

Kazakhstan's Agricultural Economy after the Accession to WTO: Economic Transformation and Realistic Dilemma

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Abstract. As a country in modernization transition, Kazakhstan's economy has experienced a struggling process of integrating into the globalization for its accession to the WTO behind the dazzling prosperity, especially its vulnerable yet vital primary industry. Previous research stressed the agricultural economic management issues in Kazakhstan, emphasizing the static one-dimensional agricultural policy research. Compiling data analysis from the databases of the Republic of Kazakhstan Bureau of National Statistics, World Trade Organization, and World Bank, we aim to illustrate, from the theoretical perspective of new institutional economics, that while informal institutions standing still, the market economy reform, which is the transplant of the formal institution, has the endogenous dynamic effects on Kazakhstan's domestic economic sectors, especially its underdeveloped agriculture. Kazakhstan's commitments to market access, domestic support, import subsidies, and technical barriers, are detrimental to the development of Kazakhstan's agriculture, followed by the influx of homogeneous goods, increased costs of agriculture, potential technological barriers, and even a dysfunctional industrial structure. With insufficient primary conditions, Kazakhstan's market-oriented economic reforms fluctuate the foundation of the industry, laying a hidden danger for the further modernization transformation. Actually, this dilemma of institutional transition is not a particular case in Kazakhstan, but a feature common to most developing countries undergoing modernization.

Keywords: Kazakhstan, World Trade Organization (WTO), Agricultural Economy.

1. Introduction

Although Kazakhstan's economy has been supported by oil and mineral exports, supplemented with capital inflows, its agricultural tradition makes the primary industry a vital place in its economic sector. The underlying market reforms that started in the 1990s reduced the share of agriculture in its economic contribution. Nevertheless, agriculture still fundamentally sustains the market structure and the equilibrium of labor-capital due to the fragility of industry and services. Today, Kazakhstan, one of the main wheat-growing countries in the Black Sea region, where wheat output is second only to Russia and Ukraine, ranking third in the Commonwealth of Independent States, has become the world's sixth-largest wheat exporter.

After 20 years of continuous efforts, Kazakhstan was eventually admitted to the World Trade Organization (WTO) in June 2015. This is a pivotal moment for Kazakhstan's economy. However, the underlying premise of Kazakhstan's accession negotiations is the radical transition of the economy—from command to market. The process entails a fundamental reorganization of economic and political structures. Kazakhstan, where degrees of commitment to economic liberalization are uncertain, and reform speed varies between sectors of the domestic economy, after making a solemn commitment in 2015, has undergone a rigorous process, during which Kazakhstan's dazzling economic growth masked its long-standing inherent contradictions. Especially the agricultural sector that supports secondary and tertiary industries, the economic development structure of which is single and the development model tends to be solidified. From the accession commitment document of Kazakhstan announced in 2015, huge concessions made by the traditional Soviet-style agricultural protectionist country can be seen, which is the fuse for the intensification of the problems.

Under the framework of *Uruguay Round Agreement on Agriculture*, the commitments of Kazakhstan include four aspects: market access, domestic support, export subsidies, and technical barriers. First, for one thing, the agricultural product tariffs of Kazakhstan will be 7.6 percent on average [1]. From 2010 to 2016, the agricultural average tariff of Kazakhstan dropped from 38% to 12.67% [2]. In 2021, the tariff reduced to 6.8% [3]. For another, Kazakhstan must eliminate measures required to be converted into general tariffs, such as quotas, bans, permits, and prior authorization requirements [1]. A large number of cheap international products will flood into Kazakhstan's domestic market. Moreover, the Total Aggregate Measurement of Support (AMS) and agricultural export subsidies are bound at zero. And the *de minimis* level is set at 8.5% of the value of Kazakhstan's total agricultural production [1]. In 2016, Kazakhstan's agricultural support level reached its lowest point, only 430 million dollars, and then increased to 1.59 billion dollars in 2020 due to the impact of international markets and epidemics, but still far below 2.51 billion dollars in 2015 [4]. Finally, apart from complying with technical specifications, Kazakhstan will accept the results of conformity assessment procedures done by other WTO Members [1].

The changes in economic rules on traditional agricultural powers are revolutionary. How does the external economic stimulus represented by the WTO's rule requirement act on Kazakhstan's internal economic structure transformation? How does this economic institutional shift affect or adapt to the domestic market when endogenous conditions are not yet sufficient? These are the two issues we would like to address. We take Kazakhstan's agricultural sector with high economic sensitivity to changes as a sample for analysis. Based on what has been illustrated, we will explore the factors affecting the agricultural economy in the second part and elaborate our theoretical logic in the third part based on the previous research. Finally, through the public data of the government and international organizations, we will see how commitments affect the factors leading to the fluctuation of the agricultural economy, and how economic institutional change stimulates contradiction between reforms and existing mechanisms, bringing the challenge to the internal structure of the economy.

2. Literature review: the agricultural economy of Kazakhstan

After being independent of the Soviet Union, the research on Kazakhstan's agricultural development has been relatively more targeted and less reliant, which mainly focuses on two aspects: the natural situation of agricultural planting and the development of the agricultural economy. The vast majority of empirical research on agriculture in Kazakhstan has focused on natural conditions [5-7]. While with the emergence of the fundamental role of agriculture in Kazakhstan's economic structure, especially after the market economy reform in the late 1990s, the research on the agricultural economy has been paid more attention. There are two main research fields, one is policy, and the other is theory.

2.1 Policy suggestions for agricultural development

Policy researchers believe that when agriculture plays a crucial role in the national economy of Kazakhstan, Foreign Direct Investment (FDI), the management of agricultural economic resources, and even the environmental influence of agriculture can boost the development of agriculture in Kazakhstan.

First, some emphasize that foreign investment can become an important source of capital for agricultural development in Kazakhstan. If an agro-industrial complex of a certain scale is formed, its investment attractiveness will bring further innovation and capital return [8]. Gao Yang had shown the grey correlation degree between foreign investment and promoting Kazakhstan's agricultural development can be 0.6845% [9].

Second, others point out that the appropriate management of Kazakhstan's agricultural resources provided by market actors and the government can prompt agricultural production efficiency. The improvement of the mechanisms for managing the turnover of agricultural land to regulate land relations is a common practice worldwide [10-11]. Simultaneously, reducing the information gaps in

the reform process agriculture sectors of the Central Asian Republics including Kazakhstan is a key role in the policy research needs of economic management [12].

Third, with the development of precision agriculture, the impact of agricultural planting on the environment has attracted increased attention. How to develop green and sustainable low-carbon agriculture has become an economic interest concern of developing countries [13].

2.2 Theoretical perspective of agricultural factors

Theoreticians are concerned with macroscopically influencing factors of the agricultural economy including market prices, government support, and technical level.

First, some researchers point out that fluctuation in agricultural prices can directly affect agricultural output and further destabilize agricultural markets. Some empirical analysis has proved that the change in agricultural product price fluctuates agriculture yield [14-15], through the economic chain of which, the change will impact economic stabilization and perfect futures eventually [16].

Second, others emphasize that government support plays an important role in agricultural development, which mainly involves three aspects. In terms of direct impact, sensitive interventions by the government are required if agriculture is to play its optimal stimulative role in economic development [17]. For domestic agricultural economy development, researches show a strong correlation between fiscal expenditure and agriculture growth. Mingchuan Feng and Ping Wu proved that when fiscal expenditure on supporting agriculture arises by 1%, agriculture increases by 0.47% [18-19]. Even in the social sphere, some pointed out that fiscal expenditure supports rural employment levels on the margin [20]. When referring to export, many reckon that the agriculture industry with strong government support is the primary dynamic that improved the growth of export from emerging markets, boosting the export competitiveness of the agriculture industry [21-22].

Third, the development of interdisciplinary makes more researchers pay attention to the impact of technology on agriculture. For one thing, precise agriculture closely integrated with technology, bolsters the development of agriculture. Advances in remote sensing technologies to monitor multiple key parameters such as air temperature, solar radiation, and vegetative index can reduce the cost, and then rise the income of farmers [23]. For another, a strong positive correlation between public research and development (R&D) spending in the agricultural sector and total factor productivity [24].

In conclusion, despite the distinction between policy and theory, research on agriculture in Kazakhstan is mainly focused on domestic suggestions for productivity. Based on the theoretical perspective of the agricultural economy in previous research, we explore the characteristics of Kazakhstan's agricultural economy in the process of market transition from a more macro-dynamic dimension, to show the general predicament of developing countries' economic development, at least in one aspect.

3. The Dilemma of Institutional Change: structural disorder under institutional transplantation

New institutional economics argues that institutions play a fundamental role in shaping economic behavior and achieving specific economic performance. Institutions change over time and respond to economic factors [25]. It illustrates that an institution consists of a series of formal constraints, informal constraints recognized by society, and their mechanisms of implementation [26]. Formal constraints of mandatory, as formal institutions, include political rules, economic rules, and contracts, which are formulated by a public authority or the parties concerned. The informal restraint, as the informal system, is formed subconsciously by people in long-term exchanges and becomes a part of social culture, including values and beliefs, ethical norms, moral concepts, customs, ideology, etc [27]. To some extent, informal institutions form the institutional environment of formal institutions. In social interaction, informal institutions adjust the state and nature of material and technical factors, reinforcing their adaptability and dependence on the environment, further solidifying the basic model of the institutional environment and strengthening its structuring role. Once the institutional change

has embarked upon a certain path, its established direction will be self-reinforcing in future development, which is the path dependence of institutional change [28].

The transplantation of an economic system is the institutional transplant from one economic environment to another leading to a lower-level economy, the meaning of which is to accelerate institutional changes [29]. In comparison, the formal establishment can accomplish the process in a relatively short period, whereas transplanting the informal is long-term and challenging. Given that informal institutions shape the environment of formal institutions. Drastic changes in the formal will inevitably clash with informal institutions of relative hysteresis. When the process of transition of formal institutions does not correspond with the informal, it's rather easy to stick to the "Structural Disorder" [30]. Actually, this is a development dilemma faced by quite an amount of developing countries undergoing social transformation. As a country still lagging behind economic globalization, Kazakhstan is eager to integrate into the world market, yet in the absence of an initial development foundation, the institutional change has brought negative effects. In the revolution process, the changes of institutions promised by WTO accession have caused a contradiction between Kazakhstan's political-cultural system and economic transformation. Under the condition that the single authoritarian political system and collectivist social culture have not been transformed, the economic institution of central power distribution in Kazakhstan cannot be effectively and completely transformed into a market economic system. The shift of economic reform brought about an explosive effect on the economy. Inflation and market turmoil are evident in its vulnerable but vital agriculture. Informal institutional factors, the root of the planned economy of the domestic market, the tradition of agricultural protectionism, and the extremely low level of agricultural science and technology are not compatible with the reform of the market economy in Kazakhstan's agricultural sector. The parallel path dependence and reform and changes have brought about the deformed industrial development and weak forward momentum.

Based on the projections of new institutional economics for institutional change without a transitional social context, we will illustrate with concrete data how this process is manifested in the agricultural sector of Kazakhstan.

4. The fluctuation of Kazakhstan's economy

4.1 Changes after the accession

Aiming at elaborating on what impact has institutional change had on the reform process and economic situation of Kazakhstan's domestic agriculture, in the following, we will correspond to the three aspects of Kazakhstan's WTO commitments to show the adverse effects of tariffs, agricultural support, and technical barriers on Kazakhstan's agriculture based on the specific data.

First, the adjustment of tariffs does harm to the domestic market of agricultural products in Kazakhstan.

Table 1 is designed to allow a comparison of the levels of bound and applied duties, covering the domestic market access protection. It contains basic standard indicators like tariff averages, percentage of duty-free tariff lines, peaks, and non-ad Valorem duties. Information on bound and applied duties is shown by duty ranges and by sectors and Information for agricultural and non-agricultural duties is shown separately. It shows the reduction in tariffs in Kazakhstan and the reduction in the level of protection from import tariffs. Taking the simple average of agricultural tariffs as an example, the indicator remained above 9.0% from 2010 to 2015, and there was a clear downward trend after 2015. In contrast, non-agricultural indicators showed a smoother downward trend. Although not strictly related, other indicators also have certain similarities.

The average final bound rate of Kazakhstan's agricultural import tariffs is 9.7% compared to the non-agricultural of 6.0% [31]. With the relatively greater reduction of import tariffs on agricultural products, a large number of homogeneous foreign commodities will enter the agricultural product market in Kazakhstan after the market is open. As most developing countries are suffering, the domestic prices of agricultural products in Kazakhstan will be higher than the international prices,

which will bring enormous challenges to many "bulk" farmers along with the declining level of tariff protection.

Table 1. Summary tariff table [31]

Year	Year of MFN applied	Binding coverage	Simple average		Duty-free		Non ad Valorem duties		
			in %	Bound MFN applied	Bound MFN applied	MFN applied	Bound MFN applied	MFN applied	
2011	2010	All		9.2		16.5		12.5	
		Agri		13.7		7.7		29.6	
		Non-Agri		8.5		17.9		9.9	
2012	2011	All		9.6		15.7		13.1	
		Agri		15.4		7.8		29.8	
		Non-Agri		8.7		16.9		10.5	
2013	2012	All		9.5		15.0		12.7	
		Agri		13.4		8.2		28.2	
		Non-Agri		8.8		16.2		10.1	
2014	2013	All		9.1		14.8		10.9	
		Agri		12.3		8.6		25.0	
		Non-Agri		8.6		15.9		8.5	
2015	2014	All		8.6		14.3		9.8	
		Agri		11.6		9.2		24.1	
		Non-Agri		8.1		15.2		7.4	
2016	2015	All	100	6.5	7.8	15.0	14.2	7.8	9.7
		Agri		9.7	10.7	6.0	9.2	18.2	23.9
		Non-Agri	100	6.0	7.3	16.3	15.0	6.2	7.3
2017	2016	All	100	6.4	6.9	15.0	15.7	7.8	8.2
		Agri		9.7	9.5	6.0	9.8	18.2	18.3
		Non-Agri	100	6.0	6.5	16.3	16.7	6.2	6.5
2018	2017	All	100	6.4	6.5	15.0	15.5	7.8	8.1
		Agri		9.7	9.4	6.0	9.7	18.2	18.4
		Non-Agri	100	5.9	6.1	16.3	16.5	6.2	6.4
2019	2018	All	100	6.5	6.4	15.0	15.6	7.8	8.0
		Agri		10.0	9.6	6.0	9.7	18.2	18.2
		Non-Agri	100	6.0	5.8	16.3	16.6	6.2	6.3
2020	2019	All	100	6.5	6.1	15.0	17.5	7.8	8.1
		Agri		10.1	8.9	6.0	10.5	18.2	19.0
		Non-Agri	100	5.9	5.6	16.3	18.6	6.2	6.3
2021	2020	All	100	6.5	6.1	15.0	17.5	7.8	8.1
		Agri		10.0	9.4	6.0	10.5	18.2	19.0
		Non-Agri	100	5.9	5.6	16.3	18.6	6.2	6.3

Second, the decline in government agricultural subsidies has exacerbated the difficulties of agricultural production.

We demonstrated the fluctuation in the level of agricultural support in Kazakhstan in Table 2. Since the middle of the 1990s, the level of producer support was variable and revealed no particular trend. Overall, support remained moderate, but this masked large differences between commodities. In Kazakhstan, almost three-quarters of the total agriculture support (TSE) is provided to producers individually, the rest is directed to general services and supports food processors.

The share of total support to agriculture (TSE) in GDP was unstable from 1995 to 2016 as GDP increased faster than total support, but was maintained at around 0.7% after 2017. While producer support estimate (PSE) increased erratically from 1995 to 2013, which then had considerable fluctuations between 2014 and 2016. The share of producer support in GFR increased from 10.94% in 1995 to 12.59% in 2012 then decreased to 3.14% in 2020, below the OECD average (18%). To conclude, these data all show a downward tendency from unstable to stable, which is actually an astonishing reduction.

Table 2. Development of support to agriculture [32]

	1995	2000	2005	2010	2015	2020
Share of MPS commodities in the total value of production (%)	72.54	78.38	78.10	61.31	57.36	56.87
Producer Support Estimate (PSE)	375.79	317.87	819.72	1,031.77	1,820.41	509.11
PSE as a share of GFR (%)	10.94	11.21	14.05	8.04	11.34	3.14
Producer Single Commodity Transfers	375.79	309.93	593.39	673.61	971.11	-427.60
Share of Producer support based on single commodities, in PSE (%)	100.00	97.50	72.39	65.29	53.35	11.79
Total Support Estimate (TSE)	377.26	359.56	951.19	1,435.17	2,264.99	1,434.86
Percentage TSE (% of GDP)	2.27	1.97	1.67	0.97	1.23	0.83
Percentage TBSE (% of GDP)	0.01	0.27	0.63	0.62	0.89	1.21
General Services Support Estimate (GSSE)	1.47	41.69	119.37	361.09	397.12	335.33
Share of GSSE, in total TSE (%)	0.39	11.59	12.55	25.16	17.53	23.37
Consumer Support Estimate (CSE)	-391.18	-360.20	-602.14	-575.78	-692.89	1,084.15
Share of consumption expenditure net of taxpayer transfers	-13.10	-15.69	-10.53	-4.16	-5.00	20.20
Producer Nominal Assistance Coefficient (coeff.)	1.12	1.13	1.16	1.09	1.13	1.03
Producer Nominal Protection Coefficient (coeff.)	1.12	1.12	1.12	1.05	1.05	0.96
Consumer NAC (coeff.)	1.15	1.19	1.12	1.04	1.05	0.83
Consumer NPC (coeff.)	1.15	1.18	1.12	1.05	1.06	0.93
Gross Farm Receipts (GFR)	3,434.56	2,836.67	5,835.25	12,835.80	16,058.28	16,220.35
Most distorting support as % of PSE	100.00	98.35	93.53	80.82	63.39	80.57

Kazakhstan's overall high agricultural growth of the economy is associated with a larger transfer to agriculture. Changes in agricultural support subsidies straightly affect the agricultural economy. with the relative increase in the price of agricultural materials, taking barley, rye, and wheat as

examples, since 2001, the domestic agricultural producer price index in Kazakhstan has fluctuated on the rise, especially after 2015, with a more obvious growth trend as shown in Figure 1. The increase in the price of agricultural materials has pushed up the production cost of producers, which has intensified the pressure on large-scale operations and further negatively affected agricultural production. Taking wheat, whose output accounts for 80% to 90% of Kazakhstan's total output, as an example, the output reached its peak in 2011, and the Gross Production Value reached US\$ 449 million. But as shown in Figure 2, after that, it declined until after 2015, showing a gentle downward trend, in 2019 for US\$ 181 million. Moreover, with the market-oriented reform, Kazakhstan had made adjustments to policy instruments, mounting pressure on government spending from the cost of restructuring overdue farm loans, which will further influence the agriculture production, resulting in changes in the prices of agricultural products and causing the predicament of agriculture-related workers.

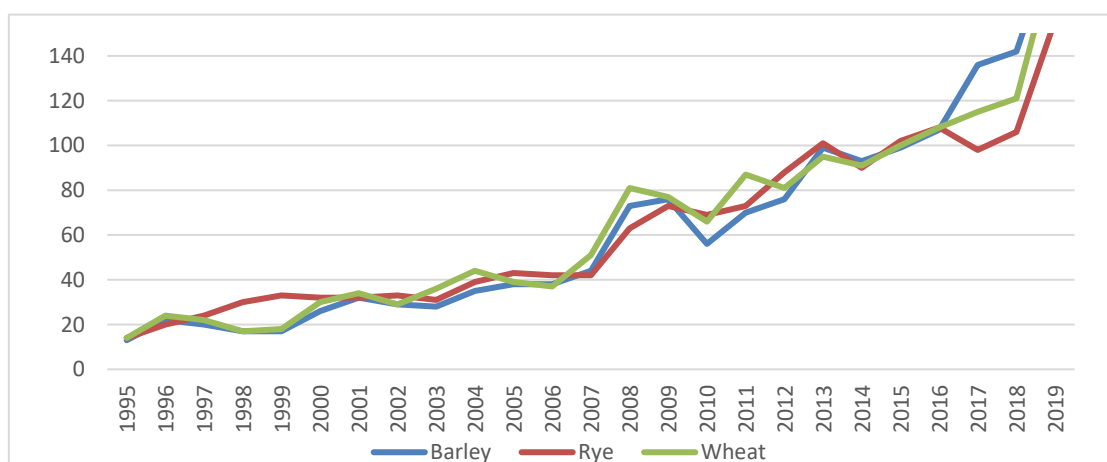


Figure 1. Producer Price Index [33]

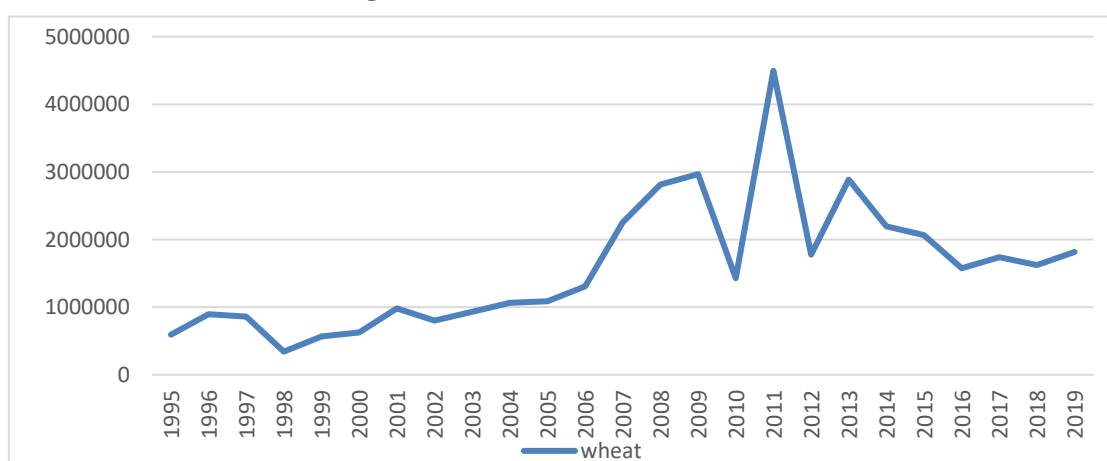


Figure 2. Gross Production Value (current thousand US\$) [33]

Third, the backward technology hinders the transformation of agricultural economic efficiency and the increase of export advantage.

Kazakhstan's dual agricultural economic structure and wired technological input can explain the vulnerability of its agricultural technology. Kazakhstan's Large-scale and highly integrated operations dominate the grain sector, while rural households produce most of the beef and milk. The existence of a large number of rural households makes Kazakhstan's agricultural technology backward. Coupled with the limited scientific research funds, agricultural technology problems are more prominent. Since 1995, the annual amount allocated to scientific research in Kazakhstan's national budget has always hovered at 0.2% to 0.3% of GDP, far lower than the world average of 2.23% in 2015 and it has long relied on extra-budgetary funds, self-raised funds of scientific research institutions and foreign investment [34-35]. Indeed, the development of science and technology in

the agricultural sector in Kazakhstan has also been affected. For example, in terms of input of agricultural machinery, Kazakhstan's agricultural machinery input did not change much from 2000 to 2017, maintaining a relatively low level [36].

After accession to the WTO in 2015, Kazakhstan's backward agricultural competitiveness will greatly affect its economic development. On the one hand, the lagging behind agricultural science and technology services in Kazakhstan's primary industry hampered the transformation rate of agricultural science and technology achievements to increase, which hazard the independent innovation capacity of agricultural science and technology and the contribution rate to agricultural growth [37]. On the other hand, the backwardness of agricultural technology will hinder Kazakhstan's agricultural imports and exports. Kazakhstan has been a net importer of agricultural products since around the nearly mid-2000s and is also one of the world's largest wheat exporters. More than three-fifths of Kazakhstan's agricultural exports are primary goods, most of which are used for industrial processing and only a small portion for direct consumption. In contrast, over 60 % of imported agricultural products are processed commodities, most of which are used for final consumption. And according to a survey by the Economic Commission for Europe, non-tariff barriers to trade are caused by technical standards. When technical regulations, standards, and quality certification systems become more hidden technical barriers, Kazakhstan's original beneficiaries of agricultural openness cannot actually benefit. Agricultural exports will face a more severe situation.

4.2 The immature development of industrial structure

The impact of the WTO commitment on Kazakhstan's agriculture and even the entire economic structure is significant.

The development of agriculture in Kazakhstan is stagnant. Between 2001 and 2019, Kazakhstan's agricultural land remained at around 80%, which is surprising as a country striving to modernize its economy [38]. As shown in Figure 3, in 2011, Kazakhstan's agricultural production peaked at 27 million tons. After a short trough in 2012, agricultural production since 2015 has fluctuated and declined to a certain extent, but generally remained within the range of 17 to 20 million tons. Correspondingly, the share of Kazakhstan's agricultural growth value of GDP has decreased until reaching approximately 5% after 2015. The market-oriented reform of Kazakhstan has promoted the transformation of the economic structure, yet the low-efficiency agricultural economy has still stabilized with the absence of technical and industrial support, being unable to achieve further development.

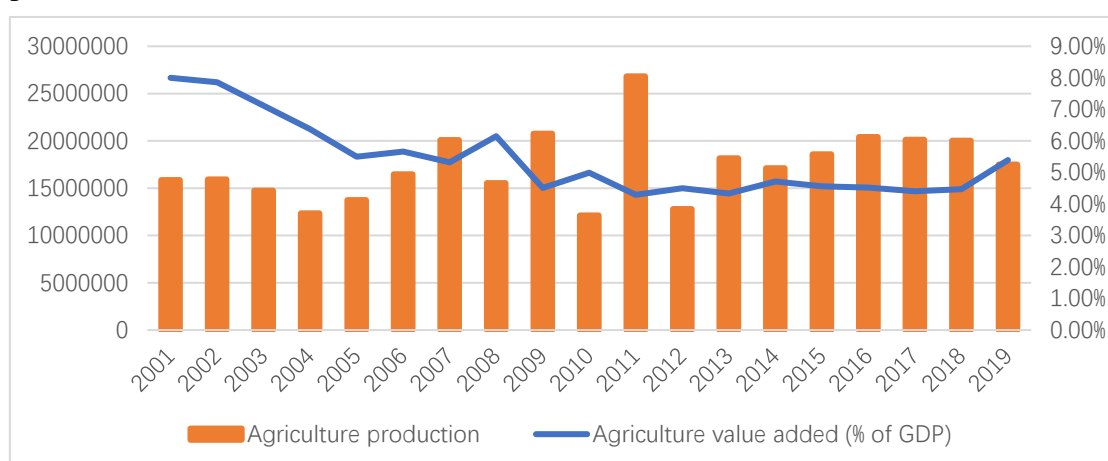


Figure 3. General agricultural statistics [38]

The key role in Kazakhstan's agricultural economy is more evident in the employment structure. Actually, the market-oriented reform has prompted the gradual transfer of Kazakhstan's labor force from agriculture to industry and services, reflecting the economic modernization. Whereas, it is worth noting that the industrial development of Kazakhstan is still at an immature stage. The development of Kazakhstan's industrial and service industries lacks support, for which agriculture continues to play

a critically fundamental role in Kazakhstan's economic development. We organize the domestic employment situation of Kazakhstan in Figure 4. After 2001, although the level of agricultural employment in Kazakhstan dropped, by 2014 the agricultural employment rate in Kazakhstan surpassed industry, providing relatively more jobs. Compared with developed countries, Kazakhstan still has a large labor force still tied to the primary industry. After 2015, the proportion of agricultural employment has been below 20%, and in 2020 it was stable at 13.5%, slightly lower than industry. Nevertheless, the rate of industrial employment in Kazakhstan has not shown a significant increase but has remained around 20% for a long time. Rather than saying that the industry has grown by leaps and bounds, it is Kazakhstan's entry into the WTO that has brought the developmental dilemma to agriculture.

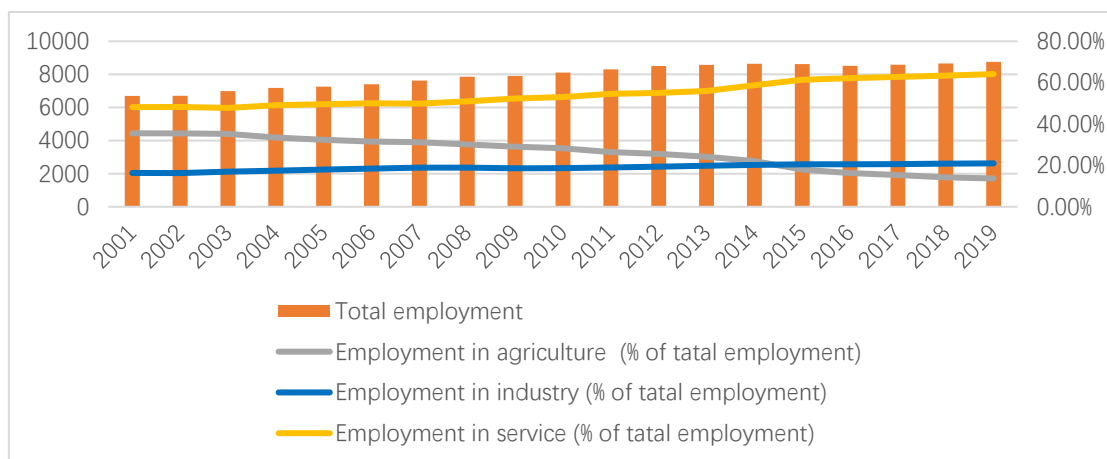


Figure 4. Employment structure of Kazakhstan [39]

After the disintegration of the Soviet Union, Kazakhstan's agriculture suffered heavy losses, but the market reform did not take advantage of the primary industry to find a suitable way for economic development. In fact, Kazakhstan's economic woes were already apparent in the early post-2015 period. Table 3 shows the industrial structure of major countries in 2017. Compared with the developed countries, Kazakhstan's agriculture still occupies a larger proportion, with the tertiary industry below the world average. Although Kazakhstan's after market reform has achieved optimization of its industrial structure, the service industry based on distribution services, and the industry depending on energy and oil extraction has driven Kazakhstan's economic development to some extent, it cannot deny the fact that its economy is vulnerable. Agriculture, which continues to play a crucial role, has been hit by incomplete market reforms while industrial transformation has not yet reached maturity. The loss of labor could further exacerbate the vulnerability of the country's agriculture, which remains in a model of small-scale and extensive economic development. It is worth thinking about whether the incomplete industrial development and reduced labor force can support an important economic share and provide a foundation for the development of the secondary and tertiary industries.

Table 3. The industrial structure of major countries in the world [40]

Country	Agriculture (% of GDP)	Industry (% of GDP)	Services (% of GDP)
World	6.40%	30.00%	63.00%
Kazakhstan	6.13%	36.43%	57.45%
China	7.60%	40.50%	51.90%
The United States	0.90%	19.10%	80.00%
Russia	4.70%	32.40%	62.30%
Germany	7.00%	30.70%	68.60%

5. Conclusion

Kazakhstan is one of the top ten grain exporters globally, with wheat exports a major source of foreign currency. Accession to the WTO gives Kazakhstan free and non-discriminatory access to foreign markets and initiates the procedure to reduce restrictive measures against Kazakhstan exporters and producers. Without equitable participation in the international exchange of goods, services, and technologies, it will be difficult for Kazakhstan to implement its modernization plans.

However, as this study demonstrates, the commitments negatively affected Kazakhstan's agriculture and even its economy. Under the circumstances that the informal system has not yet been transformed, Kazakhstan's reckless market reform makes the institution environment unable to parallel with the formal institution in a short period. Path dependence and institutional change have collided with each other.

Specifically, Kazakhstan's WTO accession commitments, including Market access, fiscal expenditures, and technical barriers have affected Kazakhstan's agriculture from three aspects including tariff prices, government support, and technology, resulting in the deep expansion of its market and the increase in the cost of agricultural materials, limiting its agricultural output. Facing competition and challenges, Kazakhstan's agriculture, which is mainly based on self-employment, lacks scientific and technological support, and gradually falls to a disadvantage in the international market with an extremely low economic conversion rate.

The plight of agriculture in Kazakhstan is common in developing countries undergoing economic transition. Immature society scarcely embraces the market economy, forming a distorted industrial structure. Agriculture in Kazakhstan is underdeveloped yet plays a fundamental role in the economic structure. Industries cannot receive robust support from agriculture, which is difficult to provide momentum for Kazakhstan's economic development. Since 2019, the economy of Kazakhstan has been hit by the double whammy of coronavirus disease (COVID-19) and the sharp drop in international crude oil prices. On the premise of optimizing the fundamental role of the industrial structure, it still has a long way to go to eliminate its dependence on energy and form a modern economic development model.

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