the three countries

	Tax rates	Corruption	Political instability	Access to finance	Transport
Tax rates	1				
Corruption	0.3802	1			
Political instability	0.3056	0.6054	1		
Access to finance	0.4721	0.3498	0.313	1	
Transport	0.2741	0.1955	0.1748	0.2577	1

Source: own calculation using data retrieved from Enterprise Surveys

(http://www.enterprisesurveys.org), The World Bank

The likelihood ratio test provides the estimate of goodness of fit for the models. It shows that in the model with access to finance as the dependent variable, the hypothesis that all regression coefficients in the model are equal to zero, cannot be rejected.

I will start presenting the results of the regression analysis by answering the question: what types of enterprises suffer the most from corruption. The results of the empirical analysis (Table 19) show that companies with foreign ownership consider corruption as a smaller constraint, relative to domestic privately owned firms. The fact that foreign-owned firms demonstrate a negative and significant association with the perception of corruption as an obstacle might be explained by Hirschman's exit and voice theory. The probability of assessing corruption as a major obstacle is 9% lower for foreign-owned entities. The foreign enterprises have the option to 'exit' and can leave the market while domestic companies cannot pursue an exit strategy, and therefore are more vocal. The perception of corruption is not significantly related to exporter status, size or origin of the firm. It appears that the major drivers of corruption are captured in the country dummies. Companies in Ukraine are more likely to suffer from the corruption obstacle compared to the firms in Kazakhstan or Russia. The probability of assessing corruption as a major obstacle is 7% lower for firms located in Russia and 8% lower for companies in Kazakhstan.

Predictability of the institutional and policy environment is one of the most important public goods that the state can provide for business entities (Hellman et al., 2000). Political instability, together with corruption, produces large disincentives for investment. Policy instability includes different dimensions such as: predictability of economic and financial policies; predictability of change in regulations, rules and laws; and consideration of business views in the formulation of policies.

A negative sign of the coefficients reflects the negative relationship between the explanatory variables and the perception of the constraint as a major obstacle. The results for the political instability constraint are consistent with the results for corruption. For Russia and Kazakhstan, firms show respectively a 7% and 14% lower probability than in Ukraine to report political instability as a major obstacle, implying that political

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instability is more likely to be perceived as a larger obstacle by enterprises in Ukraine.

Private enterprises receive less state support than state-owned ones, therefore enterprises that were established as private ones from the very beginning (originally private) are less likely to be affected by policy changes and the probability of them perceiving political instability as a major obstacle is 7% lower than the reference group. The sample contains only 26 reference cases which include six firms that were established as state-owned, nine as private subsidiaries of state-owned companies, five as joint ventures with foreign partners and six firms of other origin. Fifteen of them are located in Ukraine, two in Kazakhstan and nine in Russia. Alternatively, private enterprises might have lower expectations as they encounter problems continuously. Thus, they rate existing obstacles lower than other entrepreneurs which might expect different conditions.

The coefficients for the ownership, exporter status and size of the firm are not statistically significant. Thus, the results do not support the hypothesis that exporters, state-owned, large or medium firms are more likely to perceive political instability as a major obstacle. In my opinion, however, firms in close relationship with the government (state-owned and ex-state) are more dependent on the state and, therefore, can be more sensitive to policy changes. Large standard errors of the state ownership coefficient can be explained by a sample selection problem, as only three state-owned companies are presented in the sample, all from Russia.

The LR test statistic of the model with 'access to finance' as the dependent variable shows that the null hypothesis that all coefficients in the model are equal to zero cannot be rejected. It might still be useful to check the signs of the large coefficients. Contradictory to my expectation that state-owned companies might enjoy soft budget constraints and perceive access to finance as a smaller obstacle, they turned out to have a higher probability to perceive access to finance as major obstacle. Not surprisingly, foreign ownership is negatively related with the access to finance obstacle. Usually firms with foreign capital can receive loans from their mother companies.

Table 19: The effect of firm characteristics on obstacle severity

	Corruption	Marginal effects	Political instability	Marginal effects
Russia	−0.504***	−0.071***	−0.492***	−0.071***
Std. Err.	0.142	0.020	0.140	0.021
Kazakhstan	−0.564***	−0.079***	−1.002***	-.144***
Std. Err.	0.208	0.029	0.231	0.036
Exporter	0.218	0.030	−0.045	−0.006
Std. Err.	0.235	0.033	0.243	0.035
State-owned	−0.288	−0.040	−0.577	−0.083
Std. Err.	0.806	0.113	0.718	0.103
Foreign-owned	−0.616*	−0.086*	−0.471	−0.068
Std. Err.	0.320	0.045	0.335	0.048
Medium	0.087	0.012	−0.016	−0.002
Std. Err.	0.154	0.022	0.155	0.022
Large	0.059	0.008	−0.050	−0.007
Std. Err.	0.189	0.026	0.189	0.027
Privatised	−0.329	−0.046	−0.400	−0.057
Std. Err.	0.283	0.040	0.281	0.041
Origin private	−0.334	−0.047	−0.518**	−0.074**
Std. Err.	0.257	0.036	0.255	0.038
N of obs.	289		295	
LR chi2(9)	22.57		35.90	
Prob > chi2	0.007		0.000	
Pseudo R2	0.025		0.042	
Log likelihood	−437.810		−413.750	

*** – significance at the 1% level, ** – significance at the 5% level, * – significance at the 10% level.

Survey question: 'To what degree is Corruption (….) an obstacle to the current operations of this establishment?' — Response Categories: No obstacle, Minor obstacle, Moderate obstacle, Major obstacle, Very severe obstacle.

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17   Marginal effect shows the probability of assessing the obstacle as a major obstacle.

Access to Finance	Marginal effects	Tax rates	Marginal effects[17]
0.010	0.001	0.430***	0.046***
0.139	0.020	0.136	0.015
−0.166	−0.024	−0.858***	−0.092***
0.208	0.030	0.208	0.024
0.114	0.017	−0.034	−0.004
0.228	0.033	0.224	0.024
1.196*	0.173*	0.015	0.002
0.643	0.095	0.611	0.066
−0.821**	−0.119**	−0.357	−0.038
0.330	0.050	0.298	0.032
−0.064	−0.009	−0.035	−0.004
0.154	0.022	0.150	0.016
0.035	0.005	−0.061	−0.007
0.185	0.027	0.183	0.020
−0.088	−0.013	−0.043	−0.005
0.277	0.040	0.269	0.029
−0.173	−0.025	−0.070	−0.008
0.251	0.036	0.243	0.026
298		302	
13.12		43.28	
0.157		0.000	
0.015		0.045	
−434.448		−456.327	

Note: Reference categories are firms in Ukraine, domestic privately owned, small firms, non-exporters, and of other origin.

	Transport	Marginal effects	Time tax	Marginal effects
Russia	0.405***	0.067***	−0.289**	−0.044**
Std. Err.	0.141	0.024	0.144	0.022
Kazakhstan	0.250	0.041	−1.388***	−0.210***
Std. Err.	0.204	0.034	0.221	0.040
Exporter	0.474**	0.078**	−0.061	−0.009
Std. Err.	0.224	0.037	0.243	0.037
State-owned	1.143*	0.189*	1.860**	0.281**
Std. Err.	0.642	0.107	0.834	0.131
Foreign-owned	−0.143	−0.024	0.075	0.011
Std. Err.	0.305	0.051	0.288	0.043
Medium	−0.004	−0.001	0.451***	0.068***
Std. Err.	0.156	0.026	0.159	0.025
Large	0.129	0.021	0.448**	0.068**
Std. Err.	0.187	0.031	0.191	0.029
Privatised	−0.092	−0.015	−0.128	−0.019
Std. Err.	0.269	0.045	0.272	0.041
Origin private	−0.286	−0.047	0.179	0.027
Std. Err.	0.244	0.040	0.244	0.037
N of obs	307		263	
LR chi2(9)	25.27		51.57	
Prob > chi2	0.003		0.000	
Pseudo R2	0.029		0.056	
Log likelihood	−421.972		−434.312	

Survey questions: 'To what degree is Transport an obstacle to the current operations of this establishment?' — Responses: No obstacle, Minor obstacle, Moderate obstacle, Major obstacle, Very severe obstacle; 'In a typical week over the last year, what percentage of total senior management's time was spent on dealing with requirements imposed by government regulations?' — Responses: No time was spent, 1 to 5%, 6 to 10%, 11 to 25%, 26 to 50%, More than 50%; 'Thinking about officials, would

18 Marginal effect shows the probability of assessing the obstacle as a major obstacle. In the case of Time tax, the probability of being in the group that answers: 26 to 50%. In the case of the Spread of bribery, the probability of being in the group answering: Frequently.

Spread of bribery	Marginal effects[18]
−0.304**	−0.034**
0.143	0.016
−0.423**	−0.047*
0.210	0.024
0.376	0.042
0.247	0.028
0.827	0.092
0.618	0.069
−0.273	−0.030
0.320	0.036
−0.153	−0.017
0.155	0.017
−0.313	−0.035
0.191	0.022
0.250	0.028
0.303	0.034
0.061	0.007
0.275	0.031
279	
15.44	
0.080	
0.018	
−418.135	

you say the following statement is always, very frequently, frequently, sometimes, seldom or never true? It is common for firms in my line of business to have to pay some irregular 'additional payments or gifts' to get things done with regard to customs, taxes, licenses, regulations, services etc. –– Responses: Never, Seldom, Sometimes, Frequently, Very frequently, Always.

Tax rates were named the largest obstacle for the agri-food sector of the RUK countries. This is not surprising because taxes generally constitute a significant cost of doing business (Kaufmann et al., 2003). The country dummy for Russia is positively and statistically significantly associated with the perception of tax rates, and for Kazakhstan the sign of the coefficient is negative. For Russian firms, the probability to report tax rates as a major obstacle is 5% higher, whereas for Kazakh firms it is 9% lower, compared to the reference case of Ukrainian food manufacturers. Other enterprise characteristics do not have a significant association with the perception of tax rates as a major obstacle. I expected the probability for medium and large enterprises to name tax rates as major obstacle to be smaller, but the coefficients are not statistically different from zero. Although the coefficient for foreign ownership is not statistically significant, foreign ownership seems to be negatively related to the perception of tax rates as a major obstacle, as expected. The large standard error might be the reason why the coefficient is not statistically significant. The high variance in answers by foreign-owned companies can be explained by the heterogeneous perception of the obstacle or by the fact that only 15 firms (nearly 5% of the sample) have foreign ownership.

Transport was also named among the top five obstacles in the RUK countries. The positive association between the dummies for Russia and Kazakhstan and the perception of transport as an obstacle can be explained by the larger distances to markets compared to the reference case, Ukraine. But this result is statistically significant only in the case of Russian enterprises; they face a 7% higher probability to perceive transport as major obstacle. As expected, exporter status is positively and significantly related to the transport obstacle, as exporters might be more dependent on transport. Exporters have an 8% higher probability to consider transport as a major obstacle than non-exporters. Interestingly, state ownership is also positively and significantly related to the transport obstacle. For state-owned companies the probability to perceive transport as major obstacle is 19% higher compared to domestic private enterprises. One possible explanation for this can be that state-owned companies are restricted in their choice of types of transportation; another reason is

that all state-owned companies in the sample are located in Russia. Other enterprise characteristics do not have a significant association with the perception of transport as a major obstacle.

Brunetti et al. (1997) report that more than a quarter of the surveyed firms in the CIS countries spent more than 25% of the senior management's time negotiating with officials about changes and interpretations of laws and regulations.

The hypothesis that state-owned companies spend more time dealing with governmental officials than private ones was tested. The results confirm the literature findings, and show that the probability of state-owned companies to spend 26 to 50% of senior management's time dealing with governmental regulations is significantly higher (28%) than for privately owned firms. The probability to face higher time tax was also found to be significantly higher for medium (7%) and large firms (7%). The probability to face higher time tax appears to be significantly smaller for Russian (−4%) and Kazakh (−21%) food manufacturing firms compared to Ukrainian ones. Other firm characteristics such as firm origin and exporter status do not have a significant association with the amount of time spent on dealing with officials.

In their work, Hellman and Schankerman (2000) claim that bribes are a substitute for state control over the company's decision-making processes, in other words, privately owned firms pay bribes more frequently. The frequency of bribery is another measure for corruption. It does not provide information on the size of the bribes, but rather shows how common bribery practices are in the agri-food sectors of the investigated countries. I understand the possibility of non-response or false-response to the sensitive questions related to corruption and bribery. Therefore, to increase the willingness of companies to answer the questions on bribery, the BEEPS survey asked indirectly whether 'it is common for firms in similar lines of business to pay some irregular "additional payments or gifts" to get things done with regard to customs, taxes, licenses, regulations, services etc.'

Enterprises in Russia and in Kazakhstan show a statistically significantly lower probability (−3% and −5%, respectively) to make additional

payments or gifts frequently. The coefficients of other firm characteristics are not statistically significant from zero. Thus, the results of the model do not support the hypothesis that small firms or originally private firms are more likely to make irregular payments and gifts more frequently *(H 04)*.

The results of this analysis show that except for time tax, foreign ownership is always negatively associated (statistically significant only in the case of corruption and access to finance) with the perception of the obstacles compared to the reference group of domestically privately owned firms. This supports the hypothesis that companies with foreign ownership do not 'voice' their complaints, because they have an 'exit' option.

The results prove the hypothesis that transport is considered as a major obstacle by exporters as well as firms in Russia, a country with greater distances to markets than in Ukraine. Although the results did not hold for Kazakhstan, this could be due to the small sample size.

Contrary to the hypothesis about soft budget constraints for state-owned companies, the positive coefficient in the model with access to finance as a dependent variable shows that state-owned companies have a higher probability to report access to finance as a major obstacle. But the result should be considered with caution because, according to the LR test, all coefficients in this model are not significantly different from zero.

The hypothesis *(H 03)* that larger firms might exploit their 'influence' to deal with tax rates and access to finance is not supported by the results of the model, because the coefficients are not significantly different from zero.

The hypothesis that originally private or small firms compensate for their lack of 'influence' in the form of corruption/informal gifts and payments ('bribe tax') could not be supported by the results of the analysis as the coefficients for these variables were not statistically significant.

The results are in line with the hypothesis on 'time tax': state-owned companies show a higher and statistically significant probability to face a bigger 'time tax'.

The results of the model do not support the hypothesis that state-owned and ex-state companies are more sensitive to policy changes, i.e.

are more likely to perceive political instability as a major constraint, due to their direct ties to the state.

To test the results for robustness, models with another specification (excluding control country variables) were estimated and the results proved to be robust (see Table 32). For all statistically significant variables, the signs of the coefficients remained the same and the size of the marginal effects changed only slightly (1–2 percentage points). In the model without country dummies, the negative association between the private origin of the firm and perception of corruption turned out to be statistically significant. Also the large size of the firm turned out to be negatively and statistically significantly associated with the frequency of the informal gifts/payments.

4.6   DISCUSSION AND CONCLUSIONS

To summarise, this essay presents an analysis of the business environment in the agri-food sector of three countries: Russia, Ukraine and Kazakhstan. The obstacles to grain export were identified via interviews with grain exporters. A more detailed analysis of the drivers of obstacle perception was conducted in the food sector of RUK.

Two surveys conducted with grain traders revealed that the main obstacles observed in the sector are: corruption/bureaucracy, political instability, obsolete transport, excessive certification requirements, problematic contract enforcement, and taxes (problems with VAT reimbursement). Some obstacles were eliminated in the interim between the two surveys, some restrictions were implemented during this time, and some obstacles remained among the major barriers for doing business. All in all, despite the small number of interviews conducted, the results reveal similar tendencies; therefore, it is possible to assume that they are generalisable for the whole grain trading sector of the respective country. The interviews in Ukraine were conducted with major grain exporters, and in Russia and Kazakhstan both large and middle-size exporters were interviewed.

According to the BEEPS survey, tax rates, political instability, corruption, financial, and transport-related obstacles are found to be the greatest obstacles to doing business in the food sector of the RUK countries. Food firms suffer from state capture at the local or regional level the most. The results of the econometric models show that the relevance of different obstacles is found to vary across subpopulations of firms.

- Enterprises with foreign ownership characteristics are less likely to experience the above-mentioned obstacles, i.e. foreign ownership was negatively associated with the perception of corruption and access to finance compared to the reference group of domestic privately owned firms.
- Obstacles like corruption and political instability, time tax, and spread of bribery are likely to be relevant for firms in Ukraine. Firms located in Russia are more likely to perceive transport and tax rates as major obstacles compared to their Ukrainian or Kazakh counterparts.
- State-owned companies have a significantly higher probability to face transport and time tax as major obstacles.
- Exporting firms are also more likely to suffer from transport obstacles than others.
- Larger companies are more prone to pay higher time taxes, dealing with governmental regulations.

For both the qualitative and quantitative analyses I used perception-based data. Using subjective perception data does not allow for judgements about the actual situation in the different countries, the data describes only how enterprises in the study region perceive different obstacles. The results show that there are considerable differences in perceptions of obstacles between the countries. However, the small sample size (in the case of grain traders) and the few observations on state-trading enterprises and foreign-owned firms in the BEEPS sample render it difficult to make conclusions about the determinants of the obstacles.

In the econometric analysis presented, the country dummies tend to capture the largest share of the explanatory power of the models. The log likelihood values for the full models and for models with only country dummies as explanatory variables are presented in Table 33. The log

likelihood values show that full models are still better at explaining the perception of obstacles. These country specifics are hard to interpret given the current dataset. The firm characteristics do not explain much about the determinants of obstacle perception as many coefficients are not statistically significant. In some cases, this can be explained by high standard errors, i.e. high variation in the answers to the questions, where some firms assess the obstacle as critical and others as no obstacle. This variation can describe either the heterogeneous state of affairs between the different firms, or difficulties in assessing the obstacle due to subjective perceptions and expectations of what is a major or very severe obstacle, as well as a certain unwillingness to critically assess sensitive issues like corruption. Individual perceptions might be inaccurate and not truly reflect the state of the business obstacles, but it is not possible to control for this due to the cross-sectional nature of the data. To exclude the possibility of country perception bias, I tried different specifications of the models and the results proved to be robust (Annex 6, Table 32).

Due to data limitations, the choice of the dependent variable for the model is sometimes not optimal, as in the case of the 'bribe tax' hypothesis. I use the spread of bribery (informal gifts and payments) as an indicator, although it does not provide information about actual paid bribes, but rather what is common in the firm's line of business, therefore preventing any differentiation by firm characteristics. Thus, one should be cautious when making conclusions.

This essay can be extended with state capture indicators. Due to the unavailability of data, it was not possible to distinguish 'captor' firms in the sample and measure the concentration of state capture in the RUK countries. It would be interesting to find out how the state capture indicators developed over time and whether they show any improvements in this respect. Better data can provide new insights to the current research.

For further research, I would recommend in-depth assessments on a country basis. The analysis would only benefit from a larger sample for each country, and an alternative set of explanatory variables as well as of objective measurements of the obstacles could be included. However,

objective measures are difficult to find. Therefore, a combination of both objective and subjective measures should provide the best results.

The results presented above should indicate the changes that are most necessary in order to provide a better business environment and opportunities for firms in the agri-food sector and boost their performance and growth.

The findings have several policy implications:

1. In the grain sector:
   - timely information on planned regulatory changes should be provided to reduce political instability;
   - ad hoc trade regulation measures should be avoided;
   - the substitution of outdated grain hoppers is required.
2. In the food sector:
   - priority should be given to reforms in the financial sector (tax rates, access to finance) and institutional reforms (political instability, corruption);
   - the interests of vulnerable groups of enterprises should be considered during the implementation of new laws and regulations;
   - effective instruments against the misconduct of local/regional officials (state capture) should be implemented;
   - regulatory procedures should be simplified and governmental control over decision-making processes in some types of enterprises should be reduced (time tax).

5 DISCUSSION
AND OUTLOOK FOR
FUTURE RESEARCH

5.1 DISCUSSION

While most researchers focus on formal trade barriers and some studies deal with the effects of export restrictions on the domestic markets of exporting countries, only limited research is available on the informal barriers to trade. Of those studies that focus on the business environment and informal barriers, most look at transition economies in general and only a few focus specifically on agribusiness. The value of this thesis lies in its combination of the analysis of formal and informal impediments to grain trade as well as the comprehensive picture it provides of the wheat market in Russia, Ukraine and Kazakhstan.

Barriers to grain export in the RUK countries take place at the border in the form of export taxes, quotas, bans, etc. as well as on the way to the border, inside the country, in the form of excessive controls, regulations, etc. The question of tariff and non-tariff barriers to trade was addressed in the first chapter where the methodology of tariff equivalents was applied. The issue of state trading enterprises was discussed in the second chapter using a comparative perspective. The matter of institutional obstacles in the grain sector was addressed in the third chapter of the thesis. For this analysis, interviews with grain traders in Russia, Ukraine and Kazakhstan were conducted. To validate the findings, an econometric analysis was done using the Business Environment and Enterprise Performance Survey.

The analysis of both formal and informal barriers to grain export from different perspectives (a welfare economics perspective and a business environment perspective) shows that the state plays a major role in hindering grain exports. The state has the power to restrict exports formally in the form of taxes or bans and can affect the market through state trading enterprises that do not work competitively and transparently. The major obstacles perceived by grain traders and the food sector in the RUK countries, which include political instability, tax rates, contract enforcement problems, customs and trade regulations, transport, time tax, etc. also belong to areas where any necessary improvements depend on, and are expected to come from, state actions.

The analysis conducted in this thesis benefits from a combination of quantitative and qualitative approaches. Quantitative tariff equivalent measures are enhanced with experience- and perception-based data from industry insiders. It creates a more comprehensive picture describing the functioning of the grain sector in the RUK countries. The comparative aspect of the thesis revealed the differences between the three countries in the way their grain sectors and business environments function and exposed the need for an in-depth country-based analysis.

5.2   OUTLOOK FOR FUTURE RESEARCH

In the second chapter, it is mentioned that the tariff equivalents represent a gross measure and could be further decomposed into effects due to changes in world market prices and the pure policy effect. To separate the pure policy effects and the effect of change in the world prices a combination of different methods should be used. To calculate the projected export change due to change in the world prices, the gravity model can be used. It could serve as a measure of non-distorted exports. Comparing it with the observed exports during the intervention period would allow for the effect of this policy intervention to be calculated.

More data is required on the activities of the STEs in the RUK countries. Whether the presence of the STEs on the RUK markets is good or bad is hard to say without any trade specific data and without data on their market shares and of their competitors. With better access to data, researchers in the future can analyse whether the role of the grain STEs on the RUK markets is changing. It would also be possible to assess the trade impact in the form of the tariff-equivalent and monitor whether the STE functions efficiently, procures grain at market prices and is not engaged in fraudulent activities.

In future research on the business environment of the RUK countries, it would be recommended to concentrate on in-depth assessments on a country basis. The analysis would only benefit from a larger sample for each country, and an alternative set of explanatory variables as well as

of objective measurements of the obstacles could be included. However, objective measures are difficult to find. Therefore, a combination of both evidence-based and subjective measures would be expected to provide the best results.

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ANNEXES

ANNEX 1:
CEREALS PRODUCTION, CONSUMPTION AND TRADE IN RUK

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Table 20: Corn production, consumption and trade in Russia from 2006/07 MY to 2015/16 MY

Corn	Unit	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Beginning Stocks	mln t	0.1	0.1	0.1	0.3	0.1	0.1	0.4	0.3	0.3	0.3
Production	mln t	3.5	3.8	6.7	4.0	3.1	7.0	8.2	11.6	11.3	13.2
Imports	mln t	0.1	0.3	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0
Total Supply	mln t	3.7	4.2	6.8	4.2	3.3	7.1	8.6	12.0	11.7	13.6
Feed Dom. Consumption	mln t	3.1	3.5	4.5	3.2	2.8	4.0	5.6	6.6	7.2	7.8
Total Dom. Consumption	mln t	3.6	4.1	5.2	3.7	3.2	4.7	6.4	7.5	8.1	8.7
Exports	mln t	0.1	0.0	1.3	0.4	0.0	2.0	1.9	4.2	3.2	4.7
Ending Stocks	mln t	0.1	0.1	0.3	0.1	0.1	0.4	0.3	0.3	0.3	0.2
Stocks/ Use ratio	%	1.7	1.3	3.9	3.0	2.2	5.2	3.6	2.5	3.1	1.3

Source: own calculation based on PSD USDA data (2016)

Table 21: Barley production, consumption and trade in Russia from 2006/07 MY to 2015/16 MY

Barley	Unit	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Beginning Stocks	mln t	0.9	1.4	1.2	3.8	2.4	1.4	0.8	0.7	0.9	1.5
Production	mln t	18.2	15.7	23.1	17.9	8.4	16.9	14.0	15.4	20.0	17.1
Imports	mln t	0.2	0.2	0.1	0.0	0.4	0.4	0.3	0.2	0.0	0.1
Total Supply	mln t	19.3	17.2	24.4	21.7	11.2	18.7	15.1	16.3	21.0	18.7
Feed Dom. Consumption	mln t	11.8	10.5	12.3	12.2	5.5	9.8	7.7	8.3	9.2	8.9
Total Dom. Consumption	mln t	16.4	15.1	17.1	16.7	9.5	14.3	12.1	12.7	14.1	13.6
Exports	mln t	1.5	1.0	3.4	2.7	0.3	3.5	2.2	2.7	5.3	4.2
Ending Stocks	mln t	1.4	1.2	3.8	2.4	1.4	0.8	0.7	0.9	1.5	0.8
Stocks/ Use ratio	%	7.7	7.2	18.6	12.4	14.2	4.8	5.1	5.9	7.9	4.7

Source: own calculation based on PSD USDA data (2016)

Table 22: Corn production, consumption and trade in Ukraine from 2006/07 MY to 2015/16 MY

Corn	Unit	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Beginning Stocks	mln t	1.0	1.2	0.8	0.9	0.7	1.1	1.0	1.1	2.4	1.8
Production	mln t	6.4	7.4	11.4	10.5	11.9	22.8	20.9	30.9	28.5	23.3
Imports	mln t	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Supply	mln t	7.5	8.6	12.3	11.4	12.6	24.0	22.0	32.1	30.9	25.2
Feed Dom. Consumption	mln t	4.5	5.0	5.1	5.0	5.4	6.5	6.8	8.3	8.0	6.7
Total Dom. Consumption	mln t	5.3	5.8	5.9	5.7	6.5	7.8	8.1	9.7	9.4	8.0
Exports	mln t	1.0	2.1	5.5	5.1	5.0	15.2	12.7	20.0	19.7	16.6
Ending Stocks	mln t	1.2	0.8	0.9	0.7	1.1	1.0	1.1	2.4	1.8	0.6
Stocks/ Use ratio	%	19.2	10.5	8.3	6.2	9.7	4.3	5.5	8.1	6.3	2.4

Source: own calculation based on PSD USDA data (2016)

Table 23: Barley production, consumption and trade in Ukraine from 2006/07 MY to 2015/16 MY

Barley	Unit	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Beginning Stocks	mln t	0.8	0.7	0.7	1.1	1.1	0.8	1.2	0.9	1.0	1.3
Production	mln t	11.3	6.0	12.6	11.8	8.5	9.1	6.9	7.6	9.5	8.8
Imports	mln t	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Supply	mln t	12.1	6.8	13.3	12.9	9.6	9.9	8.1	8.4	10.4	10.0
Feed Dom. Consumption	mln t	4.6	3.4	4.3	3.9	4.4	4.7	3.5	3.5	3.2	3.2
Total Dom. Consumption	mln t	6.3	5.0	5.9	5.6	6.0	6.3	5.1	5.0	4.7	4.7
Exports	mln t	5.1	1.0	6.4	6.2	2.8	2.5	2.1	2.5	4.5	4.4
Ending Stocks	mln t	0.7	0.7	1.1	1.1	0.8	1.2	0.9	1.0	1.3	0.9
Stocks/ Use ratio	%	6.3	11.7	8.6	9.0	9.0	13.4	12.1	13.0	13.8	10.0

Source: own calculation based on PSD USDA data (2016)

Table 24: Barley production, consumption and trade in Kazakhstan from 2006/07 MY to 2015/16 MY

Barley	Unit	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Beginning Stocks	mln t	0.2	0.3	0.3	0.3	0.5	0.1	0.2	0.2	0.3	0.2
Production	mln t	2.0	2.4	2.1	2.5	1.3	2.6	1.5	2.5	2.4	2.7
Imports	mln t	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Supply	mln t	2.2	2.8	2.4	2.8	1.8	2.7	1.7	2.7	2.7	2.9
Feed Dom. Consumption	mln t	1.1	1.4	1.6	1.7	1.2	1.5	1.2	1.7	1.7	1.7
Total Dom. Consumption	mln t	1.4	1.7	1.9	2.0	1.5	1.8	1.4	2.0	2.0	2.0
Exports	mln t	0.6	0.8	0.3	0.4	0.2	0.7	0.2	0.4	0.5	0.8
Ending Stocks	mln t	0.3	0.3	0.3	0.5	0.1	0.2	0.2	0.3	0.2	0.1
Stocks/ Use ratio	%	14.3	11.1	13.2	19.7	7.0	7.6	10.3	11.7	9.6	3.9

Source: own calculation based on PSD USDA data (2016)

ANNEX 2:
GRAIN EXPORT RESTRICTIONS IN THE RUK COUNTRIES DURING THE LAST DECADE

Table 25: Grain export restrictions in Ukraine during the last decade

Year	Amount/duration	Regulating Document
September 2006	Export licensing introduced for wheat and wheat-rye mix until 31 December 2006	Decree of Cabinet of Ministers of Ukraine № 1364 of 28.09.2006
October 2006	Export quotas introduced: wheat 400,000 tonnes, maize 600,000 tonnes, barley 600,000 tonnes, rye 3,000 tonnes until 31 December 2006	Decree of Cabinet of Ministers of Ukraine № 1418 of 11.10.2006
December 2006	New quotas for Jan–June 2007	Decree of Cabinet of Ministers of Ukraine № 1852 of 29.12.2006
February 2007	New quotas until June 2007: wheat reduced to 228,000 tonnes, maize 30,000 tonnes, barley 606,000 tonnes	Decree of Cabinet of Ministers of Ukraine № 185 of 13.02.2007
February 2007	Quotas cancelled for maize and barley	Decree of Cabinet of Ministers of Ukraine № 290 of 22.02.2007
May 2007	Quotas cancelled for wheat	Decree of Cabinet of Ministers of Ukraine № 748 of 16.05.2007
June 2007	Quotas re-introduced for Jan–Oct 07: wheat 3,000 tonnes, maize 3,000 tonnes, barley 3,000 tonnes	Decree of Cabinet of Ministers of Ukraine № 844 of 20.06.2007

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Year	Amount/duration	Regulating Document
September–October 2007	Quota regime extended to end 2007	Decree of Cabinet of Ministers of Ukraine № 1179 of 26.09.2007, Decree of Cabinet of Ministers of Ukraine № 1287 of 31.10.2007
December 2007	Quotas announced for Jan–March 2008, substantially raised: wheat 200,000 tonnes, maize 600,000 tonnes, barley 400,000 tonnes	Decree of Cabinet of Ministers of Ukraine № 1411 of 29.12.2007
March 2008	Quotas abolished for maize from April (but license required)	Decree of Cabinet of Ministers of Ukraine № 271 of 28.03.2008
April 2008	Quotas for wheat and barley sub-stantially raised (until July 2008): wheat 1,200,000 tonnes, barley 900,000 tonnes	Decree of Cabinet of Ministers of Ukraine № 418 of 23.04.2008
May 2008	Quotas and licensing abolished	Decree of Cabinet of Ministers of Ukraine № 470 of 21.05.2008
2009/10 MY (July–August)	Grain policies relatively liberal with no export bans or restrictions	
October 2010	Quotas set for until end 2010: wheat 500,000 tonnes, maize 2,000,000 tonnes, barley 200,000 tonnes	Decree of Cabinet of Ministers of Ukraine № 938 of 04.10.2010
December 2010	Wheat 1,000,000 tonnes, maize 3,000,000 tonnes and barley 200,000 tonnes extended to 31 March 2011	Decree of Cabinet of Ministers of Ukraine № 1182 of 06.12.2010
March 2011	Wheat 1,000,000 tonnes, maize 5,000,000 tonnes and barley 200,000 tonnes extended quota for all grains to until end of June 2011	Decree of Cabinet of Ministers of Ukraine № 337 of 30.03.2011
April 2011	Quotas cancelled for maize	Decree of Cabinet of Ministers of Ukraine № 463 of 27.04.2011
May 2011	Quotas abolished for wheat and barley	Decree of Cabinet of Ministers of Ukraine № 566 of 25.05.2011

Table 25: Grain export restrictions in Ukraine during the last decade (cont.)

Year	Amount/duration	Regulating Document
June 2011	Introduced export taxes until 1 January 2012: wheat—9% with a minimum amount of EUR 17/tonne; barley—4% with a minimum amount of EUR 23/tonne; maize—12% with a minimum amount of EUR 20/tonne	Law of Ukraine № 3387-VI 'On amendments to the Tax Code of Ukraine and the rates of export duties on certain cereals' of 19.05.2011
October 2011	Export taxes abolished for wheat and maize but remain effective for barley	Law of Ukraine № 3906–17 On Amending the Law of Ukraine 'On Amendments to the Tax Code of Ukraine and the rates of export duties on certain cereals' of 07.10.2011
October 2011	MoU between Government and grain traders signed, valid until 1 July 2012 regulating export volumes: wheat 10,500,000 tonnes, maize 10,500,000 tonnes, barley 3,500,000 tonnes, rye 40,000 tonnes	Memorandum of Understanding on Grain Exports of 10.10.2011
September 2012	MoU between Government and traders extended for 2012/13 MY: wheat 4,000,000 tonnes (limit increased to 6,600,000 tonnes), maize 12,400,000 tonnes, barley 3,000,000 tonnes	Amendments to MoU of 31.07.2012, Annex to Memorandum of Understanding on Grain Exports of 03.09.2012
2013	MoU between Government and grain exporters signed for 2013/14 MY	Memorandum of Understanding on Grain Exports of 19.06.2013

Source: own compilation based on Sharma (2011) and government resolutions of Ukraine

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Table 26: Grain export restrictions in Russia during the last decade

Year	Amount/duration	Regulating Document
12 November 2007	Export tax of 10% (wheat and meslin) with a minimum amount of EUR 22/tonne, and export tax of 30% for barley, with a minimum amount of EUR 70/tonne, on exports to countries outside the Customs Union Agreement.	Government Resolution of 8 October, 2007
29 January 2008	Raised tax to 40% on wheat with a minimum amount of EUR 105/tonne and 30% on barley (initially supposed to end on 30 April 2008, but extended in March to last till 1 July 2008).	
March 2008	Ban on wheat exports to Belarus and Kazakhstan (customs union – fearing deflection)	
15 August 2010	Export ban on grains (wheat and flour, maize, barley, rye and flour) for until end December)	
October 2010	Ban to remain until 30 June 2011	Decree № 853 of 20.10.2011 On the introduction of a temporary ban on the export of certain agricultural products from the Russian Federation
February 2015	The government resolution introduces, from 1 February 2015, a grain export duty, setting the new tax at 15% plus EUR 7.5 with a minimum amount of EUR 35/tonne.	Government Resolution № 1495 of 25.12.2014
15 May 2015	Export tax lifted	Government Resolution № 467 of 15.05.2015
1 July 2015	Export tax for wheat of 50% minus RUB 5.5 thousand/tonne, with a minimum amount of RUB 50/tonne.	Government Resolution № 513 of 28.05.2015

Table 26: Grain export restrictions in Russia during the last decade (cont.)

1 October 2015	Change of the rate of the export tax, 50% minus RUB 6.5 thousand/tonne, with a minimum amount of RUB 10/tonne.	Government Resolution № 1032 of 29.09.2015 'On amending the rates of export customs duties on goods exported from the Russian Federation to countries outside the Customs Union Agreement'
23 September 2016	A zero rate for the export duty on grain was set until 1 July 2018.	Government Resolution № 966 of 26.09.2016 'On amending the rates of export customs duties on goods exported from the Russian Federation to countries outside the Customs Union Agreement'

Source: own compilation based on Sharma (2011) and government resolutions of the Russian Federation

Table 27: Grain export restrictions in Kazakhstan during the last decade

Year	Amount/duration
August 2007	Grain export licensing system until January 2012
April 2008	Export ban on wheat until 1 September 2008
2009–2012	Transportation subsidy for grain export

Source: own compilation based on Sharma (2011) and government resolutions of Kazakhstan

ANNEX 3:
SIMULATION OF
TARIFF EQUIVALENT USING
DIFFERENT ELASTICITIES

Table 28: Simulation of tariff equivalent for Russia using different elasticities

		Export tax 2007/08	Export ban 2010/11	Export tax Feb–May 2015	Export tax July 2015 –Sept 2016
Q_r [t]		548,546	150,060	571,944	2,219,081
ΔQ_x [t]		−922,884	−1,321,370	−899,486	747,650
t	$\eta = 0.25$	−2.51	−3.59	−2.45	2.03
	$\eta = 0.5$	−1.25	−1.80	−1.22	1.02
	$\eta = 0.75$	−0.84	−1.20	−0.82	0.68
	$\eta = 1$	−0.63	−0.90	−0.61	0.51

Note: Calculation based on average monthly wheat export in base period (2008/09 MY) 1,471,431 tonnes

Table 29: Simulation of tariff equivalent for Ukraine using different elasticities

		Quota Oct 2006–May 2008	Quota Oct 2010–May 2011	Export tax (simultaneous with cancelled VAT refund)	VAT non-reimbursement July 2011–Dec 2013	VAT non-reimbursement after abolition of export tax
Q_r [t]		105,881	262,057	587,441	630,938	643,840
ΔQ_x [t]		−657,197	−501,021	−175,637	−132,139	−119,238
	$\eta = 0.25$	−3.44	−2.63	−0.92	−0.69	−0.63
	$\eta = 0.5$	−1.72	−1.31	−0.46	−0.35	−0.31
t	$\eta = 0.75$	1.15	−0.88	−0.31	−0.23	−0.21
	$\eta = 1$	−0.86	−0.66	−0.23	−0.17	−0.16

Note: Calculation based on average monthly wheat export in base period (2009/10 MY) 763,078 tonnes

Table 30: Simulation of tariff equivalent for Kazakhstan using different elasticities

		Export ban 15 Apr.–1 Sept. 2008	Export ban May–1 Sept. 2008	Export transport subsidy Nov. 2009–Aug. 2012
Q_r [t]		105,263	0	412,886
ΔQ_x [t]		−273,564	−378,826	34,060
	$\eta = 0.25$	−2.89	−4.00	0.36
	$\eta = 0.5$	−1.44	−2.00	0.18
t	$\eta = 0.75$	−0.96	−1.33	0.12
	$\eta = 1$	−0.72	−1.00	0.09

Note: Calculation based on average monthly wheat export in base period (2013/14 MY) 378,826 tonnes

ANNEX 4:
EASE OF DOING
BUSINESS RANKING

Table 31: Ease of Doing Business in Russia, Ukraine and Kazakhstan

Topics	Russian Federation		Ukraine		Kazakhstan	
	DB 2017 Rank	DB 2016 Rank	DB 2017 Rank	DB 2016 Rank	DB 2017 Rank	DB 2016 Rank
Overall rank	40	36	80	81	35	51
Starting a business	26	37	20	24	45	54
Dealing with construction permits	115	117	140	137	22	78
Getting electricity	30	26	130	140	75	102
Registering property	9	8	63	62	18	18
Getting credit	44	42	20	19	75	70
Protecting minority investors	53	51	70	101	3	25
Paying taxes	45	40	84	83	60	57
Trading across borders	140	138	115	110	119	128
Enforcing contracts	12	8	81	93	9	9
Resolving insolvency	51	49	150	148	37	46

Source: Doing Business, World Bank Group
http://www.doingbusiness.org/data/exploreeconomies/ukraine ,
data retrieved on 13.09.2017

ANNEX 5: QUESTIONNAIRE USED FOR SURVEY OF THE INFLUENCE OF EXPORT RESTRICTIONS AND BARRIERS TO TRADE ON UKRAINIAN GRAIN EXPORTERS

I. General information about the company

1. What is the name of your company? _____

2. What is the legal form of your company? _____

3. What is the main activity of your company?
☐ Agricultural trader without production activity, export or internal trade (please indicate) _____
☐ Agricultural trader with production/processing facilities (please indicate)
    ☐ Grain production   ☐ Handling facilities   ☐ Processing

4. If you are a grain producer, did export restrictions make you change sowing areas under crops?
☐ Yes areas under grain crops were increased.
Why? _____
☐ Yes, areas under grain crops were decreased.
Why? _____
☐ No

5. What is the annual export turnover of your company (in thsd tonnes)?

< 20	20-70	71-100	101-500	501-1000	>1001	don't know

6. What crops does your company export?
☐ Milling wheat   ☐ Sunflower seeds
☐ Fodder wheat   ☐ Rapeseed
☐ Maize   ☐ Other grains (rye, oat, etc.)
☐ Barley

7. In which countries or regions does your company buy/produce wheat for export?
☐ Ukraine   (____%)   ☐ Kazakhstan   (____%)
☐ Russia   (____%)   ☐ Other countries   (____%)

8. What grain terminals (ports) does your company use for grain export?
☐ Odessa   (____%)   ☐ Illichevsk   (____%)
☐ Yuzhny   (____%)   ☐ Nikolaev   (____%)
☐ Other   (____%)

9. What is the distance from your company to the sea port (in km)?
_____

II. Storage facilities

10. Does your company have its own storage facilities? _____ If yes, please indicate:

Average capacity utilisation (%)	
Share of provision with own storage facilities (in % of production)	
Do you plan to extend/renew your storage facilities?	

11. Does your company use the services of commercial storage companies/elevators? (in % of production)
_____

12. If yes, how do you evaluate the costs of using the external elevator services?
    ☐ Fair price   ☐ A bit overpriced   ☐ Greatly overpriced

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III. Transportation

13. What kind of transport modes does your company use?

	Motor road	Railway	River
to its own storages			
to the external commercial storages			
to the grain processing enterprises			
to the port/grain terminals			
Transportation costs per one tonne			
Do you plan to expand your fleet of trucks/railcars/ships?			

What percentage of vehicles you use for inland transportation is: own? _____

rented?_____

IV. Problems and other aspects related to export activities

14. To what degree have the following issues been obstacles to the operations of your company in the last two MY? Please rate them, where: 1 – no obstacle, 5 – very severe obstacle.

In your opinion, who should be responsible for eliminating these obstacles? (two answers are possible)

Obstacle	Rate	Government	Associations of producers/ exporters	Company itself	Your own answer
Customs and trade regulations					
Access to credits					
Taxes					
Certification requirements and permits					
Agricultural/financial/fiscal/political instability					
Corruption/bureaucracy					
Contract enforcement					
Ineffective harvesting technology					
Quality of road transport					
Quality of railway transport					
Quality of water transport					
Access to transport					
Access to storage/elevators					
Quality of storage/elevators					
Quality of grain terminals/port infrastructure					
Inadequately educated workforce					
Lack of long-term contracts					
Thefts and disorder					
Other (please indicate)					

15. Did the following issues cause a loss in value of the products that your company shipped/stored during the last two MY?
If yes, how often did it happen in a marketing year? Could you please give an estimate of what percentage of the value of products that your company shipped was lost?

Causes of value loss	Yes/No	Frequency	Value lost			
			< 5%	6-15%	> 15%	n.a.
Theft						
Breakage or spoilage						
Loss of quality						

16. What percentage of grain for export have you bought using forward contracts and at the spot market in last four years on average?
Forward contracts _____ % Spot market _____ %

17. Have you experienced any problems with forward contracts? If yes, what problems?
☐ Yes, _____ ☐ No

18. How relevant were the following supply-side Non-Tariff Measures during the last three years?

Non-Tariff Measures	Not relevant	Rather not relevant	Neutral	Relevant	Very relevant
Customs procedures					
Quantitative restrictions					
Export licensing/certification					
Financial measures					
Distribution constraints (single channel for export, compulsory state services)					
Technical regulations					

19. When did you last apply for the following documents, approximately? _____
Regarding the last application, approximately how many days did it take to obtain it from the day of the application to the day the permit was granted?

Document	< 1 day	1-3 days	4-7 days	8-14 days	> 14 days	n.a.
Phytosanitary certificate of State Plant Quarantine Service						
Veterinary Certificate						
Certificate of use of pesticides and agricultural chemicals in agricultural products and raw materials of plant origin						
Other						

20. Is it possible that an informal gift or payment might be expected/requested from a company in your business regarding the procedure of obtaining one of the following certificates?

Document	Never	Seldom	Sometimes	Frequently	Very frequently	Always	n.a.

Phytosanitary certificate of State Plant Quarantine Service							
Veterinary Certificate							
Certificate of use of pesticides and agricultural chemicals in agricultural products and raw materials of plant origin							
Other							

21. Please estimate how many foreseen and unplanned inspections have been conducted over the last three MY in the following areas?

Areas of economic activity	2011/2012 MY		2012/2013 MY		2013/2014 MY		n.a.
	Foreseen	Unplanned	Foreseen	Unplanned	Foreseen	Unplanned	
Grain production							
Grain quality							
Grain storage							
Financial and economic activity							
Personnel records							
Fire safety inspection							
Worker safety inspection							
Environmental protection							
Other (please indicate)							

22. Is it possible that some additional costs are expected/requested from a company in your business to speed up/avoid the following procedures?

Procedures	Never	Seldom	Sometimes	Frequently	Very frequently	Always	n.a.
Customs							
Certificates, licenses and permits							
Inspection of financial and economic activity							
Taxes							
Fire safety inspection							
Worker safety inspection							
Other (please indicate)							

23. How important do you consider the following attributes for doing export business smoothly in Ukraine/ the organisation of a transaction?

Attributes	Not important	Rather not	Neutral	Rather	Very	n.a.

		important		important	important	
Access to information						
Good social network						
Good partners						
Family/friends						
Compliance with paper requirements						
Other						

24. Please choose 3-4 most important transaction costs by their shares in all (marketing) costs?
☐ Search costs (finding supplier, customers, information)
☐ Expenses to organise a transaction
☐ Enforcement of contracts
☐ Paper work with regard to financial documents
☐ Paper work with regard to permits, licenses and quality certificates
☐ Paper work with regard to customs and shipping documents
☐ Storage and handling
☐ Transport costs and police problems
☐ Other (please indicate)_____

25. In your opinion, who benefited most from the implementation of the following measures?

Stakeholders	Export quotas	Export duties
Consumers		
Producers		
Bakeries		
Pork/poultry producers		
Feed producers		
Traders		
State budget		
Other (please indicate)		

Who was affected negatively? _____

26. In a typical week, what percentage of total senior management's time was spent on dealing with requirements imposed by government regulations?

< 5%	6-15%	16-30%	31-50%	50-70%	>70%	n.a.

27. Have there been changes in time spent on dealing with requirements imposed by government regulations in the last three MY? What might have been the reason for this?
☐ Improvements
_____
☐ Negative changes
_____

28. Have your business relations with foreign partners been affected due to export restrictions?
☐ Yes, a contract was dissolved before delivery
☐ Yes, a contract was fulfilled partially
☐ No

29. Have your negotiations with foreign partners been affected due to other reasons? If yes, what reasons?
☐ Yes, _____   ☐ No

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30. What was your preferred pricing strategy when grain export quotas were implemented?
☐ Offer lower farm-gate prices for producers.
☐ Keep the farm-gate prices constant. If yes, what was the main motivation for this?
      ☐ Not to lose suppliers;
      ☐ Not to break up contracts;
      ☐ It was a temporary issue which didn't require price adjustment;
      ☐ Other _____ .
☐ Other _____

31. What was your preferred pricing strategy when export duties for grain crops were implemented?
☐ Offer lower farm-gate prices for producers.
☐ Keep the farm-gate prices constant. If yes, what was the main motivation for this?
      ☐ Not to lose suppliers;
      ☐ Not to break up contracts;
      ☐ It was a temporary issue which didn't require price adjustment;
      ☐ Other _____ .
☐ Other _____

32. How does your company settle the purchase price for grain crops?
☐ Market information
☐ Link to the competitors' offers
☐ Link to the State Food and Grain Corporation of Ukraine offers
☐ By negotiation with a seller
☐ Other _____

33. How does your company settle the export price for grain crops? Multiple answers are possible. Please rank them, where: 1 – least important, 5 – most important.

	Rank
☐ World market price/exchange prices (CBOT, MATIF etc.)	
☐ Based on an analysis of the domestic and world market situation	
☐ Takes the price of tender	
☐ By negotiation with a buyer	
☐ Other _____	

34. What sources of market information do you use?

Sources of market information	Is it reliable?		Is it easy to get?		n.a.
	Yes	No	Yes	No	
News in Ukrainian mass media					
News in foreign mass media					
Colleagues/partners					
Producers and trade associations					
Consulting agencies/advisors					
Other (please indicate)					

35. In which currency do you conduct wheat export (UAH/USD/EUR)? _____

36. In which months are most transactions executed? _____
Are there peaks around the year and are there differences across export destinations? If so, please specify.
_____

37. Is wheat export based on long-term contracts? _____
What is the average time between signing the contract and grain delivery? _____
Are there differences across destination countries? If so, for which destinations contracts are more long-lasting? _____

38. Are there differences in document requirements across destination countries? (Please specify)
_____

39. Was VAT on export operations reimbursed to your company to the full extent when it was foreseen by legislation? What share was reimbursed? (%) _____
What did you use accumulated VAT or reimbursed VAT from export operations for in the previous five years?
☐ Inputs purchase
☐ Investment into infrastructure
☐ Financing daily operations
☐ Other _____

40. In your opinion, how effective is the Memorandum of Understanding between grain traders and the government as an instrument of grain market regulation?

Not effective	Rather not effective	Neutral	Rather effective	Very effective	n.a.

41. What do you consider as a best practice example for the Ukrainian grain market?
☐ No governmental control of trade and export
☐ Minimum control of trade and export (e.g. equal market opportunities for all participants)
☐ All export should take place via state-owned companies (e.g. marketing board etc.)
☐ Other _____

42. What is your opinion on the participation of state-owned companies (State Food and Grain Corporation of Ukraine) in grain export?
_____
_____

43. In your opinion, what could be done to increase grain production and export potential in Ukraine?
_____
_____
_____

ANNEX 6:
EMPIRICAL RESULTS

Table 32: The effect of firm characteristics on obstacle severity (model without country dummies)

	Corruption	Marginal effects	Political instability	Marginal effects
Exporter	0.203	0.030	−0.080	−0.012
Std. Err.	0.233	0.034	0.238	0.036
State-owned	−0.552	−0.081	−0.815	−0.123
Std. Err.	0.800	0.118	0.714	0.108
Foreign-owned	−0.591*	−0.087*	−0.517	−0.078
Std. Err.	0.313	0.046	0.325	0.049
Medium	0.003	0.000	−0.101	−0.015
Std. Err.	0.151	0.022	0.152	0.023
Large	−0.106	−0.016	−0.207	−0.031
Std. Err.	0.183	0.027	0.184	0.028
Privatised	−0.311	−0.046	−0.355	−0.053
Std. Err.	0.281	0.041	0.277	0.042
Origin private	−0.425*	−0.062*	−0.629**	−0.095**
Std. Err.	0.255	0.038	0.251	0.039
N of obs	289		295	
LR chi2(7)	7.06		11.14	
Prob > chi2	0.423		0.133	
Pseudo R2	0.008		0.013	
Log likelihood	−445.568		−426.129	

*** – significance at the 1% level, ** – significance at the 5% level, * – significance at the 10% level.

Survey question: 'To what degree is Corruption (….) an obstacle to the current operations of this establishment?'
— Response Categories: No obstacle, Minor obstacle, Moderate obstacle, Major obstacle, Very severe obstacle.

Note: Reference categories are domestic privately owned firms, small firms, non-exporters, and of other origin.

---

1   Marginal effect shows the probability of assessing the obstacle as a major obstacle.

Access to Finance	Marginal effects	Tax rates	Marginal effects[1]
0.100	0.014	−0.123	−0.015
0.227	0.033	0.222	0.026
1.200*	0.174*	0.240	0.028
0.639	0.094	0.605	0.072
−0.841**	−0.122**	−0.474	−0.056
0.328	0.049	0.292	0.035
−0.060	−0.009	0.041	0.005
0.152	0.022	0.147	0.017
0.040	0.006	0.075	0.009
0.180	0.026	0.176	0.021
−0.081	−0.012	−0.047	−0.006
0.277	0.040	0.267	0.032
−0.187	−0.027	−0.126	−0.015
0.250	0.036	0.240	0.028
298		302	
12.37		4.22	
0.089		0.755	
0.014		0.004	
−434.826		−475.861	

	Transport	Marginal effects
Exporter	0.457**	0.076**
Std. Err.	0.223	0.037
State-owned	1.331**	0.222**
Std. Err.	0.639	0.108
Foreign-owned	−0.153	−0.025
Std. Err.	0.303	0.051
Medium	0.061	0.010
Std. Err.	0.154	0.026
Large	0.259	0.043
Std. Err.	0.181	0.030
Privatised	−0.093	−0.015
Std. Err.	0.269	0.045
Origin private	−0.216	−0.036
Std. Err.	0.242	0.040
N of obs	307	
LR chi2(7)	16.97	
Prob > chi2	0.018	
Pseudo R2	0.020	
Log likelihood	−426.122	

*** – significance at the 1% level, ** – significance at the 5% level, * – significance at the 10% level.

Survey question: 'To what degree is Transport an obstacle to the current operations of this establishment?' — Response Categories: No obstacle, Minor obstacle, Moderate obstacle, Major obstacle, Very severe obstacle; 'In a typical week over the last year, what percentage of total senior management's time was spent on dealing with requirements imposed by government regulations?' — Response Categories: 0 – No time was spent, 1 – 1 to 5%, 2 – 6 to 10%, 3 – 11 to 25%, 4 – 26 to 50%, 5 – More than 50%; 'Thinking about officials, would you say

---

2   Marginal effect shows the probability of assessing the obstacle as a major obstacle. In the case of Time tax, the probability of being in the group that answers: 26 to 50%. In the case of the Spread of bribery, the probability of being in the group answering: Frequently.

Time tax	Marginal effects	Spread of bribery	Marginal effects[2]
−0.144	−0.024	0.357	0.041
0.239	0.039	0.245	0.029
1.697**	0.277**	0.664	0.076
0.830	0.141	0.613	0.070
−0.053	−0.009	−0.256	−0.029
0.284	0.046	0.317	0.036
0.375**	0.061**	−0.200	−0.023
0.155	0.026	0.153	0.018
0.312*	0.051*	−0.412**	−0.047**
0.182	0.030	0.184	0.022
−0.090	−0.015	0.279	0.032
0.271	0.044	0.302	0.035
0.002	0.000	−0.002	0.000
0.241	0.039	0.273	0.031
263		279	
10.94		9.02	
0.141		0.251	
0.012		0.011	
−454.627		−421.343	

the following statement is always, very frequently, frequently, sometimes, seldom or never true? It is common for firms in my line of business to have to pay some irregular 'additional payments or gifts' to get things done with regard to customs, taxes, licenses, regulations, services etc. —— Response Categories: 1 – Never, 2 – Seldom, 3 – Sometimes, 4 – Frequently, 5 – Very frequently, 6 – Always.

Table 33: Comparison of log likelihood values

	Corruption	Political instability	Access to Finance	Tax rates	Transport	Time tax	Spread of bribery
Log likelihood (Full model)	−437.810	−413.750	−434.448	−456.327	−421.972	−434.312	−418.135
Log likelihood (Country dummies only model)	−440.937	−416.833	−440.191	−457.252	−429.238	−441.691	−421.776
Number of obs.	289	295	298	302	307	263	279

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ANNEX 7: DO-FILE

//Table 11
tab origin_private a1
tab privatiz a1
tab origin_other a1
tab state_own a1
tab foreign_own a1
tab b2a a1
tab a3b a1
tab large_city a1
tab exporter_dir10 a1
tab a6b a1

//Table 14
//to deal with customs
tab ECAq41a a1
//to deal with courts
tab ECAq41b a1
//to deal with taxes
tab ECAq41c a1

//Table 15
tab ECAq44a a1
tab ECAq44b a1
tab ECAq44c a1

//Table 16
sum obs_* if a1 ==58, detail
sum obs_* if a1 ==54, detail
sum obs_* if a1 ==62, detail
tab obs_taxr a1
tab obs_tran a1
tab obs_fina a1
tab obs_elec a1
tab obs_corr a1
tab obs_inst a1
tab obs_icomp a1

//Table 17
sum obs_corr if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=., detail
sum obs_inst if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=., detail
sum obs_fina if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=., detail
sum obs_taxr if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=., detail
sum obs_tran if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=., detail
sum time_tax if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=., detail
sum ECAq39 if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=., detail

//Figure 29
tab obs_corr if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.
tab obs_inst if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.
tab obs_fina if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.
tab obs_taxr if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.
tab obs_tran if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.
tab time_tax if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.
tab ECAq39 if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.

```
//Table 18
corr obs_taxr obs_corr obs_inst obs_fina obs_tran

//Table 19
//running ordered probit regression for major obstacles
oprobit obs_corr Russia Kazakhstan exporter_dir10 state_own foreign_
own medium large privatiz origin_private
margins, dydx(*)
oprobit obs_inst Russia Kazakhstan exporter_dir10 state_own foreign_
own medium large privatiz origin_private
margins, dydx(*)
oprobit obs_fina Russia Kazakhstan exporter_dir10 state_own foreign_
own medium large privatiz origin_private
margins, dydx(*)
oprobit obs_taxr Russia Kazakhstan exporter_dir10 state_own foreign_
own medium large privatiz origin_private
margins, dydx(*)
oprobit obs_tran Russia Kazakhstan exporter_dir10 state_own foreign_
own medium large privatiz origin_private
margins, dydx(*)
oprobit time_tax Russia Kazakhstan exporter_dir10 state_own foreign_
own medium large privatiz origin_private
margins, dydx(*)
oprobit ECAq39 Russia Kazakhstan exporter_dir10 state_own foreign_
own medium large privatiz origin_private
margins, dydx(*)
```

```
//Table 32
//ordered probit regression without country dummies
oprobit obs_corr exporter_dir10 state_own foreign_own medium large
privatiz origin_private
margins, dydx(*)
oprobit obs_inst exporter_dir10 state_own foreign_own medium large
privatiz origin_private
margins, dydx(*)
oprobit obs_fina exporter_dir10 state_own foreign_own medium large
privatiz origin_private
margins, dydx(*)
oprobit obs_taxr exporter_dir10 state_own foreign_own medium large
privatiz origin_private
margins, dydx(*)
oprobit obs_tran exporter_dir10 state_own foreign_own medium large
privatiz origin_private
margins, dydx(*)
oprobit time_tax exporter_dir10 state_own foreign_own medium large
privatiz origin_private
margins, dydx(*)
oprobit ECAq39 exporter_dir10 state_own foreign_own medium large
privatiz origin_private
margins, dydx(*)
```

//Table 33 (second row)

//to check for the share of the explained variation by the country dummies with the same number of observations as in the full model

oprobit obs_corr Russia Kazakhstan if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.

oprobit obs_inst Russia Kazakhstan if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.

oprobit obs_fina Russia Kazakhstan if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.

oprobit obs_taxr Russia Kazakhstan if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.

oprobit obs_tran Russia Kazakhstan if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.

oprobit time_tax Russia Kazakhstan if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.

oprobit ECAq39 Russia Kazakhstan if exporter_dir10 !=. & state_own !=. & foreign_own !=. & medium !=. & large !=. & privatiz !=. & origin_private !=.

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