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Farm Restructuring and Agricultural Recovery in Kazakhstan's Grain Region: An Update

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Abstract

Against the rising global concern of how to achieve sustainable output expansion in food, we document the main outcomes of post-Soviet agricultural recovery and restructuring in the Kazakhstan grain region. Together with an expansion of cropland area and increasing capital input, real agricultural value added has almost doubled within the recent decade. Privatisation legislation has allowed private ownership of land. However, access to state land and capital continues to be strongly regulated, and private lenders even turn away from agriculture. There are now three dominant groups of agricultural producers in the region: large agricultural enterprises and smaller individual farms mostly engaged in grain, and tiny household economies focusing on vegetable and livestock. While agricultural enterprises have been growing more persistently than individual farms in recent years, average land productivity of both farm types is practically identical and wheat yields are even higher in individual farms. Both vertically and horizontally integrated agroholdings have emerged among the agricultural enterprises and have brought outside investment and management to the region. With stable employment in agriculture, nominal consumption spending of rural households has tripled over the last decade and has risen much faster than the costs of living. While North Kazakhstan looks much like a success story, constrained factor markets are likely to dampen further growth. The Kazakh government should improve the legal conditions for a functioning land rental market, avoid driving commercial lenders out of the market, and make sure that future access to qualified labour in agriculture is warranted.

Keywords: Agricultural productivity, agricultural transition, farm organisation, Kazakhstan.

JEL-codes: O13; P32; Q12; Q15.

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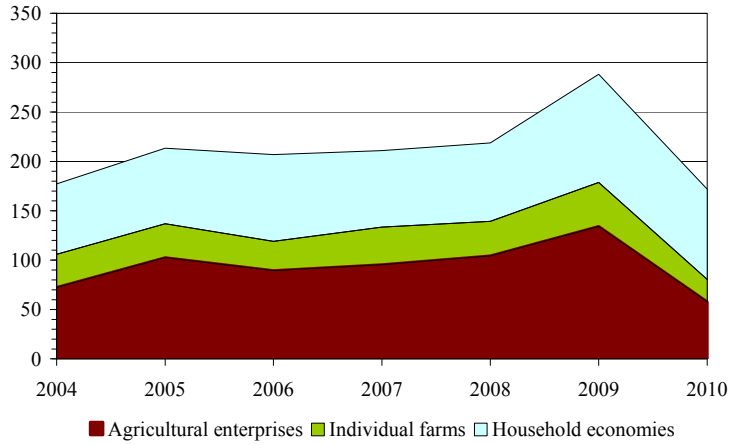
Executive summary

The evidence presented in this study documents a widely ***positive development of agricultural production*** in the three major grain producing provinces of Kazakhstan (the North-Kazakh Grain Region, NKGR). With the exception of the drought year 2010, agricultural output has consistently increased (Figure I). Together with an expansion of cropland area and increasing capital input, real agricultural value added has almost doubled within a decade.

While hesitant in the early transition period, ***privatisation legislation has now allowed private ownership of land*** and has put the basic preconditions for a capitalist mode of agricultural production into place. There are ***three dominant groups of agricultural producers*** in the NKGR that emerged from the restructuring processes of the transition period. The first group consists of large agricultural enterprises in the form of limited liability partnerships, the second group of smaller individual farms, and the third of tiny household economies. Agricultural enterprises cultivate about 10,000 ha per farm on average and control almost three quarters of agricultural land in the NKGR. Individual farms emerged as a new type of producer in the process of land privatisation and cultivate one quarter of the land, with an average farm size of around 560 ha. Household economies mostly engage in labour-intensive vegetable and livestock production. In relation to the other two types of farming organisations, agricultural land use by the latter is minimal, but their share in agricultural output is about 40 percent.

Figure I: Contribution of different farm types to Gross Agricultural Output, North Kazakh Grain Region (billion tenge in 2000 prices)



Source: Authors' calculations based on official statistics, see Figure 15 in main text.

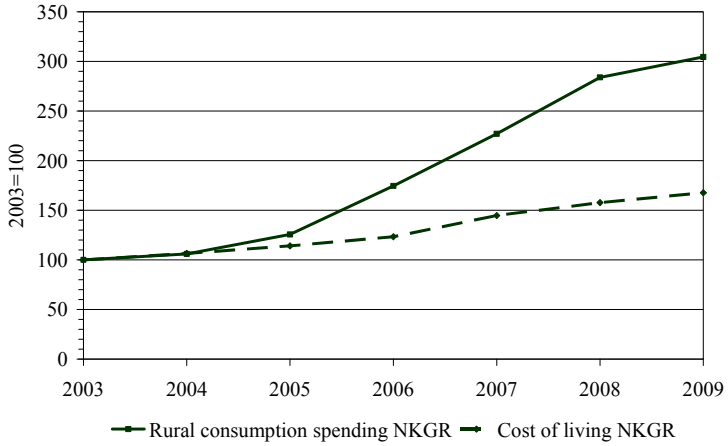
Compared to other post-Soviet countries, ***Kazakhstan is distinct in having established a significant individual farm sector side-by-side with the reformed agricultural enterprises in its primary grain producing region***. While agricultural enterprises have been growing more persistently than individual farms in recent years, average land productivity is practically identical and wheat yields tend to be even higher in individual farms. Registration procedures for individual farms are simpler and tax obligations lower than for enterprises. However, among government officials, an ideological bias against indi-

vidual farming seems to prevail. Both vertically and horizontally ***integrated agroholdings have emerged among the agricultural enterprises and have brought outside investment and management to the region***. While we document some of the agroholdings' activities, which are chiefly in grain production and trade, they are generally little transparent and few substantive statements about their real impact in rural areas can be made.

Government support to agriculture has been rising recently, and is based on a highly centralised system of area-, output-, and input-related subsidies. The government is also engaged in grain procurement and storage to achieve national food security goals, but does no longer interfere in on-farm production decisions. Subsidised funding for agricultural investments is provided through the state-owned holding KazAgro. These subsidies offer the agricultural sector access to the governments' tax receipts and oil revenues. However, the implementation system chosen gives little room for the type of decentralised market institutions which have advantages in information processing, are less prone to elite capture and have been instrumental for sustainable rural development in other contexts. Despite the still tremendous financing needs, ***private lenders even turned away from the agricultural sector***.

These partly questionable government activities notwithstanding, ***agricultural recovery in the NKGR has brought clear and measurable benefits to the rural population***. With stable employment in agriculture, consumption spending by rural households has tripled over the last decade and has risen much faster than the costs of living (Figure II). Real monthly consumption expenditures by rural households doubled between 2003 and 2009, and are higher than in Kazakhstan on average. ***Poverty went down considerably***, from 40 percent of households below the regional poverty line in 2002 to about five percent in 2010. ***Much of this positive development is likely due to rising food prices, which trickle down to rural households, and increasing labour scarcity in rural areas***.

Figure II: Consumption spending and cost of living for rural households in North Kazakh Grain Region (2003=100)



Source: Authors' calculations based on official statistics, see Figure 24 in main text.

Policy recommendations

Access to land and capital for agricultural producers continues to be constrained by strongly regulated and governmentally controlled allocation systems. While land sales are now possible in principle, such transactions require large capital investments and a long-term planning horizon. Rural entrepreneurs rarely fulfil these conditions, so that land sales remain few. For more immediate adjustments in land use, ***the development of land rental markets is desirable***. However, the legal provisions for such rental transactions are not sufficient. In particular, to what extent privatisation beneficiaries in the NKGR who contributed their share to the stock of an agricultural enterprise under the 2003 legislation can still engage in land rental markets is unclear. Furthermore, land shares cannot be contributed to individual farms. It is also unknown to what extent lease and sublease of land are still carried out informally, contrary to the 2003 land code provisions. More transparency and firmer as well as more practical legislation that creates a level playing field for all farm types would likely stimulate land rentals and thus lead to further efficiency gains in the medium term.

The state agency KazAgro appears to be one of the few viable sources of finance for many farmers, as commercial banks have partly withdrawn from the agricultural sector. However, ***it is unlikely that state-administered credit supply is very effective in targeting the most promising investments in agriculture***. While some agricultural enterprises apparently have access to outside equity, many individual farmers would benefit from a more competitive and less centrally administered agricultural credit system, possibly based on (true) cooperative principles.

Many farmers interviewed in the case studies were concerned about future access to qualified labour. ***The Kazakh government should make sure that future labour demands in terms of educated people in working age can be met***. A review of the demographic outlook for rural areas is recommended.

Recent increases in agricultural policy spending have led to a wide array of measures, including various types of input subsidies and production-related direct payments. ***To what extent these measures follow a consistent sector strategy with specific policy goals is not visible and the effectiveness of the measures thus difficult to evaluate.*** Many are hardly compatible with WTO requirements. A more focused and less distortionary policy approach is recommended. Systematic upgrading of the rural transport infrastructure is likely to have a more beneficial long run impact than indiscriminate subsidy distribution.

Future research needs

Labour supervision and the design of incentive-compatible employment contracts are persistent issues for many managers. In this management field, little systematic knowledge is available about actual practice and possible options, including new technologies based on satellite imaging.

If labour is becoming scarce in rural Kazakhstan, this sheds new light on some ***strategic notions of rural development***. Traditionally, in order to raise living standards, rural areas with abundant labour would have to generate off-farm employment opportunities and/or depend heavily on (regional) migration opportunities in more dynamic urban ar-

eas. In view of stable population numbers and strongly rising incomes, it is an open question whether this is an appropriate strategy for Kazakhstan.

No disaggregate, farm-level data is available that allows substantial comparisons in the performance of agricultural enterprises, individual farms and household economies. As a result, no definitive statements can be made about which type of organisation is more beneficial in terms of productivity, employment and income generation, more innovative, and better suited to meet the demands of modern food chains. Given the tremendous range of farm sizes observed in a homogenous natural and political environment, the NKGR represents a potentially fruitful object to investigate long-standing analytical issues concerning the relative advantages of small versus large farms.

There is clear evidence that ***many households produce a surplus*** to their subsistence needs which is sought by, for example, urban consumers. In which way these household operations could and should be commercialised and what this means for other types of agricultural producers needs to be investigated further.

More research on the ***interactions among different types of agricultural producers*** is also needed because they may become crucial for future agricultural development in the NKGR. If linkages indeed provide mutual benefits for the involved parties, they may turn into resource-providing contracts, i.e. arrangements that allow input flows from larger to smaller businesses in exchange for some output relevant for the larger business. In addition to traditional inputs such as fuel or feed, which are fully commercialised today, this could also be knowledge, access to risk management tools, or storage and marketing logistics. The output provided by the smaller business could be some effort-intensive (intermediate) product, such as raw milk, or simply labour force. If there are economic advantages in keeping different types and sizes of producers separate, it is likely that a more refined network of contracts may emerge that exploits the comparative advantages of each organisational type. However, if there are no such economic benefits to separation, the mutual relationship is more likely to be one of competition and ultimate takeover by the stronger party. A third option is the increasing specialisation of different farm types in various product segments.

There is little information about ***who has entered agricultural production in North Kazakhstan and why***. The explanations range from external investors bringing their own management, over various "local" entrepreneurs who have been more or less engaged in agricultural activities in the past, to household members who continue small-scale operations in vegetable and livestock to make their own living but also earn some revenue from surplus sales. As farm enterprises in the NKGR have persistently been created and dismantled recently, and given the importance of the management for successful farming operations, this is a question of actual relevance. Relative political power and access to information and resources by these different types of managers may well have implications for future structural change in agriculture.

1 Introduction

Recent price hikes in agricultural commodities worldwide brought the issue of global food security back on the political agenda. They also led to a rediscovery of the agricultural sector not only as an essential resource for human livelihoods, but also as a potentially profitable investment target. Moreover, claims were made that productivity increases would only be possible if small-scale farms were replaced by commercial large-scale agro-firms (Collier, 2008). However, media reports on increasing interest in farmland by both private and public investors at the same time raised concerns about the social and economic implications of massive agricultural transformations for rural societies (for a summarizing account see Deininger et al., 2011). In this debate, the successor countries of the Soviet Union play a special role for at least three reasons. First, particularly the bigger ones of these successors hold currently untapped land reserves suitable for food production. Much of this land fell out of production in the course of economic transition. Second, productivity of the land that was not idled had declined considerably in the 1990s. Both cropland expansion and (re-)intensification thus appear to be promising strategies for boosting food supply and possibly exports in these countries. Finally, in all land-rich successors, a specific post-socialist farming structure emerged from the restructuring attempts of the transition period. The conventional description of this structure is that large and only partly reformed successors of the former socialist farms coexist with household plots mostly geared to subsistence needs (Lerman et al., 2004). However, following the Russian ruble devaluation of 1998 and the more recent food price boom, the economic environment in rural areas changed and productivity levels went up again. The economic and social consequences of this agricultural recovery in terms of productivity, farm organisation, and rural income generation are largely unstudied so far.

Against this backdrop, the current study takes a fresh look at agricultural development in the Central Asian Republic of Kazakhstan. Already now, Kazakhstan is among the world's ten largest producers and five largest exporters of wheat (OECD 2011, 99). Together with Russia and Ukraine, it is considered as a future main player in world grain supply. About 80 percent of Kazakhstan's wheat is produced in the three north-Kazakh provinces Akmola, Kostanay, and North-Kazakhstan, two of which have borders with Russia. In the following, we label these three provinces the North-Kazakh Grain Region (NKGR). This region covers about 440,000 km² and hosts a population of 2.3 million people. First developed under the Soviet Virgin Lands Campaign in the 1950s, the sparsely populated region suffers from problematic climate conditions for crop production, notably a high risk of drought as well as early and late frost. Grain yields during Soviet times were highly volatile and remained below 10 dt/ha on average. After national independence, the grain factories established under Soviet rule fell into crisis and substantial issues of privatization and restructuring were raised. However, partly aided by its oil revenues, Kazakhstan managed to avoid the political instability or paralysis typical of other Central Asian republics. In the new millennium, together with rising food prices, political stability went hand in hand with a notable recovery of agricultural

production in the NKGR.[1] While the global financial crisis reached Kazakhstan already in 2007, it was weathered comparatively well. Contrary to the situation in other former Soviet republics, the socialist farming structure was neither preserved nor dismantled completely. It was rather reformed gradually and has evolved into a tri-modal structure consisting of large agricultural enterprises, smaller individual farms, and tiny household plots.

While North Kazakhstan is a success story in terms of recent agricultural productivity increases, it also represents an interesting field of study for more fundamental issues in farm organisation and intensification that are of global relevance. Total cropland area in the NKGR has increased by one half since 2001, agricultural value added doubled, and investments in farming operations even went up fivefold in the same period. It is thus an area where substantial agricultural intensification has taken place recently, also by extending farming into lands that fell idle after the collapse of socialism. At the same time, farming organisation has changed significantly. On the one hand, a new layer of individual farms has emerged which now cultivate about one quarter of agricultural land.[2] On the other hand, agriculture in the NKGR has become the target of outside investors who began to establish huge vertically integrated grain companies, so called agroholdings. In this study, we document some of the main outcomes of agricultural recovery and restructuring in the region. We shed light on the political reforms that formed the background of this process and that led to the diverse agricultural structure observed today. Furthermore, we investigate the social and economic implications of agricultural restructuring for the population living in rural areas of the NKGR. By focusing on the NKGR, we avoid statements about average developments in Kazakhstan as a whole, which are highly problematic given the regional diversity of agricultural production and farming structures. In several respects, we thus update Gray's (2000) thorough review of farm restructuring progress undertaken by the end of the first transition decade.

The quantitative part of the study is based on statistical information mostly taken from the Kazakh National Statistical Agency, data which has not been published in English before.[3] In addition to this data, we utilise a number of key documents prepared by international organisations on agricultural development in Kazakhstan (in particular Dudwick et al., 2007; Gray, 2000; USAID, 2005) as well as first-hand experience from a study tour to the NKGR conducted by the authors in April/May 2011. Farm case studies are documented in the appendix to this study.

The study is organised as follows. Section 2 gives an overview of overall agricultural development in the NKGR by presenting a number of key statistical figures on output

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1 For many Western observers, there has been actually too much stability in Kazakhstan, given that the President of Kazakhstan, Nursultan Nazarbayev, has been in office for 20 years now, and with democratic elections playing a comparatively minor role in the Kazakh political system.

2 Following established terminology in Russian, these individual farms are called "fermer" or "peasant" farms in Kazakhstan. However, unlike the conventional understanding in other development contexts, these farms are neither operated by peasants in the classic sense nor are they small. We therefore use the more neutral terminology "individual farms", indicating operations run by a natural person rather than an incorporated agricultural enterprise.

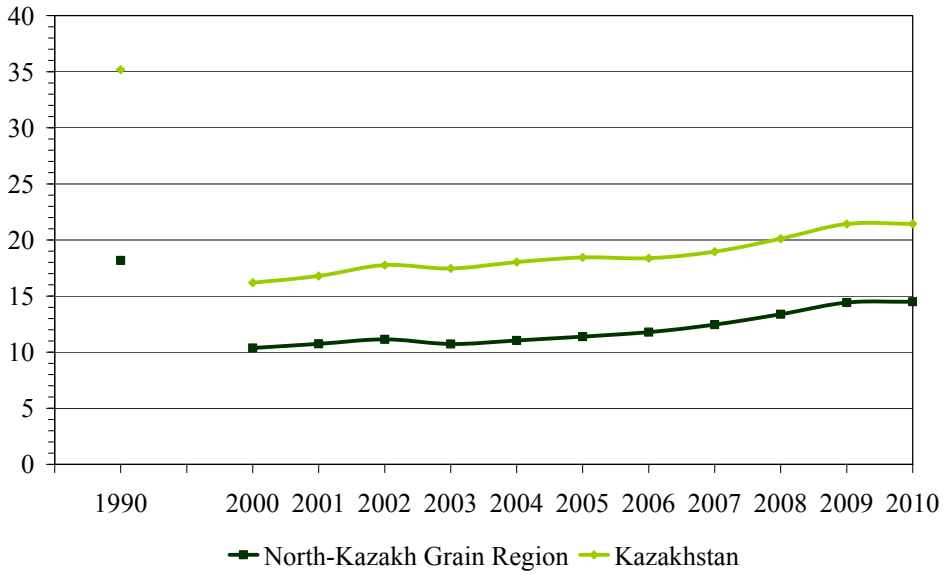
3 The Kazakh Statistical Agency has set a benchmark in publishing a host of statistical information as a free download at www.stat.kz. This includes all major statistical yearbooks issued in recent years as pdf's, as well as more regionally differentiated data collections and studies. This material is usually published in Russian and, more recently, in Kazakh. We give the exact source of our data next to each figure presented in the text.

and factor use. In section 3, the main steps of farm restructuring and agricultural policy after 1990 are summarised. Section 4 takes current statistical data on structural change to characterise and tentatively evaluate the different farming organisations present in the NKGR today. Section 5 looks at the social implications of agricultural restructuring and section 6 concludes.

2 Agricultural recovery in the North-Kazakh Grain Region: an overview

In the past decade, agricultural production in the NKGR has displayed a remarkable recovery from the earlier transition crisis. Based on official statistics, we portray the main aspects of this recovery in the subsequent section. We start with land use. The overall reduction of cropland area after national independence was substantial. In 2000, it had decreased to about one half of its 1990 value in Kazakhstan as a whole, and to about two thirds in the NKGR. However, agricultural land use has been expanding consistently since 2001. It picked up again in the early 2000s and increased by almost a half between 2000 and 2010 (Figure 1). This is about 80 percent of the 1990 value. As the parallel increase of the lines for the NKGR and Kazakhstan as a whole demonstrate, almost all cropland expansion in Kazakhstan took place in the NKGR. Since 2000, about five million ha of cropland have been put into production again.

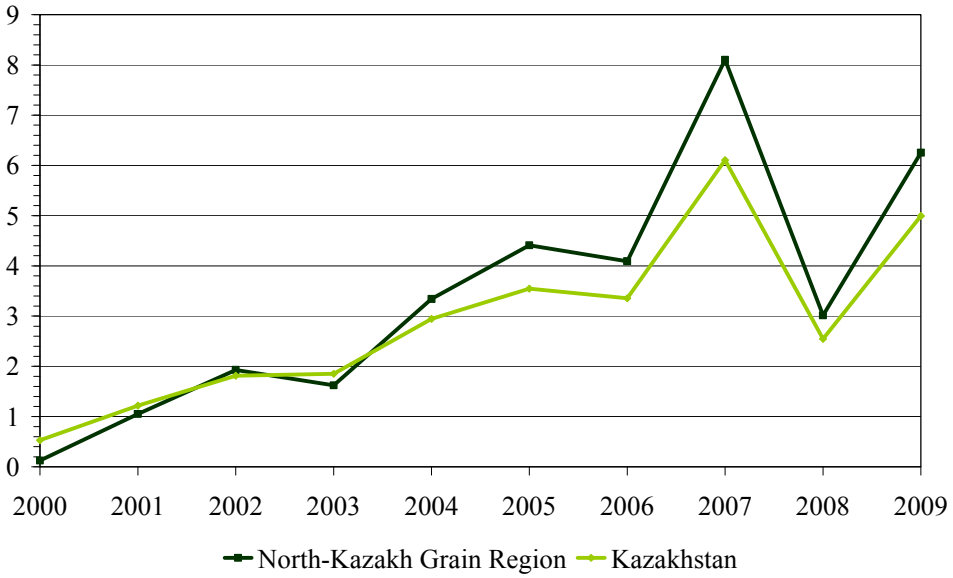
Figure 1: Cropland area (million ha)



Source: Authors' calculations based on: 2000-2010: electronic table provided at www.stat.kz; 1990: Statistical Yearbook 50 Years Start of the Virgin Lands Campaign 1953-2003, Almaty 2003.

Along with cropland expansion went an increase in input use. Figure 2 shows the rise in mineral fertiliser application. Starting from a practical absence of application in 2000, now about five percent of all cropland receive fertiliser, though with considerable annual fluctuation. The Kazakh Statistical Agency reports doses in the range of 30 to 40 kg pure nutrient per ha (Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2005-2009, 143). A possible explanation for the notable dip in 2008 is liquidity shortages, as the global financial crisis led Kazakh banks to drastically cut down their short-term lending early in the crisis (Box 1).

Figure 2: Area on which mineral fertiliser is applied (percent of cropland area)



Source: Authors' calculations based on: 2000-2004: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2000-2004, 229; 2005-2009: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2005-2009, 142.

Box 1: A chronicle of recent economic shocks

August 2007: The first wave of the global financial crisis hits Kazakhstan, leading to plummeting stock indices and real estate prices in the cities. In the course of the crisis, Kazakhstan experiences an economic recession (in 2008/2009) and substantial pressure on its banking system as well as its currency exchange rate. Short-term lending to agriculture declines substantially.

April 2008: After spiralling global food prices, the government imposes a temporary export ban on grains. The ban is lifted on 1 September 2008. No further trade restrictions have been enacted since.

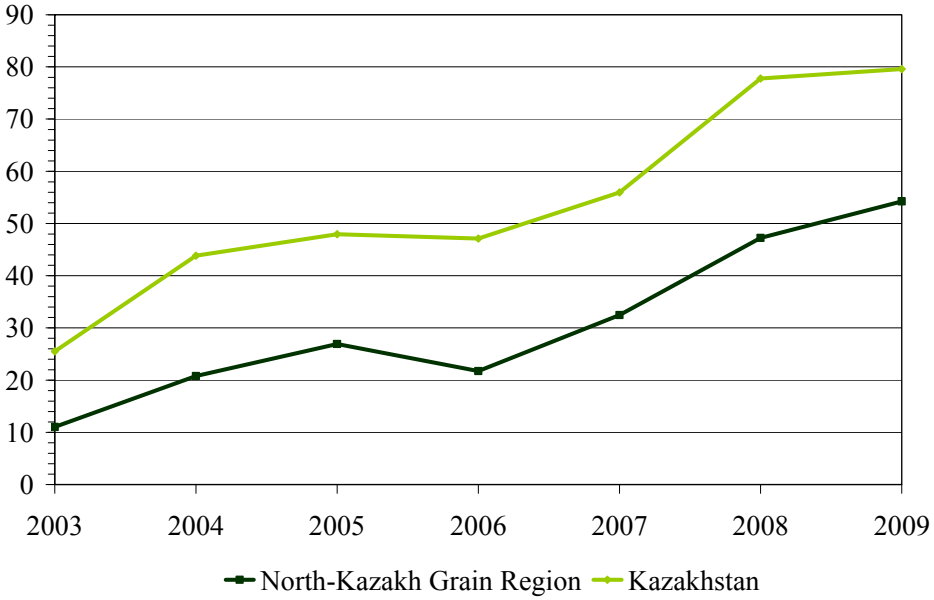
February 2009: As a result of the financial crisis, the Kazakh tenge (KZT) loses 20 percent of its exchange value against the USD. More recently, the exchange rate has floated around 145 KZT/USD. In 2009, KazAgro, the state development agency for agriculture, receives extraordinary financial support from the government's National Welfare Fund. The latter accumulates the state income from oil sales.

Summer 2010: An extreme drought leads to severe harvest losses and reduced grain exports.

Sources: Economist Intelligence Unit; D. Oshakbayev, personal communication; Lillis 2008.

Between 2003 and 2009, investment in agricultural fixed assets increased five-fold (Figure 3). Relative to Kazakhstan as a whole, almost all the increase in investment occurred in the NKGR. In practice, this primary meant investments in buildings and machinery, leading to a substantial upgrading of farming technologies (Box 2, Picture 1).

Figure 3: Investment in agricultural fixed assets (billion tenge)



Source: Authors' calculations based on: 2003-2007: Statistical Yearbook Regions of Kazakhstan in 2007, 388; 2008-2009: Statistical Yearbook Regions of Kazakhstan in 2009, 368.

Box 2: Grain production technology in the NKGR

Under the dry climatic conditions of North Kazakhstan, timely and moisture-conserving field operations are of crucial importance for successful plant production (Longmire and Moldashev, 1999). This in turn requires appropriate production technologies.

"Enbek Bereke", a 12,000 ha crop farm 150 km north of Astana, uses latest zero-tillage technology of Western origin and a non-selective herbicide for clearing the weeds before sowing. The sowing campaign is from May 5 to June 5, there is one additional spraying operation using a self-propelled sprayer. Fertiliser is applied simultaneously with sowing. Machinery operations are monitored by a full-fledged GPS imaging system.

"Saratomar" individual farm also uses zero-tillage technology and cultivates 650 ha of wheat in monoculture, with the occasional exception of oats or peas to fix nitrogen in the soil. A GPS-based system is used to control spraying operations and the performance of tractor drivers. It is not used for sowing, as the sowing campaign is only one week. According to the agronomist, the minimum subscription to GPS services is one month, so it is too expensive for such a small farm.

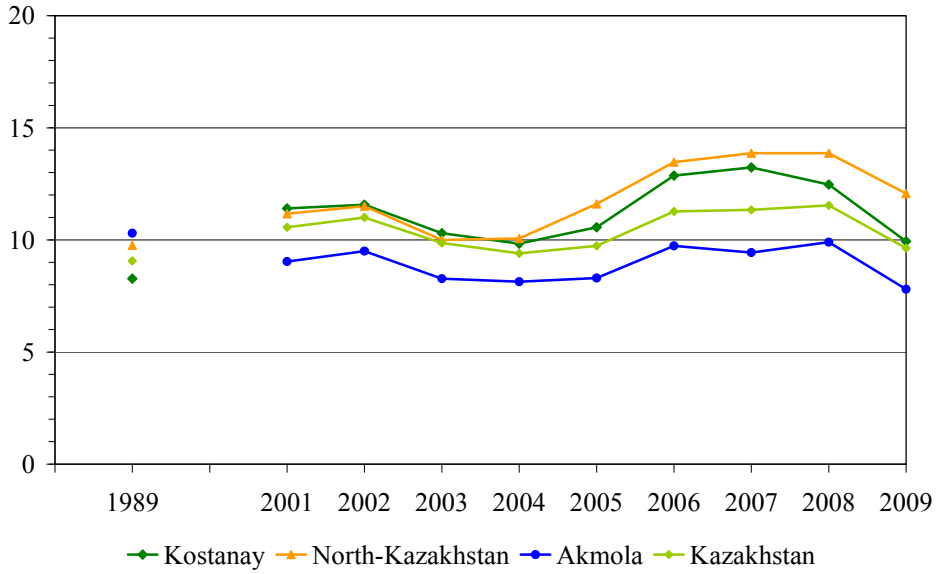
Over recent years, the manager of "Beloe Osero" individual farm has continuously increased his stock of used farming machinery, generally of Soviet origin (e.g., three K-700 tractors). He recently bought two new combine harvesters. For keeping his machinery park running, he has gathered an arsenal of second-hand and partly dysfunctional machinery on his farm, which is used as a reservoir of spare parts. Improvisation is often necessary, but his staff is used to such working conditions.

Source: Case studies 1, 4, 6, appendix.

Picture 1: Modern drilling equipment on agricultural enterprise

Photo by Martin Petrick 2011.

Figure 4: Wheat yields (dt/ha, three-year moving average)



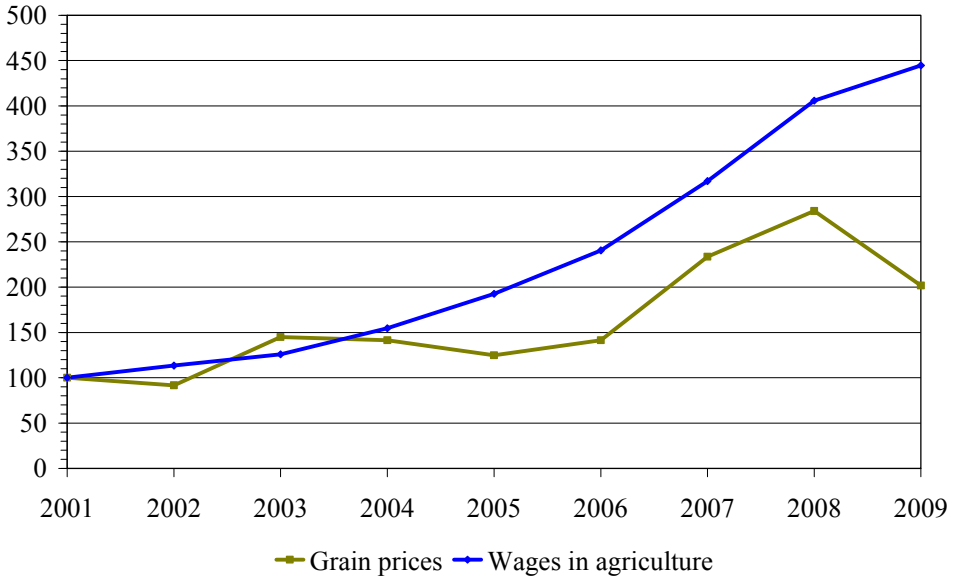
Source: Authors' calculations based on 1990: Statistical Yearbook 50 Years Start of the Virgin Lands Campaign 1953-2003, 83; 2000-2002: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2000-2004, 210; 2003-2010: electronic table provided at www.stat.kz.

In response to intensified land use and increased use of fixed capital, crop yields have stabilised above the levels reported under Soviet rule in the late 1980s (Figure 4). This is at least true for the more northern and thus climatically favoured regions North-Kazakhstan and Kostanay, where the three-year moving average yields of summer

wheat have reached levels of 13 to 14 dt/ha.[4] The more southern and thus drier region Akmola stands at about 9 dt/ha.

With fluctuations, grain prices doubled between 2001 and 2009 (Figure 5). However, in the same period, nominal wages in agriculture rose even faster to about four and a half times their 2001 level. Production costs thus increased perceptibly as well. Nevertheless, reflecting the trends in land expansion and intensification, real agricultural value added (the real regional product of agriculture) in the NKGR has also almost doubled since 2002 (Figure 6).

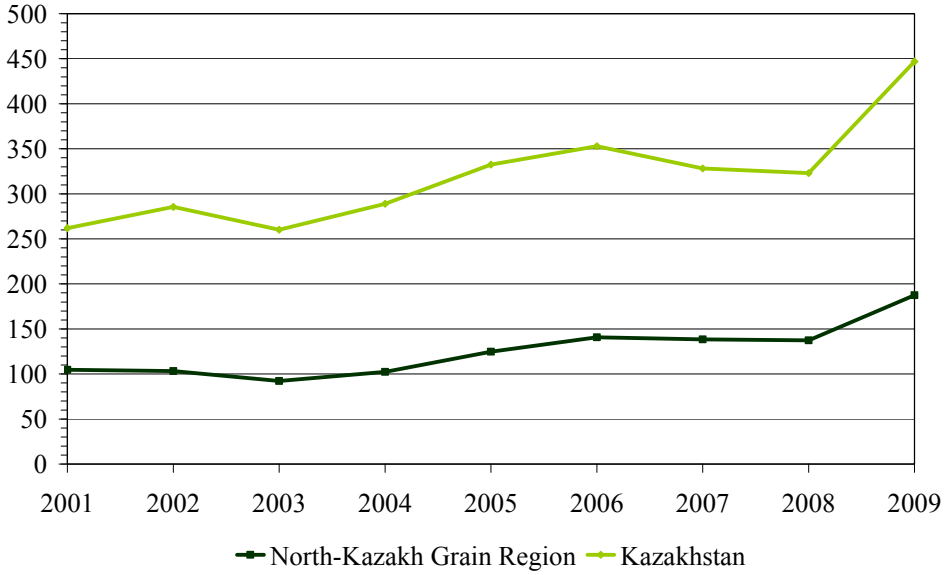
Figure 5: Grain prices and wages in North Kazakh Grain Region (2001=100)



Notes: Grain index is simple average of provincial grain indices for Akmola, North-Kazakhstan and Kostanay, wage index is average weighted by employees in agriculture in these provinces.
Source: Authors' calculations based on 2001-2004: Statistical Yearbook Regions of Kazakhstan in 2005, 96, 429; 2005-2009: Statistical Yearbook Regions of Kazakhstan in 2009, 114, 383.

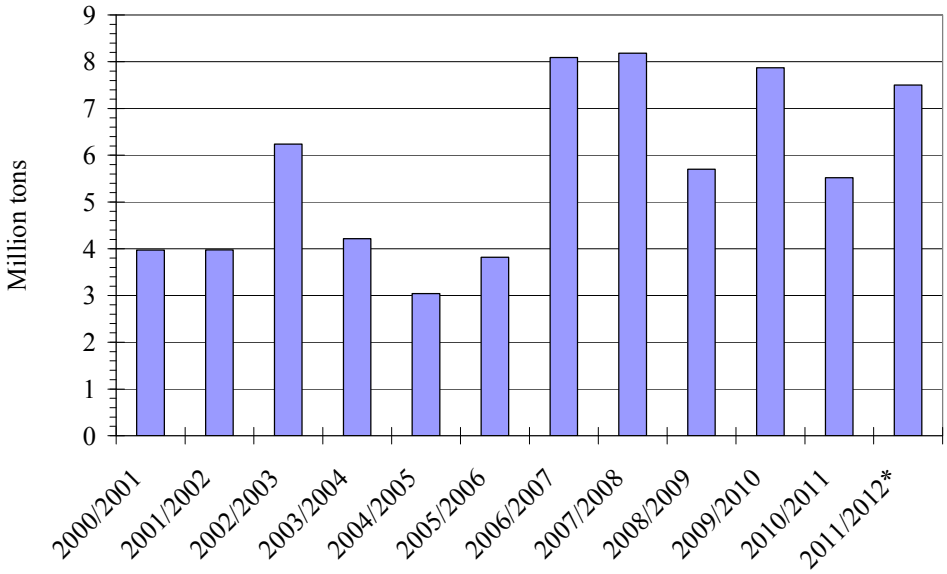
[4] The three-year moving average in a given year is the mean of the previous, current, and subsequent years, calculated for all years for which both neighbouring values are available.

Figure 6: Agricultural value added (billion tenge in 2000 prices)



Note: Nominal product deflated by agricultural sales price index.
Source: Authors' calculations based on 2001-2003: Statistical Yearbook Regions of Kazakhstan in 2005, 203, 207; 2004: Statistical Yearbook Regions of Kazakhstan in 2007, 196, 200; 2005-2009: Statistical Yearbook Regions of Kazakhstan in 2009, 191, 195; Agricultural sales price index provided at www.stat.kz.

Figure 7: Kazakh wheat exports



Note: Figures based on marketing years; * 2011/2012 are projections.
Source: USDA, PSD Online database.

The previous figures draw a consistent picture of cropland expansion, agricultural intensification and productivity increases in the NKGR. These in turn provided the basis for increasing wheat exports which made Kazakhstan an important player on world grain markets (Figure 7). Which were the drivers of this notable recovery? While output

prices went up in line with global trends, Figure 5 shows that this is only part of the story, as wage expenses increased even stronger. It is likely that substantial restructuring processes in the agricultural sector contributed much to the positive developments. These are therefore investigated in the subsequent chapter.

3 Restructuring policies after 1990

3.1 Farm restructuring legislation and its main outcomes

During the past 20 years, land reform legislation in Kazakhstan underwent a major paradigm change. In the 1990s, the paradigm was that all land remained in state ownership, while formal shares in former collective farm land were rented to rural citizens on a long-term basis. These land shares could be used for own cultivation or leased to end users in a secondary transaction. After 2001, the paradigm shifted towards full private ownership of land and limitations on the rental terms of state land. Since then, a land sales market has emerged, but it has remained thin. Most land is still rented from the government at a normatively set low price. A complete transition to widespread private ownership and transactions in land has not materialised yet. Even so, substantial restructuring of farms has taken place, and a tri-modal farming structure of agricultural enterprises, individual farms, and household plots has emerged. Table 1 summarises the main steps in this process.

1990-1994: Early reform steps, little profound restructuring

The early transition period was characterized by many formal rather than substantial changes. Collective farms were registered as private legal entities, but the farming process often remained unchanged (Gray 2000, 13). As early as May 1990, the government enacted the first national law "On Peasant Farms in the Kazakh Socialist Soviet Republic" (Table 1). According to this law, it was legal for workers to leave the collective farms and to start individual farming, based on inheritable use rights to land. In 1992, the Kazakh government formally allowed managers of the collective farms to transform the large farms into smaller agricultural enterprises. Such enterprises could be joint stock companies, collective enterprises, and producer cooperatives (USAID, 2005, 3).

In 1993, farm input markets were widely liberalised. The state continued to control output prices and quantities, at the same time providing soft credits to unprofitable farming operations. These circumstances triggered the severe farm solvency crisis of the following years, which would lead to widespread land abandonment and the frequent collapse and re-establishment of farm organisations (Gray 2000, 7, 10).

In 1994, a decree was passed which stipulated that 10 percent of state farm property were handed over to the former directors that had served as such for at least 20 years. It was a form of gratification. Another 10 percent of the former collective land was at the disposal of the farm directors for 5 years. The remaining 80 percent was intended to be distributed among farm members. By 1995, most state and collective farms had formally disappeared, although little actual restructuring had taken place. The first individual farms had emerged. Usually they were created by the management staff of former state farms (USAID 2005, 4).

Table 1: Main reform initiatives and their effects on farm restructuring

Year	Reform initiatives	Restructuring outcomes
1990	National law "On peasant farms in the Kazakh SSR". Legalisation of individual farming based on inheritable land use rights.	First spontaneously created individual farms, mostly by state farm cadres.
1991	National independency, followed by reform legislation in various areas.	Start of formal conversion of state and collective farms into producer cooperatives and other legal forms, little substantial restructuring.
1993	Liberalisation of input markets, output prices and quantities remain controlled by government, continuing soft budget constraints. Elimination of collective form of property.	Origin of liquidity crisis in agriculture.
1995	Law "On land" institutes share privatisation. Withdrawal to form individual farms is allowed.	Government ownership of land, but rural residents obtain up to 99-year leasehold of "conditional land shares" without specific demarcation of plots. Three options: (1) creation of an individual farm, (2) formation of an agricultural enterprise, (3) sublease to other users. Inheritable private ownership of household plots and dacha land is acknowledged.
1997	Government instructions encourage formation of agricultural enterprises and "personification" of land.	Shares are increasingly transferred into limited liability partnerships, lottery procedures to allocate land plots to individuals prove difficult.
1998	Application of bankruptcy procedures as response to widespread insolvencies.	Conversion of most producer cooperatives into limited partnerships, concentration of formal ownership into hands of management following official recommendations, new management and outside investors become active, but creation of individual farms is also accelerated.
2001	Terms of lease for existing and future contracts reduced to 49 years, announcement that subleases will have to be terminated.	Increasing uncertainty about security of land tenure.
2003	New land code adopted, introducing private ownership of farmland. Sublease of shares prohibited, land either to be self-cultivated or contributed as capital share to agricultural enterprise, "merging small farms campaign".	Implementation in 2005, preferred option of former sub-lessors is to contribute to stock of agricultural enterprises, but creation of individual farms is also exercised.

Source: Authors' compilation.

1995-1997: Share privatisation, emergence of limited partnerships

In 1995, the law "On land" formalised land privatisation to rural residents, that is farm workers and staff, pensioners, as well as persons working in the social sphere such as doctors and teachers. The law enabled beneficiaries to lease "conditional land shares" for a period of 3 to 99 years from the government, but purchase and private ownership of land were not allowed. Thus, the state remained the legal owner and could reclaim land that was not cultivated for a period of three years. The main legal options for hold-

ers of conditional land shares were as follows: (1) Shares could be joined to form an agricultural enterprise; (2) shares could be redeemed to withdraw land plots in order to form individual farms; and (3) shares could be subleased to other users. The specific location of land shares was usually not known. This fact facilitated the buyout by large investors (Gray 2000, 9). By 2002, 18 percent of shareholders had exercised option (1), mostly former managers and their collaborators (Dudwick et al. 2007, 46). Option (2) was exercised by 29 percent of beneficiaries, usually people with some farming experience. Option (3) was exercised by 28 percent, mostly pensioners and people without agricultural background, but also farm workers. For the latter, it provided a way to participate in the assets of the former collective farms, in addition to their salary. With regard to household plots and dacha land, inheritable private ownership was granted immediately with implementation of the law (USAID 2005, 4).

In this period, a legal form of corporate farming emerged that would play a dominant role in the NKGR, the limited liability partnership (Gray 2000, 8). This form of partnership allowed the concentration of shares in the hands of the director and was widely supported by government authorities. It was a means to continue large scale farming operations under post-socialist conditions without having to deal with a large number of decision makers (as formally required in producer cooperatives). In the coming years, such limited partnerships would form the backbone of agricultural enterprises in the NKGR. Together with joint stock companies and producer cooperatives, they represent the group of agricultural enterprises. They are legal persons recognised by the Civil Code (Box 3).

In 1997, the government gave instructions to issue land titles to the rural population, and to promote the demarcation and thus "personification" of land (Gray 2000, 9). However, the procedure based on drawing a lottery was difficult to administer and proceeded slowly, usually only when individual farms were created (USAID 2005, 29).

1998-2002: Bankruptcy procedures accelerate restructuring, coexistence of corporate and individual farms

A result of half-hearted restructuring and adverse price policies (Pomfret 2008) was that by 1998 most corporate farms were loss-making and illiquid. The government enacted a procedure of bankruptcy proceedings (see Gray 2000 for a thorough review). This time it aimed more at supporting profitable farms and at abandoning farms that were not viable. The latter were taken through a bankruptcy procedure. This period saw the widespread conversion of producer cooperatives into limited partnerships, and the concentration of formal ownership (land shares) into the hands of directors. It often went hand in hand with the installation of new outside management, purchases by outside investors including input suppliers, fragmentation into smaller units, and the collapse of farming in the least favourable regions (Gray 2000, 15-17; Picture 2). Similar to the situation in other post-Soviet countries, farm workers and other lower-rank beneficiaries were likely the least informed about their options and the consequences of their choices (Dudwick et al., 2007, 50; Petrick and Carter, 2009). Even so, the creation of individual farms was also accelerated, so that among the registered farms a significant number of both corporate and individual farms began to coexist. As household economies continued to contribute a significant share in gross agricultural output (see section 4.1), a tri-modal agricultural structure had emerged.

Picture 2: Obsolete grain storage

Photo by Martin Petrick 2011.

Box 3: Background legislation on farm organisation and land use

The Civil Code of the Republic of Kazakhstan (first passed in 1994) recognises four types of legal persons (ch. 2, §2): economic partnerships (*khoziaistvennoe tovarishchestvo*), joint stock companies (*aktsionernoe obshchestvo*), producer cooperatives (*proizvodstvennyi kooperativ*), and state enterprises (*gosudarstvennoe predpriiatne*). All these forms are also present in agriculture, although in very unequal proportions. In addition, there are individual farms (*krest'ianskoe (fermerskoe) khoziaistvo*) treated as natural persons, and simple partnerships of natural persons (*prostoe tovarishchestvo*, ch. 12). Registration procedures for natural persons are simpler and tax obligations lower.

The 2003 Land Code of the Republic of Kazakhstan states that (art. 3):

"Land in the Republic of Kazakhstan is in the public domain. Plots can also be privately owned on terms, conditions and limits established by this Code."

Owners can be the state, individual citizens, and non-state entities (art. 20). Furthermore, "the owner owns the rights to possess, use and dispose of the land belonging to him" (art. 21). Ownership may be granted by the state and can be transferred by civil law transactions (i.e., purchases), by inheritance, or can emerge from the reorganisation of legal entities (art. 22). Foreigners may own land, but must not use it for agricultural production (art. 23). In addition, there are land use rights which are provided by the state and which can be granted permanently, temporarily long-term (5-49 years), and temporarily short-term (up to 5 years) (art. 32; 35). However, transactions among land users in temporary land use rights for agricultural production are explicitly prohibited, except for mortgaging and for contributing them to the capital stock of an agricultural enterprise (art. 33).

Kazakh citizens can buy or lease land for up to 49 years in order to establish an individual farm (art. 101). By this legal provision, a farmer is assumed to self-cultivate the farm, have specialised agricultural knowledge and practical farming experience, and reside in geographical proximity to the farm. Individuals who contributed their land use right to the capital stock of an agricultural enterprise, to a partnership or to a production cooperative, have the right to withdraw it in kind or be financially compensated for it.

Source: Online legislation at http://www.minjust.kz, see also http://www.pavlodar.com.

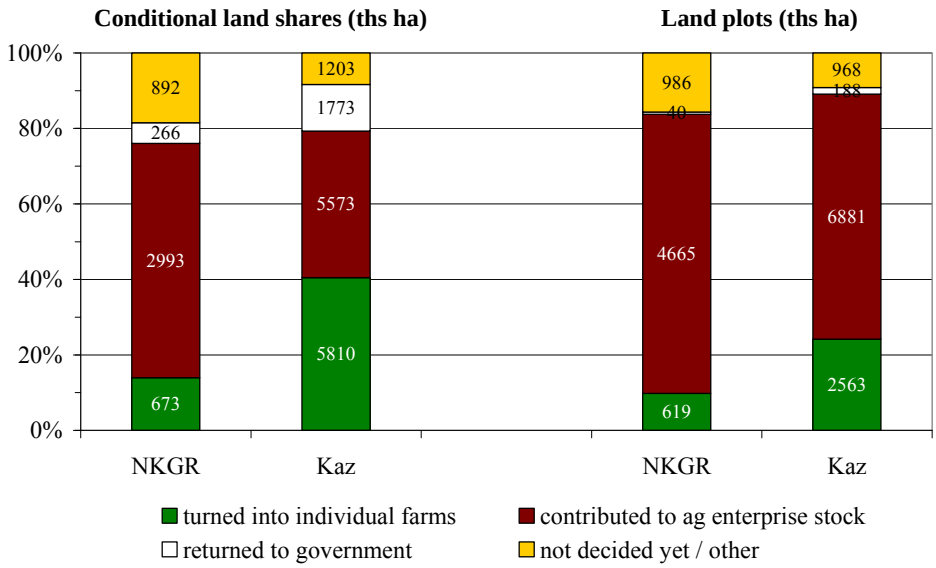
In 2001 a new law on land was introduced due to which the maximum lease period diminished to 49 years instead of 99 years. This alteration applied not only to future leases but also to existing ones. In addition, it was announced that subleases of land would

have to be terminated. These changes marked the start of a paradigm shift towards full private ownership of land and a turn away from share privatisation exercised so far. As a result, considerable uncertainty about future land tenure options was raised among the rural population (USAID 2005, 6).

After 2003: Implementation of new land code, recognition of private land ownership, prohibition of subleasing

In 2003, the new Kazakh land code was announced and came into force on 1 January 2005 (Box 3). By recognising individual ownership of agricultural land, it formalised the paradigm shift. The widespread practice of subleasing shares (option (3) under the 1995 legislation) or demarcated land plots received under previous privatisation steps was outlawed. The government expressed the view that land should belong to those who cultivate it, and that all land owners should be subjected to agricultural taxation and regulation. Furthermore, the pending WTO accession of Kazakhstan appeared to be a driving force for the reform (USAID 2005, 9). There were important interim provisions (article 170) which regulated the abandonment of sublease: (1) Subleased land shares as well as land plots could be taken to own cultivation under lease from the government; (2) they could be transferred into private ownership by a purchase; and (3) they could be contributed as a share to the capital stock of an agricultural enterprise. In case of non-compliance with these interim regulations, the land could be confiscated. Option (2) offered the remaining opportunity to continue sublease contracts. Individuals could buy land from the state, lease it out, and if it was not explicitly prohibited in the contract, the leaseholder could then sublet this land (USAID 2005, 23).

Figure 8: Disposition of formerly subleased land shares and plots after implementation of the land code, as of 15 January 2005



Source: Authors' calculations based on information by the Land Resources Management Agency, as published in USAID (2005, 17-18).

On 1 January 2004, of the 23 million ha of agricultural land in the NKGR, shares equivalent to 4.8 million ha and 6.3 million ha of land plots were under sublease and

thus affected by this regulation (based on official statistics of land use and figures by the Land Resources Management Agency, as published in USAID 2005, 17-18). Kazakhstan as a whole had 79 million ha of agricultural land, of which 14.4 million ha were under share and 10.6 million ha under land sublease. Subleasing was thus salient in the NKGR, affecting almost half of the land. Figure 8 shows how this land was disposed of in the course of land code implementation. Compared to Kazakhstan as a whole, more individuals preferred to contribute their shares or land to agricultural enterprises. Land purchases played a negligible role in the NKGR (USAID 2005, 23).

As pointed out by USAID (2005, 27), transferring a share or land plot to the capital stock of an agricultural enterprise meant that shareholders would receive a dividend on capital in the future, rather than a rent on land as in the past (Box 4). Whereas land rent usually used to be a fixed proportion of the harvest (e.g., five percent), the dividend depends on the profitability of the enterprise after managers and workers are paid. There were fears that farm managers, in particular outside investors, would manipulate their profit figures in order to reduce dividend payments and thus unilaterally favour the employees of the farm. Not all shareholders may have been fully aware of these implications (ibid.).

Box 4: Land sources of agricultural enterprises in the NKGR

"Enbek Bereke" is a director-owned corporation and formally a limited liability partnership. All land is in long-term leasehold by the villagers who obtained this lease in the course of farm privatisation. The leaseholds were transferred into the capital stock of the farm managed by the current director. The director came as an outsider to the local community. All primary leaseholders (and thus shareholders of the farm) earn an annual dividend based on the performance of the farm. The farm employs 35 workers, including administrative personnel. 40 percent of the farm workers are also land owners. Many live in the nearby village.

"Rodina", a corporate crop and dairy farm, is also organised as a limited liability partnership. Of the 52,000 ha of land, 51 percent are held by the director, the other 49 percent belong to local residents, who receive an annual dividend on their share.

Source: Case studies 1 and 2, appendix.

Whereas agricultural enterprises benefitted from the new legislation, individual farms were discriminated against, as they could not acquire land shares from rural residents via the interim provisions. Moreover, the swift formal implementation of the land code was accompanied by a campaign apparently promoted by governmental officials recommending the merger of small farms into limited partnerships (called "merging small farms campaign" by USAID 2005, 23, 31). Perhaps as a sort of counter-reaction, some farmers established new types of organisations in the legal form of a simple partnership. Such simple partnerships are regarded as natural persons with a status similar to an individual farm (Box 3, USAID 2005, 20). However, no family ties were required to form the partnership. Former parties in a lease contract could thus rescue this relationship in a legally acceptable manner by transforming it into a simple partnership.

While the new land code was implemented formally, there are still reports that informal land sublease arrangements prevail in many rural areas to the present day. In the NKGR, they likely assure the corporate farms cheap access to land resources.

An evaluation of formal land legislation

Looking back, formal land legislation in Kazakhstan evolved gradually, if not hesitantly, from the abandonment of collective land ownership in 1993, over share privatisation with a 99-year leasehold in 1995, to the reduction of this leasehold to 49 years in 2001, and the recognition of inheritable individual land ownership in the 2003 land code, implemented in 2005. Today, the legal provisions for a capitalist mode of land ownership and exchange seem to be mostly in place. However, this stepwise process notably changed its target in the course of transition and came at the cost of considerable uncertainties for the potential beneficiaries of land privatisation. Furthermore, while legally possible, full private ownership of agricultural land continues to be a rare exception, at least in the NKGR. Although land purchases have been increasing recently, the vast majority of land is still in government ownership.[5]

Whereas land sales are now possible in principle, such transactions require large capital investments and a long-term planning horizon. Both conditions are often not met, so that land sales remain rare. Land users rather prefer to base their operations on land rentals from the government at a low normative price determined by law. The government apparently has no political interest in raising its revenues from increasing this normative price. However, as secondary land rentals are prohibited, short- and medium-term adjustments in land use outside the land sales market are difficult. They mostly occur when existing farms change ownership, due to liquidations or mergers, and the land shares are transferred to the new owner. There is a tension between the land code legislation making private land ownership the basis of land transactions and the continued access to cheap rental land from the government.

Picture 3: Traditional fieldworks with caterpillar tractors

Photo by Martin Petrick 2011.

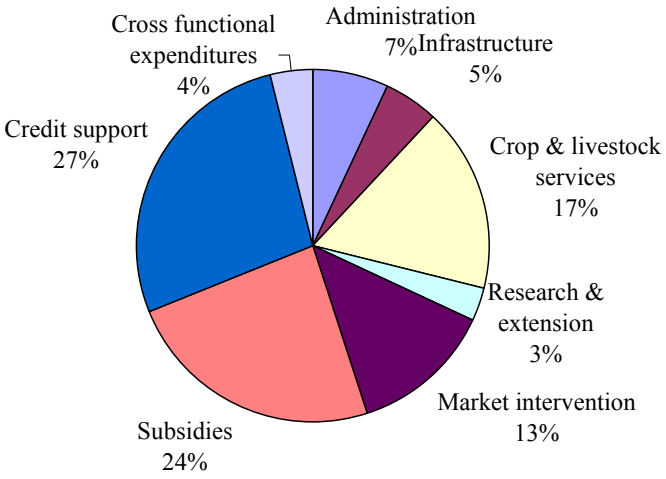
[5] Official figures on land sales are hard to obtain, however. This may have to do with media reports on large land deals the Kazakh government supposedly negotiates with Chinese investors, which were criticised in public. Land access and ownership in the vicinity of the capital Astana is also a politically sensitive topic, as there may be influential investors who managed to secure large tracts of this land in view of future development.

It is unknown to what extent lease and sublease of land are still carried out informally, contrary to the 2003 land code provisions. More transparency and firmer as well as more practical legislation would likely stimulate land rentals and thus lead to further efficiency gains in the medium term.

3.2 Agricultural policy environment

During the 1990s, the Kazakh government engaged in the privatisation policies described in the previous section but otherwise mostly neglected the agricultural sector (Pomfret, 2008, 227-238). However, when oil revenues became stable, agriculture was rediscovered as a strategic sector for making the Kazakh economy more competitive and diversified. According to Kazakh observers, the governments' objectives were to substitute food imports by domestic products, thus ensuring national "food security", and increasingly export agricultural staples but also processed food products (Wandel, 2010, 17). To achieve these aims, increasing amounts of government expenditure were channelled through an emerging system of government agencies set up in support of the agricultural sector. On average, the annual growth of the Ministry of Agriculture's budget in real terms between 2002 and 2008 was 17 percent (World Bank 2010, 10). The most important forms of support for farmers in this system have become credit programmes and a ramified system of area as well as output-oriented subsidies (see Figure 9 and the review in World Bank, 2010, 13-17). However, budget priorities were changing during the recent decade. One such shift occurred from direct market interventions (mostly in grain markets) to production-oriented subsidy payments based on area use, production levels and input use. In general, crop production has received more support than livestock production. The trade regime in wheat was not particularly protectionist in the 2000s, although attempts to quantify the (absence of) distortions proved difficult (Pomfret 2008). During the price hike in spring 2008, Kazakhstan had introduced a temporary export ban for wheat (Lillis 2008), but has since declared to maintain an open export regime (Box 1).

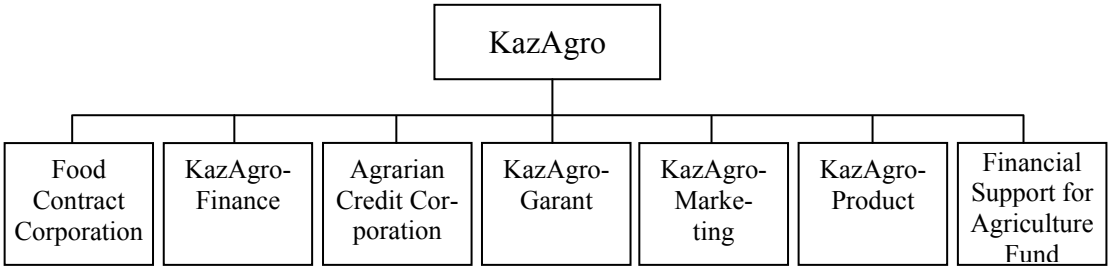
Figure 9: Expenditure categories of the Ministry of Agriculture budget in 2008



Source: World Bank (2010, 17), based on official sources.

In recent years, almost half of the Ministry's expenditure was channelled through the state-owned holding KazAgro and its subsidiaries, and almost a quarter via local governments (World Bank, 2010, 11). Local governments handle the distribution of production-oriented subsidies. The main task of KazAgro is to implement government plans for the sustainable development of the agro-industrial complex. These include the direction of investments into sectors of special importance, the development of the infrastructure, regulation and stabilisation of domestic agricultural markets, assistance with the formation of business clusters, and the implementation of the February 2007 "30 Corporate Leaders" programme in the agricultural and food sector. It unites seven state institutions – all of which are legally joint stock companies – which hitherto operated directly under the Minister of Agriculture (Figure 10).

Figure 10: Structure of the state-owned holding KazAgro



Source: Gramzow and Suleimenov (2011).

KazAgro is thus an instrument of state economic and agricultural policy, i.e. a sort of a state agency for economic development.[6] Copying models from Singapore ("Temasek") and Malaysia ("Khazanah"), the Kazakhstan government established two other, similar state holdings: the Sovereign Wealth Fund "Samruck-Kazyna" JSC, and "Samgau" (National Scientific and Technological Holding JSC). The supposed task of all national holdings is to consolidate various state and semi-state enterprises and development institutions, so as to improve management and coordination between them, as well as stimulate larger investment in infrastructure and in so-called "priority sectors". The establishment of these state holdings is part of the diversification policy that has been pushed forward since 2003, in order to counteract the predominance of raw materials in the Kazakh economy. This policy promotes the classification of those economic sectors thought to be particularly important and competitive, as set out by an action programme of 2004 providing for the development of "clusters". Such clusters are regional concentrations of businesses that belong to the same or closely related sectors. These priority sectors include the agricultural and food sector as well as high technology. KazAgro is responsible for implementing the development strategy in the agricultural and food economy, and Samgau in the high-tech sector. Samruck-Kazyna was founded in 2008 by a merger of the Kazakhstan Holding Company for the Management of State Assets "Samruck" and the "Kazyna" Sustainable Development Fund. The key purpose of "Samruk-Kazyna" is to manage the shares of national development institutions, national companies (e.g. KazMunaiGas, Kaztelekom, Air Astana) and other legal entities it owns to maximize their long-term value and competitiveness in the world markets.

Usually, KazAgro is funded from general tax receipts of the government. However, in exceptional circumstances, funding is also directly coming from the National Welfare Fund, which accumulates the state income from oil sales. This happened during the financial crisis, when extra liquidity was provided to KazAgro in order to prevent excessive defaults (see Box 1), and in 2011, when a special programme for promoting investments in livestock was offered.

Critics see KazAgro and the other state holdings as just another bureaucratic institution which is taking over tasks that ought to be the work of the ministries, meaning that overlaps are unavoidable. There is also scepticism as to whether an unbundling of economic and political interests can be possible. On the one hand, the national holdings are supposed to implement economic policy, yet on the other they must operate efficiently like private enterprises and increase the business value of their daughter companies. This latter objective may be one of the reasons why independent businessmen and academics from both Kazakhstan and abroad have been appointed to the boards alongside government representatives.

The roles of the individual KazAgro branches are as follows. The Food Contract Corporation acts as a procurement agency of the government that buys grain at the farm gate and runs state-owned storage facilities in order to ensure national food security. Procurement prices used to be much below market prices, though (Gramzow and Suleimenov, 2011). Even so, the Food Contract Corporation accounts for almost half the budget of KazAgro. KazAgroFinance is primarily involved in leasing arrangements to provide farmers with access to machinery and livestock at favourable terms. It uses almost a quarter of the KazAgro budget.

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[6] It is not a private agroholding of the sort described in section 4.3.

The Agrarian Credit Corporation (AKK) is the key government agency that provides farmers with subsidised credit (cf. Gramzow and Suleimenov, 2011, 11). To this end, it is linked to a network of 150 so-called Rural Credit Partnerships. These partnerships consist of 30 to 40 farms whose managers have to make a deposit in order to become members and thus eligible for funding. Based on available farm collateral, farmers submit their credit proposals via the Credit Partnerships to the AKK. If the proposal is accepted, the AKK grants a credit at a subsidised rate (recently four percent, compared to 13 to 16 percent for commercial loans) to the Credit Partnership. The latter hands this credit over to the farmer at double the rate (hence, eight percent). Unlike traditional credit cooperatives in other countries, the Credit Partnerships have no autonomy in decision making (Gaisina, 2007). They are not allowed to take regular savings and have no control over the deposits made by farmers. Only registered enterprises (including individual farms), but no private individuals can become members. Rural Credit Partnerships are simply the local branch of a centralised governmental subsidy programme. Recently, default rates have been high. In another programme, the AKK provides specific credit lines for livestock purchases. AKK expenses account for a little more than 20 percent of KazAgro's budget (Gramzow and Suleimenov, 2011, 12).

In terms of expenditure share, the remaining KazAgro subsidiaries are of secondary importance. KazAgroGarant provides credit guarantees to agricultural enterprises. KazAgroMarketing is engaged in market information services and international promotion activities for Kazakh agricultural products. KazAgroProduct (the Stock Raising Products Corporation) has set up and runs slaughterhouses, feedlots and state dairy farms. The Fund for Financial Support in Agriculture was created as a microfinance agency for small farms and non-agricultural businesses.

Box 5: Credit access for individual farmers

Yevgeni, the owner of "Niva" vegetable farm, has used commercial credit in the past and is a member of a governmentally sponsored Rural Credit Partnership. The Credit Partnership is operating at the rayon level and has 24 members. It was founded due to a government initiative in 2004. Each member had to deposit one million KZT as a share. The farmer recently took a loan for one year worth 10.5 million KZT, using his residential house as collateral. The interest rate is eight percent. In addition, the farmer has a credit line with the Credit Partnership. Commercial bank loans are also available, but are more expensive. The farmer recently took one seasonal loan for one million KZT, at a rate of 13 percent interest. His wife, a public servant, acted as a loan guarantor with her salary. Given additional fees and transaction costs, the total rate amounted to 18 percent. Occasionally, the farmer also had borrowed money from friends and relatives.

"Beloe Osero" individual farm recently bought two combine harvesters for which a 16 million KZT credit was taken from the Rural Credit Partnership. The interest was nine percent and the loan was taken for five years. To become a member of the Partnership, the farmer had to make a deposit of 1.2 million KZT. The coop took machinery and his land as collateral.

For "Saratomar" individual farm and bakery, access to credit appears to be a minor problem. According to the manager, banks used machinery as collateral in the past. Furthermore, a good repayment history is important. He never used land as collateral.

Source: Case studies 4, 5 and 6, appendix.

Casual evidence based on field visits suggests that many farmers, including individual ones, have taken advantage of the subsidised funding facilities provided by the government, although commercial bank loans are also used (Box 5). Obtaining cheap credit from KazAgro is reported to be cumbersome and bureaucratic, so that private banks

may have a competitive advantage in being more consumer-friendly. However, according to Gramzow and Suleimenov (2011, 10), high default rates and the increasing engagement of KazAgro have crowded commercial banks out of the agricultural lending business recently. The share of agriculture in nationwide commercial lending fell from 12 percent in 2003 to under four percent in 2010. In late 2007 and 2008, commercial lending to the agricultural sector in Kazakhstan had strongly contracted due to the unfolding global financial crisis (Box 1).

Picture 4: Individual farm fuel storage

Photo by Martin Petrick 2011.

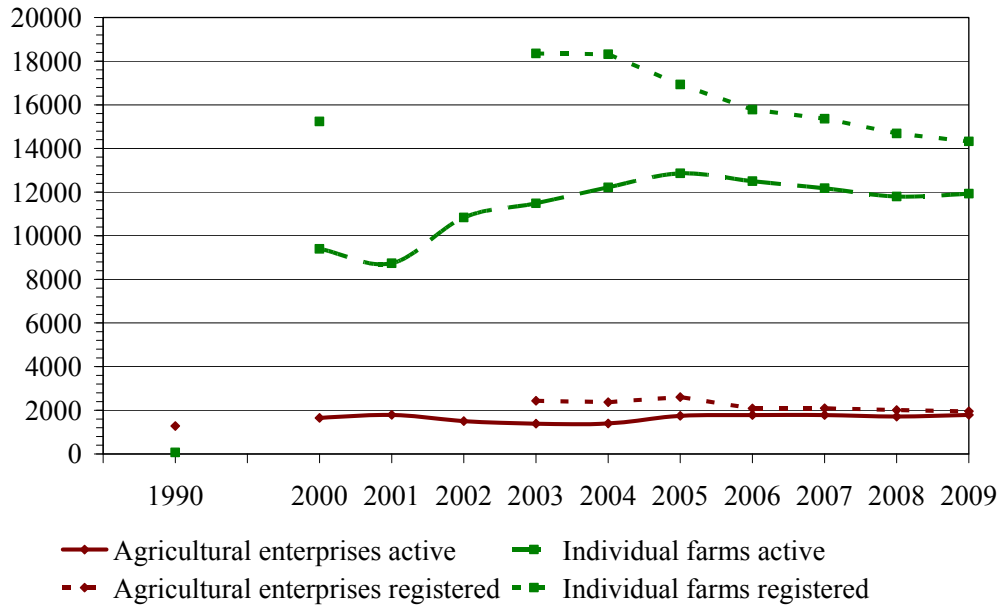
After an initial phase of neglect, the Kazakh government has increased agricultural policy spending to a significant extent. Much of this spending is channelled through a centralised and governmentally controlled system of payment agencies. In this system, market forces and autonomously operating, intermediating institutions play a minor role. Private lenders have even lost interest in the otherwise growing agricultural sector. Furthermore, many of the production-oriented policy measures will become difficult to sustain in the pending negotiations about Kazakhstan's accession to the World Trade Organisation (WTO).

4 The emerging farm structure

4.1 Empirical patterns of farm restructuring

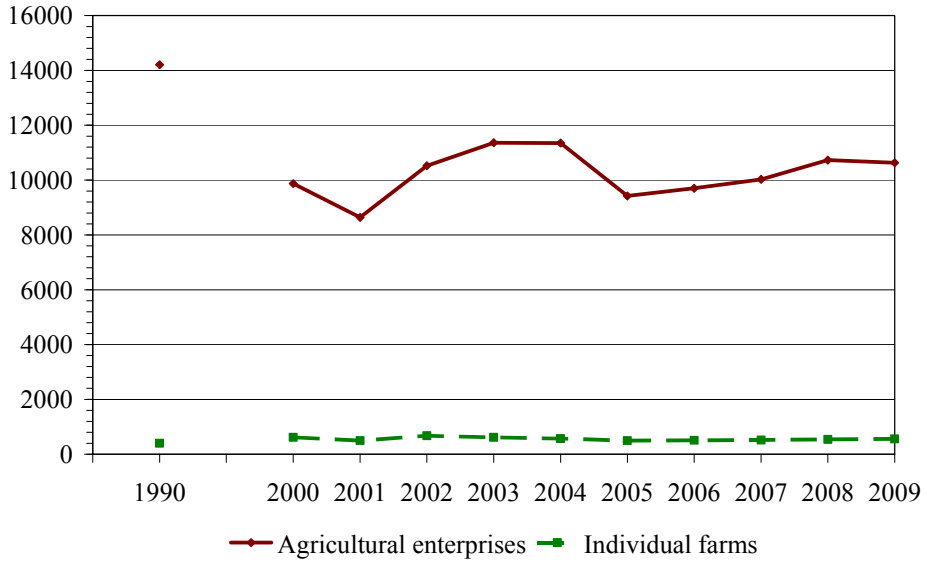
The overall picture of farm dynamics in the last five years has been one of declining farm numbers but increasing farm sizes, both for the corporate and the individual sector. Compared to the initial situation at the cessation of the Soviet Union, the number of incorporated farms had gone up from 1300 state farms to about 1700 agricultural enterprises in the early 2000s (Figure 11). At the same time, the average size decreased considerably, from more than 14,000 ha to about 10,000 ha (Figure 12). Total land under cultivation by agricultural enterprises fell from more than 18 million ha to less than 16 million in the early 2000s (Figure 13). However, land use by agricultural enterprises in the NKGR picked up again in 2001. In the last decade, numbers of agricultural enterprises fluctuated, but they have stabilised at almost 1,800 since 2005. In this period, their average size has been growing to above 10,000 ha.

Figure 11: Number of farms in North Kazakh Grain Region



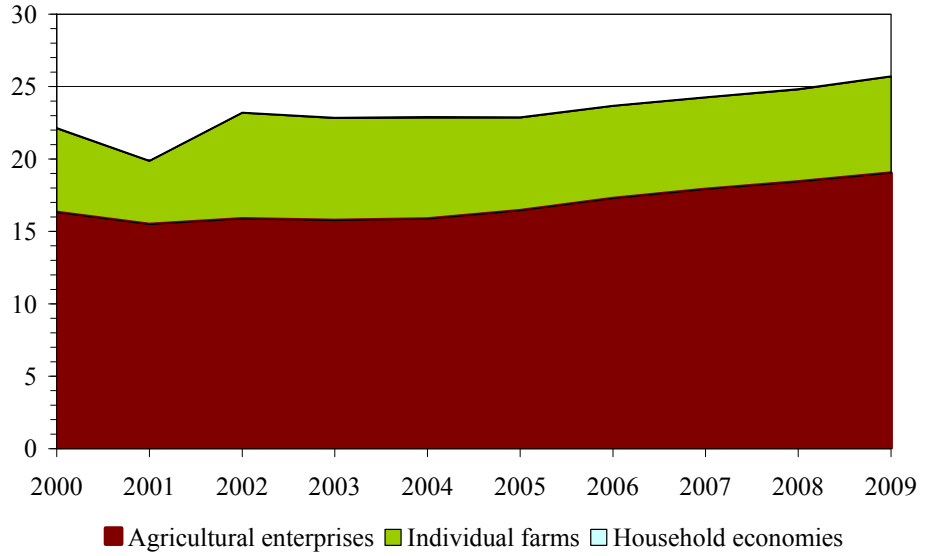
Sources: Number of active farms: 1990: Statistical Yearbook of Agriculture 2003, 111-112; 2000-2004: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2000-2004, 133, 139; 2005-2009: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2005-2009, 31. Number of registered farms: 2000-2005: Statistical Yearbook Regions of Kazakhstan in 2005, 280; 2006-2007: Statistical Yearbook Regions of Kazakhstan in 2007, 256; 2008-2009: Statistical Yearbook Regions of Kazakhstan in 2009, 249; Individual farms 2000: Statistical Yearbook Regions of Kazakhstan 1996-99, 257.

Figure 12: Average size of different farm types in North Kazakh Grain Region (ha)



Sources: Authors' calculations based on Figure 11 (active farms) and 2000-2004: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2000-2004, 133, 139, 146; 2005-2009: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2005-2009, 58, 67. Land use for 1990 is from Statistical Yearbook of Agriculture 2003, 120, and is cropland area only.

Figure 13: Land use by different farm types in North Kazakh Grain Region (million ha)



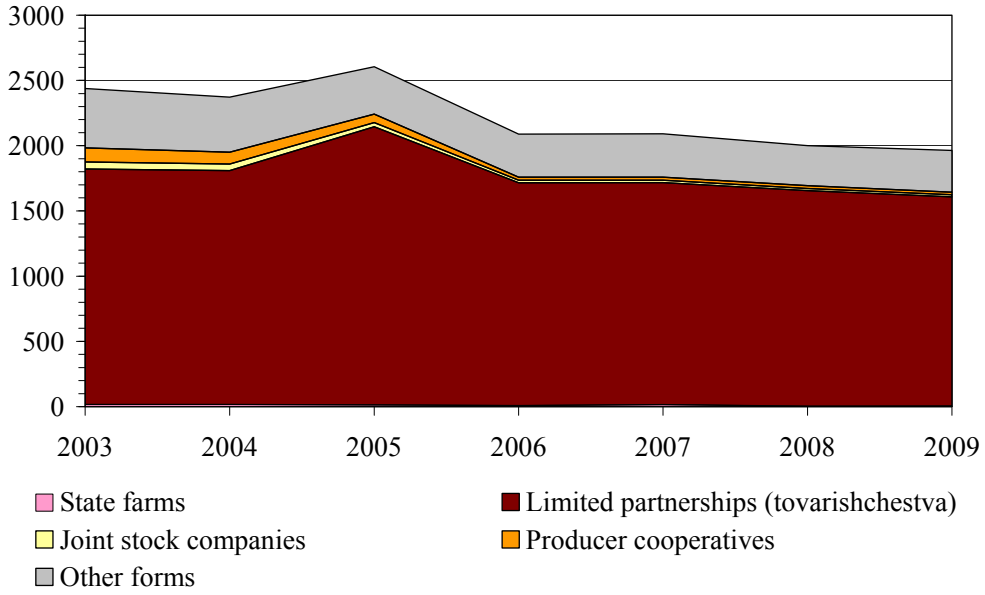
Notes: Data for agricultural enterprises and individual farms is all types of land, household economies is sown area (barely visible).

Sources: Authors' calculations based on: 2000-2004: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2000-2004, 133, 139, 146; 2005-2009: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2005-2009, 58, 67.

The number of individual farms increased quickly by the end of the 1990s, probably as a by-product of bankruptcy proceedings applied to agricultural enterprises. How many were actually established is not so easy to say, as only formal registration without actual operations as well as swift failures seemed to be widespread. The Kazakh Statistical Agency states that about 10,000 farms were active by 2000, while the number of registered individual farms was about 50 percent higher (Figure 11). The number of registered and active farms converged in the last few years, probably also as a result of the nationwide agricultural census conducted in 2006/7. The number of active individual farms further increased until the mid of the decade, but then came under pressure and currently stands at about 12,000 farms. With slight fluctuations, average individual farm sizes are now above 500 ha, and have been growing since 2005 (Figure 12).

Implementation of the land code in 2005 apparently led to a boost in farm creation, albeit a transitory one. Implementation went along with an all-time high in the number of active individual farms. The number of agricultural enterprises also went up. While the latter is consistent with a successful "merging small farms campaign", the former is more difficult to reconcile with it. Many farmers seemed to still regard individual farms as a viable option. The average size of agricultural enterprises fell substantially in 2005, which means that the newly created enterprises were smaller than the average corporate farm before the implementation of the land code.

Figure 14: Number of agricultural enterprises registered in different organisational forms in North Kazakh Grain Region



Sources: Authors' calculations based on: 2000-2005: Statistical Yearbook Regions of Kazakhstan in 2005, 280; 2006-2007: Statistical Yearbook Regions of Kazakhstan in 2007, 256; 2008-2009: Statistical Yearbook Regions of Kazakhstan in 2009, 249.

Figure 14 illustrates the notable rise in the number of registered agricultural enterprises in 2005, but also shows that this was only a transitory effect. The overall trend is a slight decline in the number of farms and, after 2005, a growing farm size, thus a continuing process of concentration. The figure also demonstrates that the limited partnership has become the dominant form among the agricultural enterprises and that producer

cooperatives as well as joint stock companies have become almost irrelevant in recent years.

These reform steps notwithstanding, there has been a consistent pattern of growth in land area controlled by agricultural enterprises over the last decade. They continue to cultivate around three quarters of the agricultural land used in the NKGR, and land use vis-à-vis individual farms tends to grow in both absolute and relative terms (Figure 13).[7]

Box 6: The origin of farmers

The individual farm "Niva" was established in 1997 by the current owner Yevgeni, who is a former construction engineer. He started farming because his parents had a relation to it and he grew up in a village. Now he owns about 538 ha. His wife works as a public servant in the capital. Yevgeni has an Uzbek partner, a former irrigation engineer for vegetables from Tashkent. Yevgeni is a member of the Republican public union "Union of Farmers of Kazakhstan" which represents the individual farms, the so-called "fermers" of Kazakhstan (6000 members, founded in 2001).

Murat operates a sheep herd of 250 heads, producing meat and selling live animals for breeding purposes to other producers. Previous to his farming business, he was a building engineer in a corporate farm. Since 2003, when he started the operation, he has rented 400 ha of pasture in 49-year lease from the government.

"Rodina" farm emerged from a former dairy sovkhoz, which hosted about 2,000 cows. It had severe economic difficulties before the current fifty-year old director took over the operations. He is well known in the region for his entrepreneurial attitude and his social engagement for the local community. He is respected for having an eye on local employment creation, which is why the two villages located adjacent to the farm had become attractive for in-migrants from other places of Kazakhstan.

Source: Case studies 2, 5, 7, appendix.

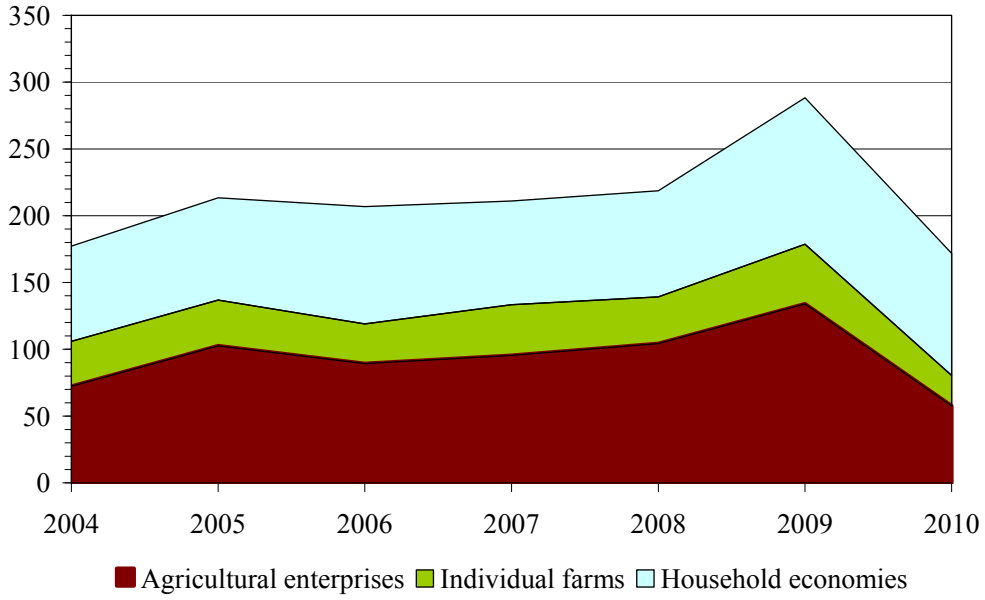
Picture 5: Individual farmer in front of his tractors

Photo by Martin Petrick 2011.

[7] Note that these figures give an idea of land that is potentially usable by farms. It includes pasture land and may include land that lies temporarily fallow.

Despite an apparent preference of policymakers in favour of agricultural enterprises, a significant stratum of individual farms emerged in addition to the corporate sector. Many of the new managers apparently had leading positions in agriculture before and often have a technical education (Box 6).

Figure 15: Contribution of different farm types to Gross Agricultural Output, North Kazakh Grain Region (billion tenge in 2000 prices)



Sources: Authors' calculations based on Statistical Bulletin Value of Agricultural Production, various issues, deflated by agricultural sales price index published at www.stat.kz.

Growing land use by agricultural enterprises is reflected in a growing share in gross agricultural output (GAO) (Figure 15). In addition to agricultural enterprises and individual farms, household economies contribute about 40 percent of GAO in the NKGR. This share is considerable, but lower than in other Central Asian countries (cf. Lerman 2010, 103). Important outputs of household economies in the NKGR are livestock products (milk, meat) as well as labour-intensive field crops such as potatoes and vegetables. These high-value crops are produced on a minimal share of land, which covers about 60 thousand ha and is barely visible in Figure 13. Box 7 shows that household farms supply products that are increasingly in demand, such as milk consumed by urban residents.

Box 7: Surplus production by rural households

There are many household farms (household plots) in Beloe Osero. They own two or three cows which are milked by hand. Because in the NKGR fresh milk is currently in short supply, the regional dairy company from Shortandy (50 km distance) is coming to the village on a daily basis and collects the milk. During summer, the cows are grazing on public pastures, which can be used for free. Additional concentrate is bought.

Source: Case study 8, appendix.

Figure 15 also demonstrates that unfavourable weather conditions such as in 2010 can still have profound effects on overall sector output. Particularly the producers of rainfed

grain, i.e. the agricultural enterprises and the individual farms, experienced a notably reduced harvest caused by drought (see also Box 1).

As the previous discussion showed, there was little change in formal ownership of land, but substantial changes in the management of farmland did take place in the NKGR. Former state and collective farms were transformed into restructured corporate enterprises. With practically no role for land markets in the conventional sense, these changes were strongly mediated by government legislation in the form of privatization and bankruptcy procedures. On top of the uncertainty about land tenure security, asymmetries in access to information, management experience, financial resources and thus power likely played a major role in the restructuring process. These circumstances also opened the door for outside investors to become active in the NKGR. There can be no doubt, however, that there were many individual entrepreneurs who opted to create new independent, individual farms, and thus accepted the challenge to set up this alternative to the established type of corporate farming organisation.

4.2 Performance of different farm types

The viability and relative performance of individual farms under conditions of post-Soviet agriculture has been a controversial issue among academics and international policy advisors. Many analysts used to be convinced that – compared to corporate farms and following the model of most Western economies – individual family farms represented the more efficient and also more equitable mode of production.[8] However, the emergence of individual farms has been much below expectations in land-rich Russia and Ukraine (Lerman et al., 2004). To the contrary, in North Kazakhstan, farm restructuring has led to a more balanced land use by both individual and corporate farm types than in other post-Soviet countries (Figure 13). Throughout the NKGR, individual farms and agricultural enterprises are directly competing for land.

By international standards, farm sizes in terms of land used by individual farms in the NKGR are very large. This raises a question about the real differences between the two farm types. Such differences seem to be most pronounced in legal, but also in ideological respects. With regard to management, differences appear only gradual. First, under Kazakh law, individual farms have a simpler registration procedure and a simpler and lower tax burden than agricultural enterprises (Box 3; USAID 2005, 19). Owners must be members of the same (extended) family. Although many of them are actually involved in significant commercial activities, individual farms are regarded as non-commercial farms and are not subject to enterprise legislation.[9] Second, there is evidence that maintaining agricultural enterprises was the preferred option by many government officials during the bankruptcy procedures of the late 1990s (Gray 2000, 15), and it was most explicit in the "merging small farms campaign" during the 2003 land

[8] For some of the analytical underpinnings of this view see Binswanger et al. (1995) and Tomich et al. (1995). A key argument has been that family farms are more productive because labour shirking is mitigated by family ties. Lerman (2010) shows that Kazakh regions with more individual farms also display a higher land productivity, which he attributes to a general superiority of individual farms. The relevance of the Western farming model for the post-socialist countries has recently been called into question by Wandel et al. (2011).

[9] As noted above, simple partnerships have emerged as a second type of natural person farm organisation, which also allows ownership by non-family members, but shares most other properties of individual farms.

code implementation (section 3.1; USAID 2005, 23). Among (local) policymakers, such as the municipal and district mayors (akims), individual farms seem to have a persistent image of smallness and otherness. Municipal and district mayors are the local representatives of the President of the Republic of Kazakhstan. In the minds of these officials, this seems to imply unproductiveness and backwardness, and results in a political preference for larger, incorporate farms. It is of course possible that the lower tax revenues from individual farms are a reason why government officials prefer more regulated and higher taxed enterprises. However, informal mindsets still based on socialist production ideals may play a role as well (Koester and Petrick, 2010).

On the other hand, statistical figures and case study results (see appendix) suggest that in the NKGR, production portfolios, technologies and natural conditions are mostly identical for both types of farms. From a managerial standpoint, most individual farms seem to be simply smaller agricultural enterprises. They also depend on hired labour and face similar incentive problems with regard to labour supervision. As the case studies show, land is often rented from the government and at least some of the individual farmers do have access to governmentally sponsored credit facilities and other subsidies. Even so, capital intensity is likely to be lower than in agricultural enterprises, and machinery use more often based on dated Soviet technology (see Box 2). If the government is not showing enthusiasm for this type of farming, it at least tolerates it, recognises it as a now important part of Kazakh agriculture, and grants significant tax benefits. These in turn provide an economic incentive to practice farming as an individual farmer and not as an agricultural enterprise subject to full bookkeeping and taxation obligations.

Box 8: Labour supervision and management in different farm types

The "Enbek Bereke" corporate grain farm uses a full GPS-based monitoring system, including track control of the tractor. Data from the tractors is transferred via memory sticks. In 2011, workers will for the first time obtain performance pay based on GPS imaging. The agronomist says it is difficult to find workers for simple tasks such as grain shovelling in winter, while workers are more willing to engage in better paid and more responsible jobs such as tractor driving.

In the "Rodina" dairy corporation, workers in the milking complex obtain a monthly base salary, which is topped up if quantity and quality targets are exceeded. This regime applies for dairymen and workers involved in feeding.

"Saratomar", an individual wheat farm, also operates a system of performance pay for the tractorists. For sowing, they obtain a base payment depending on the area they drilled. The work is assessed after germination and the pay is doubled if all seedlings have appeared on the surface. Additional top-ups are granted after the harvest. In winter, the workers do subsidiary work in the farm-bakery enterprise, but they do not get unemployed. A main problem of the farm is to find reliable and qualified workers.

The individual vegetable farm "Niva" employs six permanent workers on the farm, plus about 50 seasonal workers. Workers are paid according to the overall performance of the farm. They obtain a monthly base salary, the overall payment is then assessed at the end of the season. There is a seasonal production target. If this is achieved, the salary is doubled. The seasonal workers are contracted for a period of seven months. The farmer employs a group of seasonal workers from Uzbekistan who come regularly every year, some for five years in a row, others already for eight years. They live in small cabins on the farm.

Source: Case studies 1, 2, 4, 5, appendix.

Many farmers interviewed in the case studies – both from enterprises and individual farms – were concerned about future access to qualified labour. A vocational training of agricultural workers does not exist and also college education for management staff ap-

pears to be still widely production-oriented and with little focus on business management. In addition, labour supervision and the design of incentive-compatible employment contracts are persistent issues for many managers (Box 8). In this management field, little systematic knowledge is available about actual practice and possible options, including new technologies. Which mechanisms drove recent increases in nominal wages is also largely unknown, but should be seen in relation to this issue.

The NKGR represents a unique case in which competition among the two types of farming organisations can be studied on a more level playing field than in other post-Soviet countries. We use three aggregate indicators to measure the relative competitiveness of individual farms versus agricultural enterprises: the growth in land use over time as well as the GAO per ha and the wheat yields per ha as measures of productivity. Finally, we present figures on the profitability of grain production in agricultural enterprises.

Figure 16 shows that, during recent years, agricultural enterprises have been expanding their land use mostly at a higher rate and more persistently than individual farms (see also Figure 13 and Box 9). Even so, GAO per ha is very similar for both organisational forms (Figure 17). Both groups have experienced productivity growth recently, and the ranking in terms of GAO per ha has changed several times since 2004. Wheat yields, however, have consistently been higher for individual farms, although the gap between both groups has narrowed in past years (Figure 18).

Box 9: Land access for individual farmers

"Saratomar" individual farm is family owned and cultivates 650 ha of wheat. The land was rented from the government in 1997 as a 49-year leasehold. Until 1990, it had been cultivated by a kolkhoz, after that by a corporate farm which went bankrupt. The current owner had no relation to this corporate farm. The agronomist states that several individual farms created in the 1990s did not survive. Land expansion is difficult, as there is little supply. Occasionally a farm goes bankrupt, then the land is quickly distributed among neighbouring farms.

The individual farm "Niva" was established in 1997 by the owner who first rented land as a 49-year leasehold from the government. He later bought land under the new ownership legislation of 2003. The price for pastures was 28 thousand KZT/ha (190 USD/ha), the price for arable land 44 thousand KZT/ha (300 USD/ha). The land was formerly cultivated by a sovkhoz, from which his father and other family members had obtained shares in the privatisation process. Now he owns about 538 ha, of which 238 ha are pastures.

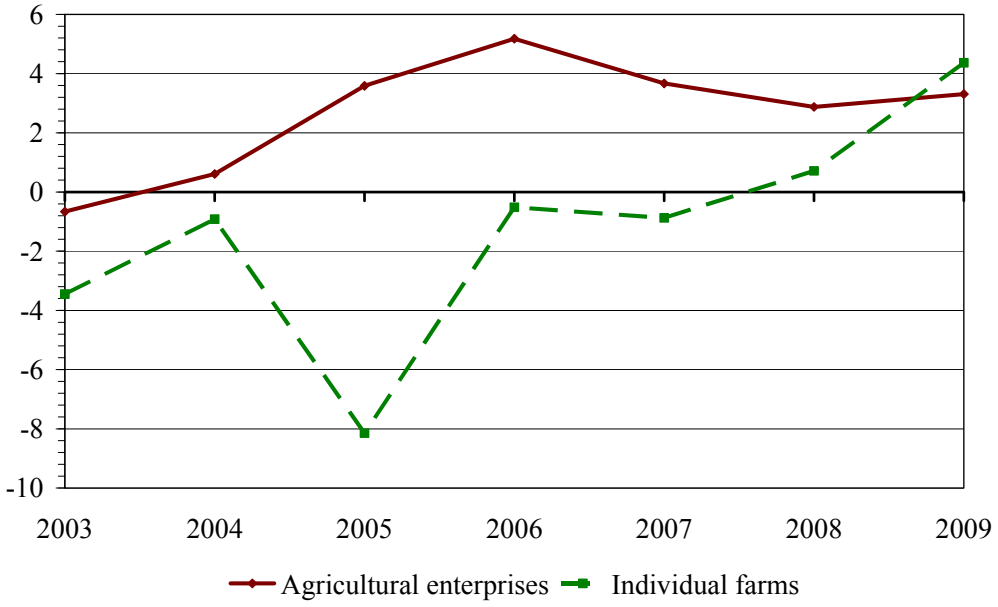
"Beloe Osero" farm was founded in 1998 upon the remnants of a bankrupt kolkhoz. The farm cultivates 2,000 ha in total, of which 1,300 ha were taken over from former inhabitants of the village. These were ethnic Germans who left the village and sold their use-rights to the current farmer. An additional 700 ha were rented for 49 years from the government. The total land divides into 1200 ha of arable land and 800 ha of pastures. On the arable land, 1000 ha of wheat are grown and 200 ha of barley.

Murat has rented 400 ha of pasture in 49-year lease from the government. There is no rent to be paid, only taxes. He is currently planning to expand his farm by renting another 100 ha from the government. In this course he intends to apply for government support with the help of the state-operated KazAgroMarketing office in Astana.

Nationwide, rental rates for state land vary between 0.70 and 2.70 USD per ha and year (Gramzow and Suleimenov 2011, 16).

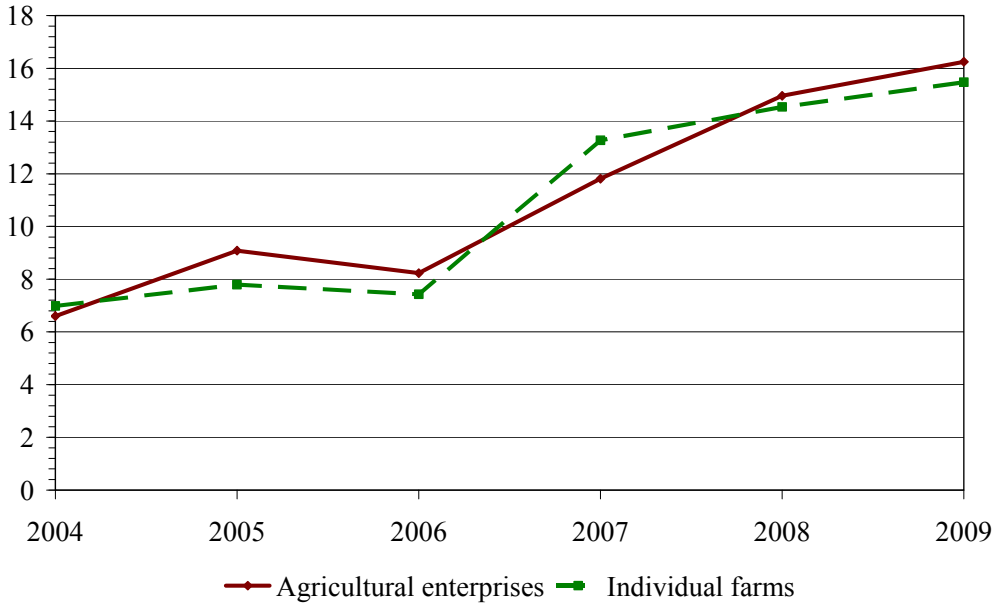
Source: Case studies 4, 5, 6, 7, appendix.

Figure 16: Annual change of total land used by farm types in North Kazakh Grain Region (%)



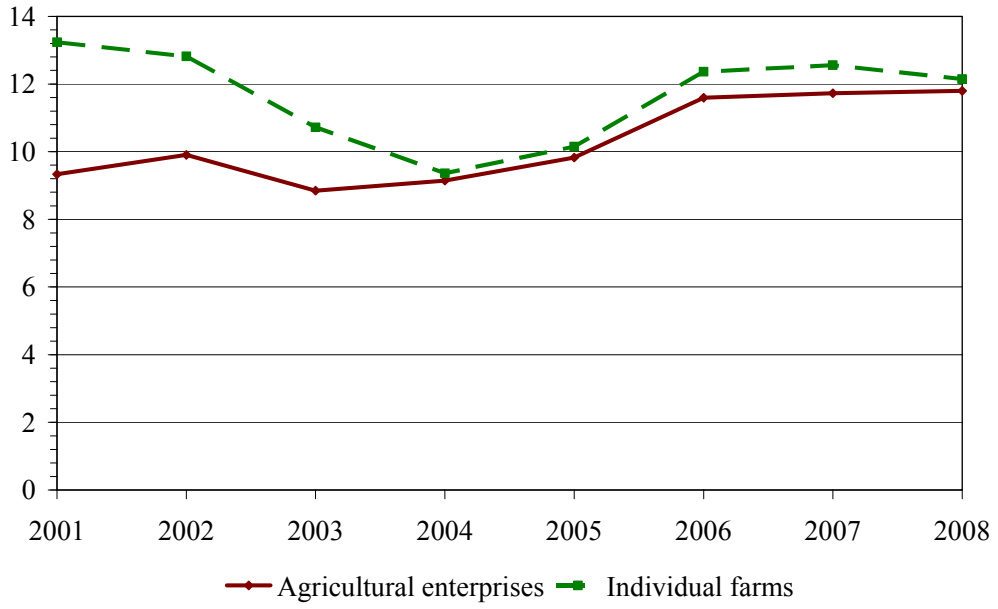
Sources: Authors' calculations based on Figure 13.

Figure 17: GAO per ha in different farm types, North Kazakh Grain Region (thousand tenge)



Sources: Authors' calculations based on Figure 13 and Figure 15.

Figure 18: Wheat yields in different farm types, North Kazakh Grain Region (dt/ha, three-year moving average)

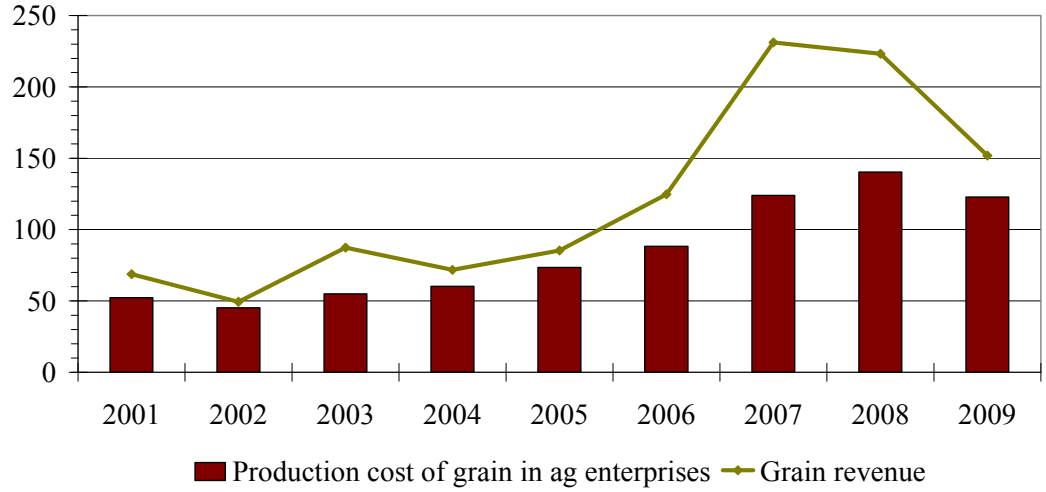


Sources: Authors' calculations based on: 2000-2004: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2000-2004, 149, 190; 2005-2009: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2005-2009, 69, 106.

According to the agricultural enterprise survey of the Kazakh Statistical Agency, grain production in these enterprises has been profitable during the entire decade (Figure 19). In the wake of the price boom of 2007/2008, profit margins have increased substantially. The evidence put forward by Dudwick et al. (2007) in favour of more thorough farm restructuring – that corporate farms are largely unprofitable in the NKGR – is thus not supported by this data. Unfortunately, no comparable figures are available for individual farms.

Concerning the relative economic superiority of individual versus corporate farms in the NKGR, the evidence is mixed. Productivity figures are very close. Whereas agricultural enterprises continue to use more land and contribute more to GAO, crop-specific land productivity is slightly higher in individual farms. Both types of farms increased land use and land productivity over time, and thus contributed to agricultural recovery in the NKGR.

Figure 19: Cost and revenue of grain production in agricultural enterprises, North Kazakh Grain Region (USD/ha)



Notes: Calculations are based on average farm-level figures published by the Kazakh Statistical Agency. Cost of production is the sum of the actual costs directly related to the production and sale of crops, i.e. material costs, labour costs, with deductions, including payments in kind, depreciation, tax payments, other costs (Methodological note in Statistical Bulletin The Activity of Agricultural Enterprises 2009). Over the years, pulses and grain maize are sometimes included and sometimes not, although their quantitative importance relative to spring wheat is negligible in the NKGR.

Sources: Authors' calculations based on: 2000-2004: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2000-2004, 127, 147, 188; 2005-2009: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2005-2009, 53, 89, 105; Statistical Bulletin The Activity of Agricultural Enterprises in 2009. Average annual KZT/USD exchange rate as published at www.stat.kz.

A factor that is hard to capture by statistical figures is the apparently increasing influence of external investors in Kazakh grain production. Following the post-1998 model of Russian agriculture (Rylko et al. 2008; Wandel 2011), such agroholdings are said to control huge tracts of land and integrate several stages of the production process also in the NKGR. We turn to their role next.

4.3 The role of agroholdings

There are no official data which might permit reliable conclusions to be made about the significance of agroholdings in Kazakhstan's agricultural and food economy, or in individual sectors. For this reason only some initial, provisional answers are possible, based on individual case studies and the testimonies of experts.

The lack of statistical information might be an indication that agroholdings are far less widespread in Kazakhstan than in neighbouring Russia. Discussions with Kazakh agricultural economists have in fact largely confirmed this suspicion. These conversations have also flagged up practical difficulties in data acquisition, not least because of the fact that "agroholding" is not an officially recognised enterprise or legal form (cf. Irbaev and Frangulidi, 2006). First, "agroholdings" do not appear publicly as consolidated groups of enterprises. It is therefore almost impossible for the outside observer to find out whether individual businesses belong to a holding or not. Second, there is no una-

nimity over how to distinguish "agroholdings" from other forms of integration. For example, so-called "agrofirms" also integrate several (not infrequently all) members of the entire vertical value chain, but without the company structure taking the form of a holding. It is more the case that the individual stages become departments of a single, amalgamated enterprise, thereby losing their economic and legal independence. Examples of this are "Agrofirma Bereke" or the public company AO APK "Adal" in the Almaty oblast, which are involved with fruits and vegetables, and milk production respectively. Even if the existence of a parent company is seen as a sign of an agroholding, it still remains unclear whether the concept "agroholdings" should be restricted to those groups of businesses that are working strictly in agricultural production, or also include those that are only active in the upstream or downstream sectors. Examples of the latter can be found in the dairy industry. Thus the limited liability company (TOO) "Agroprodukt", the Kazakh–Israeli joint venture (SP) "Camoni", and the largest producer of dairy products in Kazakhstan, the joint stock company AO "Food Master", only operate in the processing and retail sectors. In this context, Akimbekova (2006) refers in some places to "integrated structures" and in others to "agroholdings".

In spite of these problems of definition and differentiation, initial studies by Kazakh analysts suggest that integrated groups of enterprises are chiefly to be found in the grain sector, and to a lesser extent in the oilseed and dairy sectors (Irbaev and Franguldi, 2006). Akimbekova (2006) estimated the number of agroholdings in the grain sector to be around 40. They are reckoned to control about 30% of farmland devoted to grains, and provide two thirds of the grains sold both domestically and abroad. Oshakbayev (2010) states that each of the three largest holdings in the NKGR controls more than 700 thousand ha, and that the 15 largest holdings cultivate 35 percent of total sown area in the NKGR.

Box 10: "Ivolga-Holding", an agroholding originating in the NKGR

The "Ivolga-Holding" was established by one individual, the former sovkhoz director Vasiliy Rozinov, who remained the sole owner of the group up to date. He earned the starting capital for the subsequent expansion by trading in grain in the early 1990s. Rozinov recognised very early on that more money can be made in grain trading if you have your own storage facilities, because these enable you to react better to price changes. He therefore bought a grain elevator in Kostanay, followed by others. When coordination difficulties with agricultural producers started mounting up soon afterwards and grain deliveries became less and less reliable, Rozinov entered grain farming himself. He bought up debt-ridden agricultural businesses. The management then discovered further potential for profit in flour and compound feed production, and expanded the business into the upstream sector. In 2005, the agroholding started to diversify by entering into Russian sugar and milk production. According to Rozinov, however, this move was more a result of accident than a long-term business strategy. In 2005, the Kazakh bank "TuranAlem", which also has branches in Russia, offered Ivolga as one of its regular clients three sugar factories in Kursk oblast, which were unable to settle their debts. "Ivolga" accepted the offer and also immediately bought up nearby sugar producers so as to guarantee the utilisation of the sugar factories. In 2007, "Ivolga-Holding" controlled around one million hectares of agricultural land in Kazakhstan, and a further 40,000 ha in Russia.

Sources: Irbaev and Frangulidi (2006); Osipov (2007).

Irbaev and Frangulidi (2006) make the distinction between large and small agroholdings in the Kazakh grain sector, which exist almost exclusively in the NKGR. According to their research, there are about 15 "big players". These include such enterprises as "Ivolga Holding", "Alibi", "Grain Industry" (Zernovaya industriya), "Agrocentr Astan", "BATT-Grain", "Bogvi", "Cesna Astyk" and "Karasu". Most of these have their origins

in grain trade, and have gradually integrated themselves into the upstream sectors of grain processing and production. Some of these large agroholdings themselves are part of business conglomerates which are particularly prevalent in the Kazakh oil, gas, mining and finance industries (see Table 2). "BATT-Grain", for example, belongs to the "BATT Group", which operates in the oil, gas, construction, trade and alcohol sectors. "Cesna-Astyk" TOO belongs to the investment group "Cesna" which began life back in 1988. It operates in construction and finance, wholesale and retail, as well as in the agricultural and food sector. It began operations in the last of these back in 1992 with the purchase of a grain elevator in Akmola oblast. Since then the enterprise has expanded its activity to encompass grain farming and the production of compound feed, flour, bread, pasta and beer.

The development of the larger known agroholdings in the grain sector has progressed along similar lines. This is well illustrated by the example of the "Ivolga-Holding" (Box 10).

Table 2: Characteristics of selected grain holdings

Company	Year founded	Started by	Areas of business	Agricultural land
TOO "BATT-Grain"	1992–2006	Conglomerate with stakes in the oil and gas sectors, construction and sales	Farming and processing of grain to make compound feed, flour and bread products, and sales operations. From 2007 operations restricted to drinks production.	Up to 2006: no figures Since 2006: 0 ha
TOO "Cesna-Astyk"	1992	Investment company "Cesna" (diversified group with stakes in the finance, construction and media sectors)	Production and processing of grain to make flour, bread and pasta products, wholesale and retail sales, beer production.	40,000 ha
"Ivolga-Holding"	1992	Vasiliy Rozinov (entrepreneur from grain trade)	Production, processing and sale of grain (flour, compound feed), sugar and raw milk production (in Kazakhstan and Russia).	1 million ha in NKGR 140,000 ha in Russia
TOO "Grain Industry Group"	1996	Mill combine	Production and processing of grain (flour, bread and pasta products) as well as sales; low-level milk and oilseed production.	100,000 ha
AO Agroholding "Ellnvest"	2004	Compound feed business	Production and processing of grain (compound feed), poultry and pork production, meat processing.	36,000 ha

Source: Authors' compilation based on Kazakh journal, newspaper, and internet sources.

Other large agroholdings with a similar development pattern have diversified in oilseeds (e.g. “Maslodel” and “Vita Soy”) or have integrated forwards into other processing stages, such as bread and pasta production, and retail. Examples of the latter are “Cesna-Astyk” and “Grain Industry” which, by comparison with “Ivolga-Holding”, farm only a modest 40,000 and 100,000 ha respectively.

According to Irbaev and Frangulidi (2006), smaller holdings in the grain sector differ from large ones by the fact that they have a limited involvement in grain exports, and by their lower processing capacity. They usually control several agricultural enterprises, but do not own more than two large elevators and/or grain mills. Examples of this category of agroholding are “TNK”, “KazAgroTrade”, “Kunaykhleprodukt” and “Ellnvest”. The last of these owns one elevator, a compound feed factory and four farms with a total area of 36,000 ha. Meanwhile, “Ellnvest” has gone further in its vertical integration by taking over the production and processing of poultry and pork. Table 2 summarises the main characteristics of selected grain holdings.

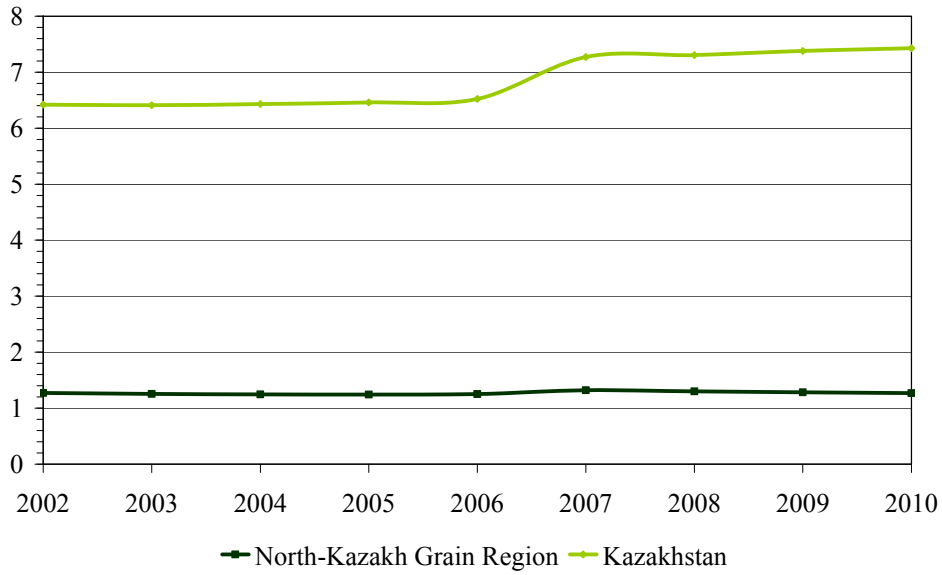
In summary, there are clear indications that agroholdings are also active in the NKGR. However, which practical difference the engagement of an agroholding makes vis-à-vis more conventional types of farming, with regard to management, access to finance, productivity for example, is largely unclear.

5 Social impacts of agricultural recovery

5.1 Regional employment and household welfare

In general, population numbers have been stable over the last five years at 2.3 million people, implying a population density of 5.2 persons/km². However, the region lost about 30 percent of its population in the early 1990s.[10] This is against the overall Kazakh trend, which has displayed population increases at a rate of some one to two percent per year recently, so that pre-1990 figures are now almost reached again nationwide. Also the number of people living in rural areas of the NKGR has been without major change during the last decade (Figure 20).[11]

Figure 20: Persons living in rural areas (million)



Source: Authors' calculations based on: 2002-2004: Statistical Yearbook Regions of Kazakhstan in 2005, 61; 2005-2009: Statistical Yearbook Regions of Kazakhstan in 2009, 77.

The absolute number of persons employed in agriculture of the NKGR has been stable as well (Figure 20). However, the number of workers in agricultural enterprises fell between five and ten percent annually until 2004. More recent figures are not available.

While the share of the economically active population employed in agriculture has consistently declined from above 30 percent in 2001 to about 25 percent in 2009 for Kazakhstan as a whole, this share also has stayed at around 40 percent for the NKGR (Figure 22). Agriculture thus continues to be a significant economic factor for employment in this region.

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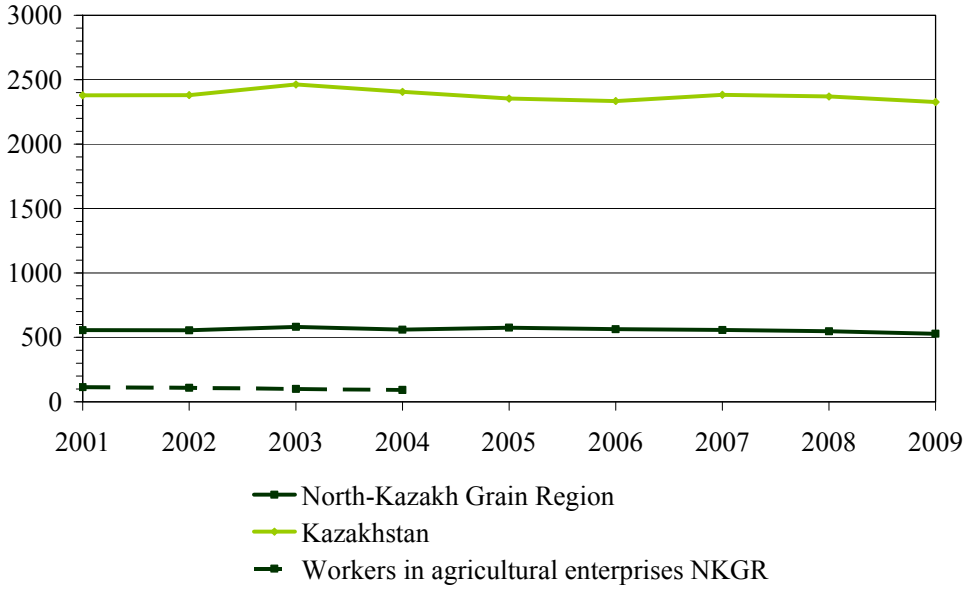
[10] Many of these were ethnic Germans and Russians who decided to move to their initial home country in the mid-1990s.

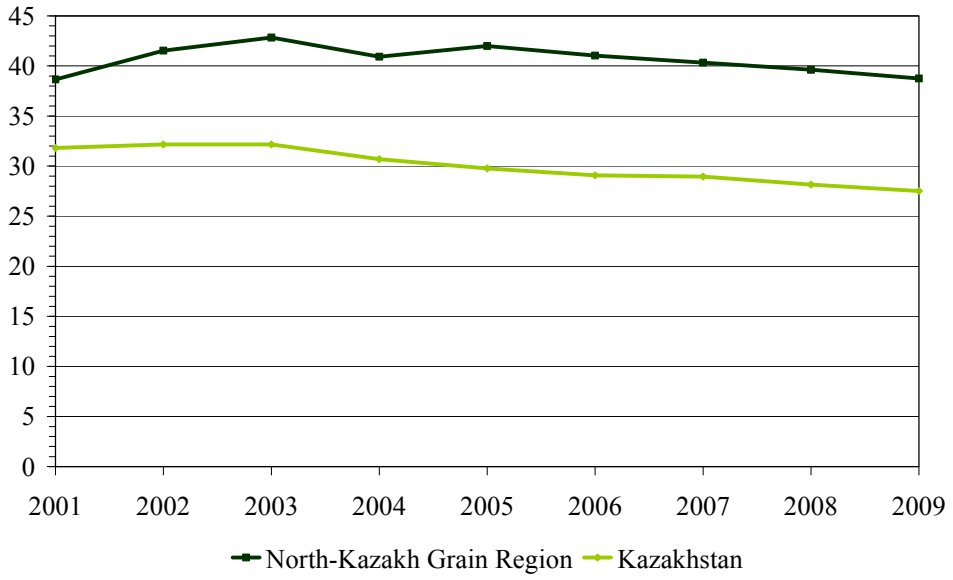
[11] The jump in 2007 for Kazakhstan is probably due to a statistical re-classification.

Figure 21: Persons employed in agriculture, forestry and fishery (in thousands)



Source: Authors' calculations based on: 2001-2004: Statistical Yearbook Regions of Kazakhstan in 2005, 85; 2005-2009: Statistical Yearbook Regions of Kazakhstan in 2009, 103. Workers in agricultural enterprises: Statistical Yearbook of Agriculture, Forestry and Fishery in Kazakhstan 2000-2004, 108.

Figure 22: Share of economically active population employed in agriculture, forestry and fishery (%)

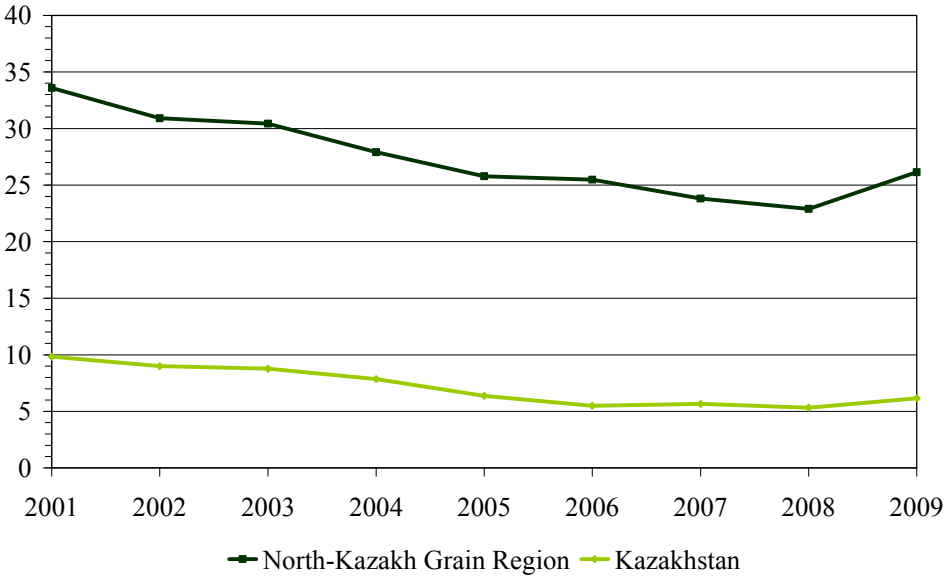


Source: Authors' calculations based on 2001-2004: Statistical Yearbook Regions of Kazakhstan in 2005, 83, 85; 2005-2009: Statistical Yearbook Regions of Kazakhstan in 2009, 101, 103.

The share of agriculture in regional GDP is lower than the share in employment, and has been falling from almost 35 percent for the NKGR to less than 25 percent in 2008

(Figure 23). It has been rising, though, in 2009. A direct implication of these figures is that average labour productivity is lower in agriculture than in other sectors of the NKGR economy, and that this productivity gap has been increasing recently.[12]

Figure 23: Share of agriculture in regional GDP (%)

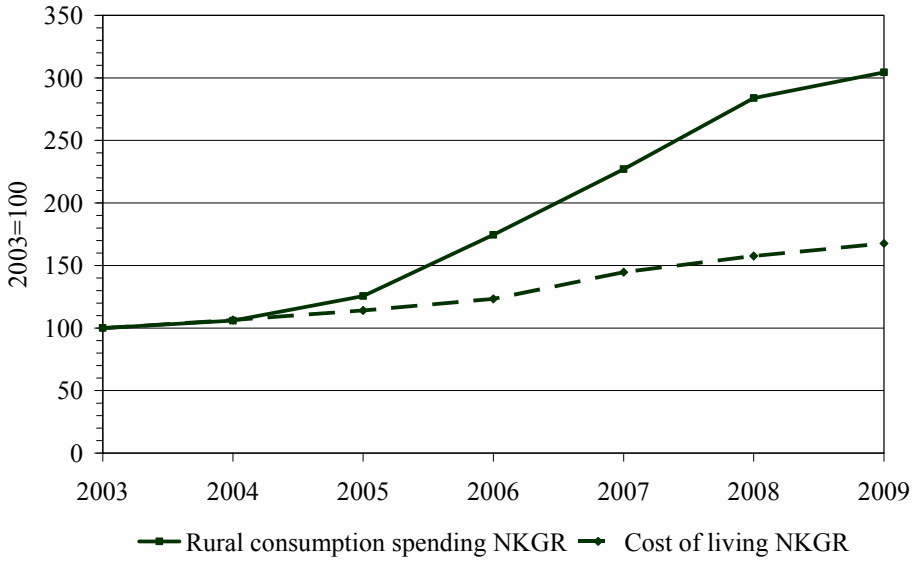


Source: Authors' calculations based on: 2001-2003: Statistical Yearbook Regions of Kazakhstan in 2005, 203, 207; 2004: Statistical Yearbook Regions of Kazakhstan in 2007, 196, 200; 2005-2009: Statistical Yearbook Regions of Kazakhstan in 2009, 191, 195.

However, given the fact that nominal wages increased more than food prices, real wages and real incomes in rural areas have been rising notably (Figure 5, Figure 24). This is also reflected in the rise of real consumption spending per capita in rural households, which almost doubled between 2003 and 2009 (Figure 25). Note that the dip for 2009 in Figure 25 is a result of strong rise in the KZT/USD exchange rate in that year (see Box 1).

[12] A closer look at the composition of regional product shows that construction work has been expanding in recent years, probably due to the implementation of major transport infrastructure development in the region.

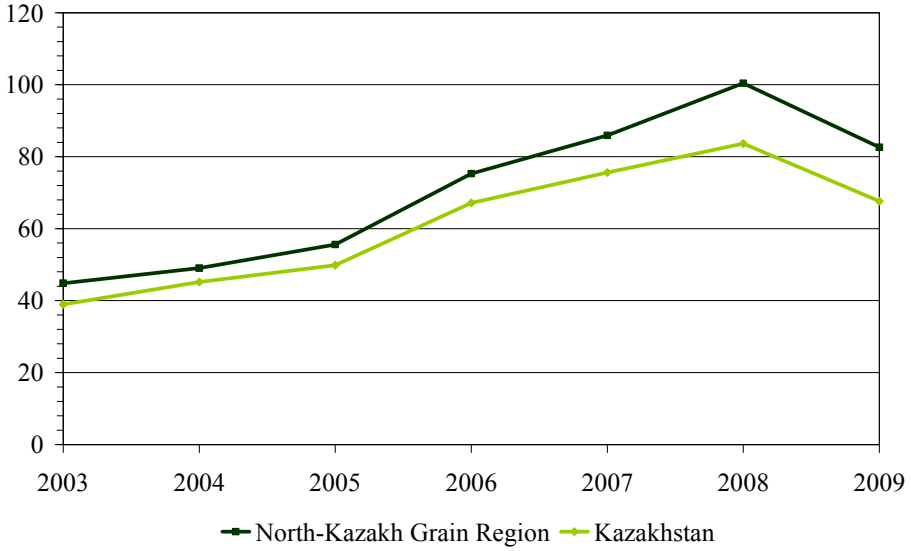
Figure 24: Consumption spending and cost of living for rural households in North Kazakh Grain Region (2003=100)



Notes: Consumption spending is the sum of cash income used for consumption (not including savings and investments), the value of production for own consumption and transfers in kind (*dokhody domashnikh khoziaistv*). Production for own consumption is valued at average regional purchase prices (Statistical Yearbook Regions of Kazakhstan in 2009, 110). Spending is weighted by population size for Akmola, Kostanay and North-Kazakhstan provinces. Cost of living index is simple average of provincial indices for these three provinces.

Source: Authors' calculations based on: 2003: Statistical Yearbook Regions of Kazakhstan in 2005, 116, 421; 2004-2005: Statistical Yearbook Regions of Kazakhstan in 2007, 121, 397; 2006-2009: Statistical Yearbook Regions of Kazakhstan in 2009, 123, 377. Spending estimations draw on representative household surveys conducted quarterly by the Kazakh Statistical Agency.

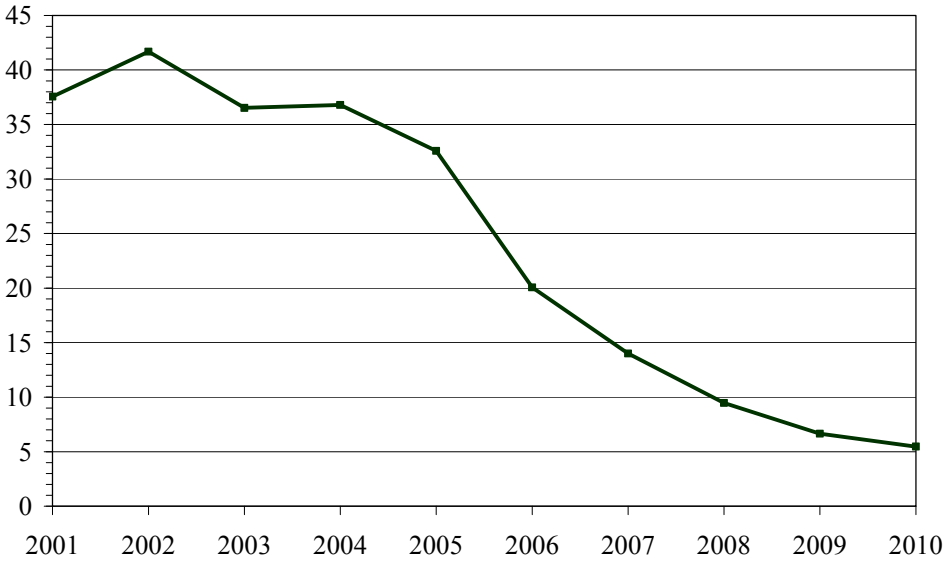
Figure 25: Real monthly consumption expenditures by rural households (USD per capita in 2003 prices)



Source: Authors' calculations based on sources given for Figure 24 and average annual KZT/USD exchange rate as published at www.stat.kz.

Along with rising household incomes, poverty indicators went down impressively over the recent decade. The Kazakh Statistical Agency calculates a regionally differentiated household subsistence income every year, which includes food and non-food items (Statistical Yearbook of the Regions 2009, 110). This normative subsistence income has been raised consistently over recent years. It is taken here as an absolute poverty line. Household income estimations are based on representative household surveys conducted quarterly and include household production used for own consumption as well as in-kind transfers. While in the early 2000s almost every second household in the NKGR was considered poor, this figure dropped to five percent in 2010 (Figure 26). After some methodological modifications were introduced in 2006, the proportion of poor households is no longer published separately for urban and rural households. Figures based on the previous system available until 2005 indicate that rural poverty rates were in the range of one and a half to two times the urban rates. Poverty levels thus fell faster in urban areas of the NKGR. As one of the few statistics presented in this study, Figure 26 makes a statement about the distributional rather than the average effects of agricultural recovery.

Figure 26: Share of households below the poverty line, North Kazakh Grain Region (%)



Source: Authors' calculations based on: 2001-2003: Statistical Yearbook Regions of Kazakhstan in 2005, 124; 2004: Statistical Yearbook Regions of Kazakhstan in 2007, 129; 2005-2009: Statistical Yearbook Regions of Kazakhstan in 2009, 131.

Given the available statistical information, rural areas in the NKGR have witnessed a remarkable rise in living standards over the recent decade. Most outstandingly, rural inhabitants now spend twice as much in real terms on consumption than in 2003. Poverty rates plummeted from forty percent in 2002 to about five percent by 2010. There can hence be no doubt that, along with recovery of the farm sector, economic conditions for the majority of households in the NKGR have improved considerably over the recent decade.

Picture 6: Household plots with livestock

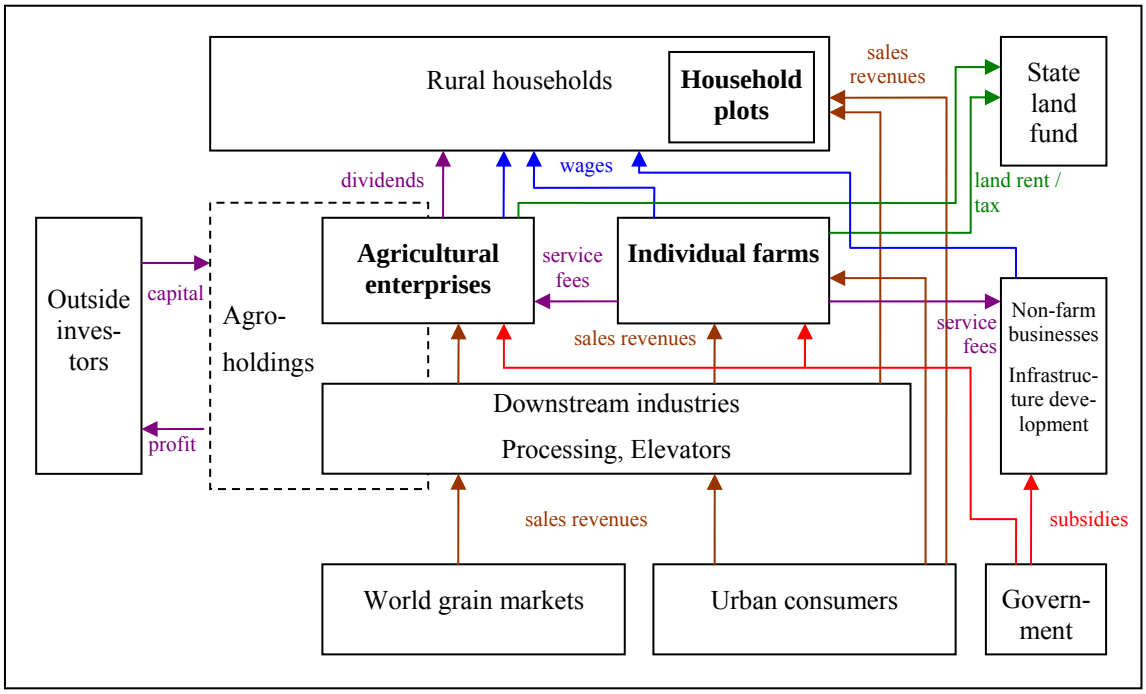
Photo by Martin Petrick 2011.

5.2 Farm restructuring and poverty reduction: identifying the pathways

Which were the main drivers of income increases in the NKGR? To give a tentative insight into the relevant pathways, Figure 27 illustrates the main financial relationships relevant for rural households and agricultural producers in the NKGR. Agricultural enterprises' main sources of revenue are grain sales to downstream industries and/or world grain markets. They benefit from capital, technology, and management brought by outside investors, and may be part of integrated business structures (agroholdings) which encompass several stages in the food chain. However, they rely on the local labour force and are an important player on local job markets. Agricultural enterprises pay dividends to rural households which contributed their land to the enterprises' capital stock. Furthermore, they make rental payments to the government, the only source of rental land. At the same time, they benefit from crop-related subsidy payments as well as investment aids the government has recently provided to an increasing extent (see section 3.2).

Individual farms have sales channels similar to the agricultural enterprises, except that the channels may be more diversified and may include direct sales to local or urban consumers. Individual farms also seek workers in the rural labour market. In addition, they receive some of their services from agricultural enterprises or non-farm businesses, which are paid in cash or in kind. Many individual farms also rent land from the state. For individual farms, there are flat payments to the government, which satisfy land rent and land tax at the same time.

Figure 27: Financial flows in the rural economy of the NKGR



Source: Authors.

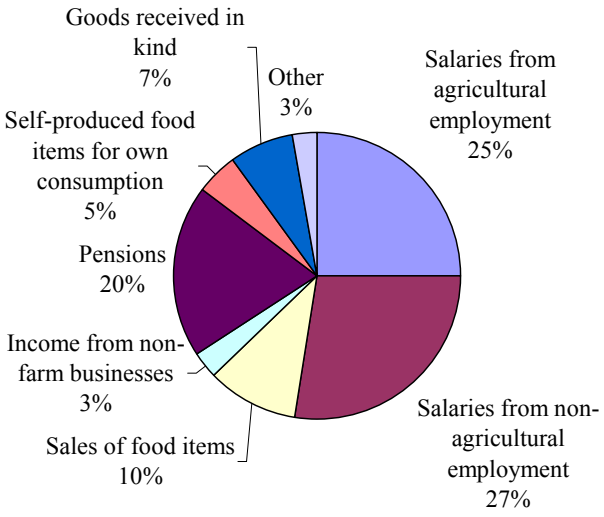
The main assets of rural households that do not operate an individual farm are their labour force, the household plot, usually some livestock, and shares in arable land cultivated by agricultural enterprises. This allows them to receive income from the following sources:

- Wage incomes from agricultural and non-agricultural employment;
- Public pension transfers based on rights acquired from earlier employment;
- Revenues from product sales, e.g. vegetables grown on the household plot and livestock products; while some of these products are directly sold to consumers, others are processed in downstream industries (e.g., milk);
- Income from other entrepreneurial activity;
- Dividends from land shares in agricultural enterprises.

Unfortunately, no detailed information about the relative importance and dynamics of the different income channels of rural households is available. The only piece of evidence we have is based on survey data collected by the World Bank in 2003 (Dudwick et al., 2007). Statements about income sources by 150 randomly chosen rural households in one of the NKGR provinces are summarised in Figure 28. It shows that in 2003, about half of the household income came from salaries, while 20 percent came from pensions. Sales of self-produced food items account for at least 10 percent of household income, whereas additional five percent were also consumed by the household. Seven percent were in-kind incomes, probably land rental payments received from

agricultural enterprises or individual farms.[13] Incomes from non-agricultural businesses have a small share of three percent in total income.

Figure 28: Income sources of rural households in Akmola province, 2003



Notes: Answers to the question: What portion of the total household monthly income consists of the following items? (in percent). Numbers are mean percentages across households. N=150.
Source: Authors' calculations based on World Bank survey 2003 (Dudwick et al., 2007).

According to data from the Kazakh Statistical Agency, nominal wages in agriculture quadrupled since 2001 (Figure 5), while nominal pensions approximately doubled (see Statistical Yearbook Living Standards in Kazakhstan, 2010, 119). Recent wage increases are thus likely a main driver of poverty reduction. Rural labour has become scarce, which implies increasing market power for workers compared to a situation of abundant rural labour. Some wage increases seemed to be due to off-farm employment, for example in the booming construction sector. This in turn is fuelled by large infrastructure projects funded by the Kazakh government. Casual evidence from field observations suggests that demand for some of the household produce (such as milk) has also risen. Little is known about the responsiveness of dividend payments to improvements in the profitability of agricultural enterprises (Figure 19).

An interesting question is whether rural households benefitted from the recent food price boom (Figure 5). A key issue to answer this question is whether households are net buyers or sellers of food (Aksoy and Hoekman, 2010). For households running an individual farm, it seems clear that they are net sellers, so that their incomes increase during price booms. With regard to rural households, we may use Figure 28 plus additional evidence to explore this question. Several sources of rural household income are directly or indirectly linked to food prices: the salaries from agricultural employment, the sales of food items, consumption of self-produced food, and in-kind payments,

[13] Sublease of land to individual farms was still legal at the time of data collection.

which are also likely often food items (e.g., grain). Added up, these items account for 47 percent or almost half of the total household income. On the other hand, in 2003, the average household in Akmola spent 48 percent of cash consumption expenditure on food, almost the same number (Statistical Yearbook Regions of Kazakhstan in 2007, 125). However, as cash income is only a part of the total income reported in Figure 28,[14] the share of food items on the income side is likely to be higher than on the expenditure side. When food prices rise, rural household net welfare thus increases on average.[15]

Figure 27 and Box 11 also demonstrate the manifold interdependencies that exist among the three main types of agricultural producers, particularly in the area of service and input provision. Traditionally, household economies used to benefit from inputs supplied by agricultural enterprises, such as feed or machinery services. It is unclear how important these often informal input flows still are today. In addition, livestock production by households is partly based on access to public grazing land. There is clear evidence that many households produce a surplus to their subsistence needs which is looked after by, for example, urban consumers. But also individual farms appear to be dependent in some ways on the agricultural enterprises, even to the extent that the latter represent a type of service station for surrounding smaller producers.

Box 11: Interdependencies among farm types

The Joint Stock Company "Petrovska" is operating on 25,000 ha and has machinery stations in surrounding villages, which also offer services for individual farmers and households. Half of "Petrovska's" land still belongs to the villagers living nearby the farm. Several of the land owners also work on the farm. Individual farmers in the villages around it regard it as quite competitive and seem unable to bid land out of it. The competition for workers is also very strong.

Yevgeni, an individual farmer, regularly orders a railroad freight car with fertiliser together with a couple of neighbouring individual farms. Sometimes this has led to coordination problems in the past.

The village "Beloe Osero" hosts an individual farm which occasionally borrows machinery from a nearby agricultural enterprise, for example a manure spreader. The farm also buys seed there. Many of the households in the village supply labour to the individual farm, while they also grow vegetables and raise livestock on their household plot.

Source: Case studies 3, 5, 6, 7, appendix.

[14] Cash consumption (*potrebitel'skie raskhody naseleniia*) here neither includes consumption of self-produced food nor in-kind transfers.

[15] Household cash consumption spending in Akmola (not including the capital Astana) was 76,684 KZT in 2003 (Statistical Yearbook Regions of Kazakhstan in 2007, 125), whereas the rural households surveyed in the World Bank 2003 study had a median annual income of 234,000 KZT. This is about three times the level reported in the official source. One reason for this difference may be that the World Bank respondents included incomes that were received in-kind and that non-cash expenditures are not considered in the official Kazakh source. However, it is unlikely that this can explain the entire gap. If the World Bank respondents were on average richer than the households surveyed by the Statistical Agency, it is likely that they spent a smaller share of their income on food items, so that the net benefit from rising food prices was even higher.

Picture 7: Village road with household plots

Photo by Martin Petrick 2011.

6 Conclusions

6.1 Summary of findings

The evidence presented in this study documents a widely positive development of agricultural production in the three major grain producing provinces of Kazakhstan. Together with an expansion of cropland area and increasing capital input, real agricultural value added has almost doubled within a decade.

While hesitant in the early transition period, privatisation legislation has more recently allowed private ownership of land and has put the basic preconditions for a capitalist mode of agricultural production into place. There are now three dominant groups of agricultural producers in the NKGR that emerged from the restructuring processes of the transition period. The first group consists of large agricultural enterprises in the form of limited liability partnerships, the second group of smaller individual farms, and the third of tiny household economies. Agricultural enterprises cultivate about 10,000 ha per farm on average and control almost three quarters of agricultural land in the NKGR. Individual farms emerged as a new type of producer in the process of land privatisation and cultivate one quarter of the land, with an average farm size of around 560 ha. Household economies mostly engage in labour-intensive vegetable and livestock production. In relation to the other two types of farming organisations, agricultural land use by the latter is minimal, but their share in agricultural output is about 40 percent.

Compared to other post-Soviet countries, Kazakhstan is distinct in having established a significant individual farm sector side-by-side with the reformed agricultural enterprises in its primary grain producing region. Interestingly, while agricultural enterprises have been growing more persistently than individual farms in recent years, average land productivity is practically identical and wheat yields tend to be even higher in individual farms. Registration procedures for individual farms are simpler and tax obligations lower. However, among government officials, an ideological bias against this type of farming seems to prevail. Both vertically and horizontally integrated agroholdings have emerged among the agricultural enterprises and have brought outside investment and management to the region. While we document some of the agroholdings' activities, which are chiefly in grain trade, they are generally little transparent and few substantive statements about their real impact in rural areas can be made.

Government support to agriculture has been rising recently, and is based on a highly centralised system of area-, output-, and input-related subsidies. The government is also engaged in grain procurement and storage to achieve national food security goals, but does no longer interfere in on-farm production decisions. Subsidised funding for agricultural investments is provided through the state-owned holding KazAgro. These subsidies offer the agricultural sector access to the governments' tax receipts and oil revenues. However, the implementation system chosen gives little room for the type of decentralised market institutions which have advantages in information processing, are less prone to elite capture and have been instrumental for sustainable rural development

in other contexts.[16] Despite the still tremendous financing needs, private lenders have even turned away from the agricultural sector recently.

These partly questionable government activities notwithstanding, agricultural recovery in the NKGR has brought clear and measurable benefits to the rural population. With stable employment in agriculture, consumption spending by rural households has tripled over the last decade and has risen much faster than the costs of living. Real monthly consumption expenditures by rural households doubled between 2003 and 2009, and are higher than in Kazakhstan on average. Poverty went down considerably, from 40 percent of households below the regional poverty line in 2002 to about five percent in 2010. Much of this positive development is likely due to rising food prices, which trickle down to rural households, and increasing labour scarcity in rural areas.

6.2 Policy recommendations

Given the new global debate about how to reconcile productivity growth in agriculture with social inclusion in rural areas, North Kazakhstan looks much like a success story. Even so, among the issues covered by this study, the following deserve attention by the Kazakh government:

- Access to land and capital for agricultural producers continues to be constrained by strongly regulated and governmentally controlled allocation systems. While land sales are now possible in principle, such transactions require large capital investments and a long-term planning horizon. Both conditions are often not given, so that land sales remain few. For more immediate adjustments in land use, the development of land rental markets is desirable. However, the legal provisions for such rental transactions are not sufficient. In particular, to what extent privatisation beneficiaries in the NKGR who contributed their share to the stock of an agricultural enterprise under the 2003 legislation can still engage in land rental markets is unclear. Furthermore, land shares cannot be contributed to individual farms. It is also unknown to what extent lease and sublease of land are still carried out informally, contrary to the 2003 land code provisions. More transparency and firmer as well as more practical legislation that creates a level playing field for all farm types would likely stimulate land rentals and thus lead to further efficiency gains in the medium term.
- The state agency KazAgro appears to be one of the few viable sources of finance for many farmers, as commercial banks have partly withdrawn from the agricultural sector. However, it is unlikely that state-administered credit supply is very effective in targeting the most promising investments in agriculture. While some agricultural enterprises apparently have access to outside equity, many individual farmers would benefit from a more competitive and less centrally administered agricultural credit system, possibly based on (true) cooperative principles.
- Many farmers interviewed in the case studies were concerned about future access to qualified labour. The Kazakh government should make sure that future labour de-

[16] See the case studies presented in Tomich et al. (1995). While neither the European Union nor the US agricultural policies provide blueprints for market-conform implementation systems, both cases demonstrate that it can be economically costly if production incentives are primarily set by bureaucrats rather than consumers.

mands in terms of educated people in working age can be met. A review of the demographic outlook for rural areas is recommended.

- Recent increases in agricultural policy spending have led to a wide array of measures, including various types of input subsidies and production-related direct payments. To what extent these measures follow a consistent sector strategy with specific policy goals is not visible and the effectiveness of the measures thus difficult to evaluate. Many are hardly compatible with WTO standards. A more focused and less distortionary policy approach is recommended. Systematic upgrading of the rural transport infrastructure is likely to have a more beneficial long run impact than indiscriminate subsidy distribution.

6.3 Future research needs

There are a couple of areas that deserve further research in order to understand the real drivers of this apparent success, to identify the remaining weaknesses and obstacles to further development, and to evaluate the need for future policy attention:

- Labour supervision and the design of incentive-compatible employment contracts are persistent issues for many managers. In this management field, little systematic knowledge is available about actual practice and possible options, including new technologies based on satellite imaging.
- If labour is becoming scarce in rural Kazakhstan, this sheds new light on some strategic notions of rural development. Traditionally, in order to raise living standards, rural areas with abundant labour would have to generate off-farm employment opportunities and/or depend heavily on (regional) migration opportunities in more dynamic urban areas (Tomich et al., 1995; Collier and Dercon, 2009). In view of stable population numbers and strongly rising incomes, it is an open question whether this is an appropriate strategy for Kazakhstan. Deeper insights into the cause and effect relations among these empirical patterns would be required to resolve this issue.
- No disaggregate, farm-level data is available that allows substantial comparisons in the performance of agricultural enterprises, individual farms and household economies. As a result, no definitive statements can be made about which type of organisation is more beneficial in terms of productivity, employment and income generation, more innovative, and better suited to meet the demands of modern food chains. Given the tremendous range of farm sizes observed in a homogenous natural and political environment, the NKGR represents a potentially fruitful object to investigate long-standing analytical issues concerning the relative advantages of small versus large farms (cf. recently Collier and Dercon, 2009).
- There is clear evidence that many households produce a surplus to their subsistence needs which is looked after by, for example, urban consumers. In which way these household operations could and should be commercialised and what this means for other types of agricultural producers needs to be investigated further.
- More research on the interactions among different types of agricultural producers is also needed because they may possibly become crucial in future scenarios of agricultural development in the NKGR. If linkages indeed provide mutual benefits for the involved parties, they may turn into resource-providing contracts (Reardon et al.,

2009), i.e. arrangements that allow input flows from larger to smaller businesses in exchange for some output relevant for the larger business. In addition to traditional inputs such as fuel or feed, which are more likely to be fully commercialised today, this could also be knowledge, access to risk management tools, or storage and marketing logistics. The output provided by the smaller business could be some effort-intensive (intermediate) product, such as raw milk, or simply labour force. If there are economic advantages in keeping different types and sizes of producers separate, it is likely that a more refined network of contracts may emerge that exploits the comparative advantages of each organisational type. However, if there are no such economic benefits to separation, the mutual relationship is more likely to be one of competition and ultimate takeover by the stronger party. A third option is the increasing specialisation of different farm types into various product segments. For example, tiny dairy producers could commercialise into a niche supplier for urban consumers, side by side the large farms specialised in grain. International experience shows that scale economies could certainly be relevant in dairy as well, leading to bigger production units in the medium run.

– There is little information about who has entered agricultural production in North Kazakhstan and why. The range is from external investors bringing their own management, over various "local" entrepreneurs who have been more or less engaged in agricultural activities in the past, to household members who continue small-scale operations in vegetable and livestock to make their own living but also earn some revenue from surplus sales. Which of these entrepreneurs have entered their business voluntarily and strategically, and which have become so by default? As farm enterprises in the NKGR have persistently been created and dismantled recently, and given the importance of the management for successful farming operations, this is a question of actual relevance. Relative political power and access to information and resources by these different types of managers may well have implications for future structural change in agriculture.

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Appendix: Farm case studies

Case 1: Enbek Bereke, a corporate crop farm 150 km north of Astana

Legal form	Limited liability partnership
Main area of activity	Crop production, seed propagation
Land resources	12,000 ha
Workers	35 full time

The farm was established in 2007 on the basis of a former state farm, which had gone bankrupt and was idle for a number of years. Basic buildings and the remnants of a non-functional drying and storing facility for grain still exist on the farm site. The farm cultivates 12,000 ha. It produces beans, barley, wheat, oats, sunflower, linseed, sudan grass, and maize for silage. This exceptionally diverse cropping pattern is due to the fact that the farm engages in seed reproduction. Furthermore, some of the crops (beans, silo maize) are supplied to a nearby Angus cattle breeding farm run by the state breeding programme Kazbeef. The farm is a director-owned corporation (formally a limited liability partnership). However, all land is in long-term leasehold by the villagers who obtained this lease in the course of the state farm privatisation. These leaseholds were transferred into the capital stock of the farm managed by the current director. The director came as an outsider to the local community. All primary leaseholders (and thus shareholders of the farm) earn an annual dividend based on the performance of the farm. The farm also provides social services to the village, in particular the school building and students' meals.

The farm employs 35 workers, including administrative personnel. 40 percent of the farm workers are also land owners. Many live in the nearby village. In 2011, workers will for the first time obtain performance pay based on GPS imaging. The agronomist says it is difficult to find workers for simple tasks such as grain shovelling in winter, while workers are more willing to engage in better paid and more responsible jobs such as tractor driving. The agronomist graduated from Astana Agricultural University. His only economic education was in economic theory.

The farm has a contract with a major farm equipment manufacturer, which supplies state-of-the-art machinery at preferential conditions. In turn, the farm acts as a model operation and is open to visitors. A full GPS based monitoring system is used, including track control of the tractor. Data from the tractors is transferred via memory sticks. The farm uses latest zero-tillage technology and a non-selective herbicide for clearing the weeds before sowing. The sowing campaign is from May 5 to June 5, there is one additional spraying operation using a self-propelled sprayer. Fertiliser is applied simultaneously with sowing. The fertiliser applied mostly originates from Kazakh sources. This is subsidised, although it is of lower quality than that from Uzbekistan or Russia. The director considers putting up new storage facilities. So far the grain was wrapped in silo bags over winter outside the buildings, which also seemed to work well. The farm owns a specialised machinery to wrap the grain. The farm obtains input and Diesel subsidies

as well as an area payment of 350 KZT per ha of wheat. Other crops yield even higher subsidies, e.g. 650 KZT/ha for silo maize and 2282 KZT for oilseeds. Investment subsidies are obtained for machinery manufactured in Kazakhstan.

Case 2: Rodina, a corporate dairy farm 50 km northwest of Astana

Legal form	Limited liability partnership
Main area of activity	Dairy (400 cows), separate crop division
Land resources	52,000 ha
Workers	19 full time in dairy

The farm emerged from a former dairy sovkhoz, which hosted about 2,000 cows. It had severe economic difficulties before the current fifty-year old director took over the operations. The director is well known in the region for his entrepreneurial attitude and his social engagement for the local community. He is supposed to have an eye on local employment creation, which is why the two villages located adjacent to the farm had become attractive for in-migrants from other places of Kazakhstan. The farm is organised as a limited liability partnership. 51 percent of the land is held by the director, the other 49 percent belong to local residents, who receive an annual dividend on their share. The dairy complex of the farm hosts 400 Holstein-Frisian dairy cows which were imported as live animals from Canada in 2007. They are currently milked two times a day, at 6 am and 6 pm. The average milk yield per day is 20 kg. The diet consists of hay, silage and concentrate, which is offered as a total mix ration. Given the milk output actually realised and the contents of the fodder mix as explained by the milking technician, the energy concentration appears to be (too) low. One reason for this fact may be that the fodder is mostly produced on-farm, by the crop division of the farm cultivating 52,000 ha. It produces wheat, barley, sunflower and corn, as well as fodder crops for the dairy cows. The dairy operation uses artificial insemination technology and has the increase of milk output as a breeding target. Milking is done in a 50 slot rotary milking parlour. The target herd size of the farm is 2,200 cows, to be reached within the next years. The farm also comprises a dairy processing complex, mostly producing packed fresh milk and other fresh milk products such as kefir. These products are sold to Astana and other urban centres. The revenue for a litre of packed milk is currently at 120 KZT. The raw milk price is at 100 KZT/kg. Concentrate can be bought for 50 KZT/kg.

There are 19 workers in the milking operation, but overall employment is much higher. Workers in the milking complex obtain a monthly base salary, which is topped up if quantity and quality targets are exceeded. This regime applies for milkers and workers involved in feeding. The dairy complex consists of four new buildings and the milking house, all equipped with imported Western technology. Funding for this came from wheat sales and a seven year loan from the state fund Kazagrofinance.

Case 3: JSC Petrovska, a former sovkhoz 175 km northwest of Astana

Legal form	Joint Stock Company
Main area of activity	Crop and livestock
Land resources	25,000 ha
Workers	unknown

This is a Joint Stock Company operating on 25,000 ha. It emerged from a former sovkhoz and has machinery stations in surrounding villages. Half of the land still belongs to the villagers living nearby the farm. Several of the land owners also work on the farm. Individual farmers in the villages around it regard it as quite competitive and seem unable to bid land out of it. The competition for workers is also very strong.

Case 4: Saratomar, an individual wheat farm 100 km southeast of Kokshetaw

Legal form	Individual farm
Main area of activity	Wheat production, bakery
Land resources	650 ha
Workers	4 in agriculture, 60 in bakery

The farm is situated in the town of Makinsk, where the owner also runs a bakery. This town hosted a factory for engine parts during Soviet times, but the factory went bankrupt and its machinery was sold to neighbouring countries. The about fifty year old agronomist of the farm had previously worked as an agricultural engineer on a corporate farm. The farm is family owned and cultivates 650 ha of wheat. The land was rented from the government in 1997 as a 49-year leasehold. Until 1990, it had been cultivated by a kolkhoz, after that by a corporate farm which went bankrupt. The current owner had no relation to this corporate farm. The agronomist states that several individual farms created in the 1990s did not survive. According to the agronomist, land expansion is difficult, as there is little supply. Occasionally a farm goes bankrupt, then the land is quickly distributed among neighbouring farms. The farm has an additional income from real estate management.

There are four workers employed in agricultural production. The farm operates a system of performance pay for the tractorists. For sowing, they obtain a base payment depending on the area they drilled. The work is assessed after germination and the pay is doubled if all seedlings have appeared on the surface. Additional top-ups are granted after the harvest. In winter, the workers do subsidiary work in the farm-bakery enterprise, but they do not get unemployed. A main problem of the farm is to find reliable and qualified workers. Access to credit appears to be a minor problem. Banks used machinery as collateral in the past, furthermore a good repayment history is important. Land is not used as collateral. The farm operates with a used K-700 tractor and used combines, but has new tractors and trucks of CIS origin. Obtaining inputs is also not regarded as difficult. Seed is newly bought all three to four years from other farms, in the meantime it is kept from the own wheat harvest. The farm uses zero-tillage technology and cultivates

wheat in monoculture, with the occasional exception of oats or peas cultivation to fix nitrogen in the soil. A GPS-based system is used to control spraying operations and the performance of tractorists. It is not used for sowing, as the sowing campaign is only one week. According to the agronomist, the minimum subscription to GPS services is one month, so it is too expensive for such a small farm. All the wheat is processed in the own bakery, which also buys wheat from other farms. In the bakery, situated on the farm site, there work 60 persons in three shifts. The bakery delivers a factory outlet in the farm and additional bakery stores in neighbouring villages, which are delivered by an own fleet of small trucks.

Case 5: Individual vegetable farm Niva, 30 km south of Astana

Legal form	Individual farm
Main area of activity	Vegetables, grains, pigs, sheep
Land resources	538 ha
Workers	6 full-time, 50 seasonal

The individual farm was established in 1997 by the owner who first rented land as a 49-year leasehold from the government. He later bought land under the new ownership legislation of 2005. The price for pastures was 28 thousand KZT/ha (190 USD/ha), the price for arable land 44 thousand KZT/ha (300 USD/ha). The land was formerly cultivated by a sovkhoz, from which his father and other family members had obtained shares in the privatisation process. The owner is a former construction engineer. He started farming because his parents had a relation to it and he grew up in a village. Now he owns about 538 ha, of which 238 ha are pastures. On the remaining 300 ha, he cultivates 130 ha of grain (wheat, barley) and 70 ha of vegetables (cucumber, potatoes, tomatoes, cabbage). Vegetables have been grown since 2003. A part of the grain is fed to the farm's livestock which is kept in a different place; about 40 pigs as well as sheep and poultry. Another part is used for own consumption, yet another part is given to the workers as a part of their salary.

There are six permanent workers on the farm, plus about 50 seasonal workers. Workers are paid according to the overall performance of the farm. They obtain a monthly base payment: the overall payment is then assessed at the end of the season. There is a seasonal production target. If this is achieved, the salary is doubled. The seasonal workers are contracted for a period of seven months. The farmer employs a group of seasonal workers from Uzbekistan who come regularly every year, some for five years in a row, others already for eight years. They live in small cabins on the farm. The owner has an Uzbek partner, a former irrigation engineer for vegetables from Tashkent. The buildings of the farm consist of a couple of small sheds and shelters which were erected in the midst of the arable land and which can be reached only via a bumpy dirt road.

Seed and fertiliser purchases are subsidised by the government, obtaining these inputs is not a problem. The owner regularly orders a railroad freight car with fertiliser together with a couple of neighbouring independent farms, which sometimes has raised coordination problems in the past. The farmer has used commercial credit and is a member of a governmentally sponsored Rural Credit Partnership. Commercial bank loans are also

available. He took one seasonal loan for one million KZT, at a rate of 13 percent interest. His wife, a public servant, acted as a loan guarantor with her salary. Given additional fees and transaction costs, the total rate amounted to 18 percent. Occasionally, the farmer also had borrowed money from friends and relatives. The Credit Partnership is operating at the rayon level and has 24 members. It was founded due to a government initiative in 2004. Each member had to deposit one million KZT as a share. He recently borrowed a loan for one year worth 10.5 million KZT, using his residential house as collateral. The interest rate is 8 percent, thus considerably lower than the commercial credit. In addition, the farmer has a credit line with the Credit Partnership. Credit Partnerships are funded by the Agrarian Credit Corporation (AKK), which has a government-funded budget. The AKK gives loans to the regional credit cooperatives at a rate of 4 percent. The available loan volume is seven times the deposits of the Partnerships. The AKK has the final decision right about extending loans to farmers, and credit proposals made by farmers to the Partnerships have to be submitted to the AKK via the Partnerships. This system has been implemented in the entire country. The farmer owns three used caterpillar tractors of Soviet making, wheel tractors, and combines. The farmer is a member of the Republican public union "Union of Fermers of Kazakhstan" which represents the individual farms of Kazakhstan (6000 members, founded in 2001). The farmer seems to be quite satisfied with the governmental support he obtains. He finds it difficult to obtain additional land and workers. He also has plans to build a vegetable storage facility, which is hampered by the bureaucratic hurdles and costs of transforming arable land into land designated for buildings. So far all his preliminary buildings were put up illegally.

The vegetables are sold to regional city markets via middlemen. With some of the middlemen the owner has contracts, some of them pay the product in cash at the field, others after they sold it on the market. The vegetables are inspected by the city health authority of Astana, which also issues a certificate.

Case 6: Beloe Osero individual farm, 150 km northwest of Astana

Legal form	Individual farm
Main area of activity	Wheat production, beef (250 pieces of cattle)
Land resources	2,000 ha
Workers	8 full-time, 3-4 seasonal

The farm was founded in 1998 upon the remnants of a bankrupt kolkhoz. It has since been operated by a former construction engineer originating from the local village Beloe Osero (white lake). The farm cultivates 2,000 ha in total, of which 1,300 ha were taken over from former inhabitants of the village. These were ethnic Germans who left the village and sold their use-rights to the current farmer. An additional 700 ha were rented for 49 years from the government. The total land divides into 1200 ha of arable land and 800 ha of pastures. On the arable land, 1000 ha of wheat are grown and 200 ha of barley. The pasture is used to feed 250 heads of cattle. These are (the offspring of) previous dairy cows. In winter, they are kept in a self-constructed barn and fed with hay and grain concentrate. Until 2006, the farm kept about 50 dairy cows which were milked by hand. The farmer estimates their milk output to be at about 3 to 4,000 kg per year. But

this was not profitable and he did not have the necessary equipment to continue this operation. The manure is occasionally distributed to the fields by borrowing a spreader from a nearby former sovkhoz.

The farmer has eight workers under permanent contract, plus three to four seasonal workers in the summer. Payment of the workers depends on their fulfilment of a norm set in the beginning of season, for example a certain number of hectares to be sown per day. Over- or under-fulfilment leads to top-ups or reductions of the salary. It does not directly depend on yield levels or profits at the end of the season.

Live animals are regularly sold to a slaughterhouse in the regional capital. A kilogramme of beef is subsidised by the government with 80 KZT. However, grain production is generally assessed to be more profitable than beef. Also fodder use is subsidised. The farmer has a contract with the regional Kazagroinnovation center to breed in Hereford cattle to improve the meat output. Otherwise he obtains little professional help, but has many contacts to neighbouring farms. For the crops, mineral fertiliser is only used in some years, while seed is bought from a nearby former sovkhoz. The harvest is sold to the elevator in Shortandy, the farm has no storage facilities. Over recent years, the farmer has continuously increased his stock of used farming machinery, generally of Soviet origin (e.g., three K-700 tractors). He recently bought two combine harvesters for which a 16 million KZT credit was taken from the Rural Credit Partnership. Currently, he still owes 4 million KZT. The interest was 9 percent. The loan was taken for five years. To become a member of the Partnership, the farmer had to make a deposit of 1.2 million KZT. The coop took machinery and his land as collateral. The farmer is a member of the Republican public union "Union of Fermers of Kazakhstan" which represents the independent farms of Kazakhstan. The farmer's wife is at home in the village with four children.

Case 7: Murat's farm, an individual sheep farm near Karaganda

Legal form	Individual farm
Main area of activity	Sheep meat (250 heads)
Land resources	400 ha
Workers	unknown

The owner operates a sheep herd of 250 heads, producing meat and selling live animals for breeding purposes to other producers. Previous to his farming business, he was a building engineer in a corporate farm. Since 2003, when he started the operation, he has rented 400 ha of pasture in 49-year lease from the government. There is no rent to be paid, only taxes. He is currently planning to expand his farm by renting another 100 ha from the government. In this course he intends to apply for government support with the help of the state-operated Kazagromarketing office in Astana. He says the first years were economically difficult, but more recently he ran a successful operation. It is not too difficult to get credit from local banks and many neighbouring individual farms use it to finance their operations. Proximity to the city is advantageous. The farm is situated near the city of Karaganda, where the farm serves a market for directly marketed lamb meat. All meat is sold in this way to local consumers.

Case 8: Household farms in Beloe Osero, 150 km northwest of Astana

Organisational form	Household economy
Main area of activity	Dairy, home gardening
Land resources	about 0.5 ha
Workers	family members

There are typical household farms (household plots) in Beloe Osero. They own two or three cows which are milked by hand. Because in Kazakhstan fresh milk is currently in short supply, the regional dairy company from Shortandy (50 km distance) is coming to the village on a daily basis and collects the milk. During summer, the cows are grazing on public pastures, which can be used for free. Additional concentrate is bought.

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