Factors Affecting Chinese Enterprises' Investment in Central Asian Markets

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Abstract: This article uses empirical analysis to determine the factors that can actually attract Chinese companies in the Central Asian market, and then uses a simple econometric regression method to verify the relationship between them. The results of this study show that as the population and purchasing power of the host country increases, Chinese companies are more willing to invest in the region, and China's neighboring countries are expected to attract more Chinese investment than other countries. In addition, the increase in the number of newly developed products by Chinese small and medium-sized enterprises can also determine the ownership advantage of the enterprise, that is, the newer products an enterprise develops, the higher its chances of entering the Central Asian market.

***Keywords*:** Chinese enterprises, central Asian market, factors

1. Introduction

1.1 Research background and importance

In 2003, China's total exports to the C.A. countries were less than 5 billion US dollars, and its foreign direct investment was 40 million US dollars. By 2021, China Total exports to the C.A. countries exceeded US$50 billion, and foreign direct investment exceeded US$1.3 billion. Chinese companies choose to enter the C.A. market, and more and more companies mainly use FDI. The increase in foreign-funded enterprises plays an important role in promoting the development of the host country's economy, bringing more differentiated products and services, promoting competition in the host country's market, resisting monopoly, and improving the global supply chain. Therefore, studying the factors that attract Chinese enterprises is crucial to promoting economic development in C.A.

1.2 Overview of related theoretical research

This article mainly relies on the OLI eclectic theory to determine the specific factors that influence Chinese companies to choose the C.A. market as cross-border value-added activities. Moreover, Xu and Chen. (2008). [2] concluded that subject to the constraints of economies of scale, in the value chain system invested by multinational companies, whether it is the manufacturing link, R&D, or operation links, the degree of concentration is highly related to the economic scale of the region. Qiao Lu et al. (2020). [1] found that the distance between countries has a negative impact on cross-border M&A; Finally, Dirk and Niva. (2020).[4] believes that Chinese companies' active localization is also welcomed by consumers in host countries, making it easier to adapt to the social environment of C.A. countries.

1.3 Research content and used methods

This article uses empirical research methods to study the factors that stimulate Chinese enterprises to invest in the C.A. market. It uses the least squares method to estimate the factors that attract Chinese-funded enterprises, designs an econometric panel data model, uses relevant theories to screen explanatory variables as influencing factors, determines the degree of influence of each explanatory variable and its statistical significance, and eliminates statistically insignificant or doubtful variables, providing a theoretical explanation.

1.4 Findings and conclusion

This empirical study found that the market size, population and distance factors (whether they border with China) of the C.A. countries, as well as the new product development projects of Chinese small and medium-sized enterprises can influence the choice of Chinese enterprises to enter the C.A. market, among which from a mathematical perspective, distance and market size factors have the main impact. The results of this study show that as the population and purchasing power of the host country increases, Chinese companies are more willing to invest in the region, and China's neighboring countries are expected to attract more Chinese investment than other countries. In addition, the increase in the number of newly developed

products by Chinese small and medium-sized enterprises can also determine the ownership advantage of the enterprise, that is, the newer products an enterprise develops, the higher its chances of entering the C.A. market.

2. Introduction to the "China Investment in Central Asia" model

2.1 Introduction to econometric model

This study uses the least squares estimation method to design a linear multi-regression model for China's investment in Central Asia. The formula is as follows:

$$\hat{FDI}_{ct} = -3130407859 + 7001,65 * INOV_t + 161809,85 * INCOME_{ct} + 62,04 * POPUL_{ct} + 1582941080 * BORDER_c$$

[22]

Each coefficient (parameter) represents the marginal impact of the corresponding explanatory variable (i.e., influencing factor) on China's investment in Central Asia.

2.2 Variable description

FDI is used as an explained variable in the model. It refers to the scale of China's foreign direct investment stock in country c in year t, measured in US dollars. INOV is used as one of the explanatory variables in the model, representing the degree of innovation of Chinese enterprises. It refers to the number of new product projects developed by China's large and medium-sized industrial enterprises in year t. INCOME represents the market size of the host country, it refers to the per capita income of country c in year t calculated by purchasing power, measured in international dollars per person. POPUL represents the number of consumers in the host country and the country's labor force. It refers to the total population of country c in year t, measured in human units. BORDER represents the distance between the country and China and the possibility of integration of people and culture. It refers to whether country c has a common border with China, as a dummy variable in the model.

2.3 Statistical test results

Table 1. Statistical test output

Regression Statistics						
Multiple R	0,866788683	R Square	0,751322622	Adjusted R Square	0,740270294	
Standard Error	1038167099	Observations	95			
ANOVA						
	df	*SS*	*MS*	*F*	Significance F	
Regression	4	2,93067E+20	7,32668E+19	67,9786762***	2,21478E-26	
Residual	90	9,70012E+19	1,07779E+18			
Total	94	3,90068E+20				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	3130407859***	359206502,8	8,714786161	1,34941E-13	3844034273	2416781445
INOV	7001,65036***	1553,16502	4,507988702	1,96428E-05	3916,016958	10087,28376
INCOME	161809,851***	15613,75438	10,36328913	5,03996E-17	130790,4027	192829,2993
POPUL	62,03842345***	12,62288563	4,914757631	3,96651E-06	36,96085795	87,11598895
BORDER	1582941080***	238001201,7	6,65097936	2,1999E-09	1110110152	2055772008

*: Statistically significant at the 5% level, **: Statistically significant at the 1% level, ***: Statistically significant at the 0.1% level

Correlation coefficient test results between explanatory variables and error term. In order to test whether there are "endogeneity" and "multicollinearity" problems in this model, the correlation coefficients between each explanatory variable and the error term cited in the model are calculated below.

Table 2. Correlation matrix between variables and residuals

	INOV	INCOME	POPUL	BORDER	Residuals
INOV	1	0,329573	0,125234	$-4,3*10^{-18}$	$1,16*10^{-16}$
INCOME	0,329573	1	0,177092	0,052074	$8,85*10^{-17}$
POPUL	0,125234	0,177092	1	−0,38769	$8,65*10^{-17}$
BORDER	$-4,3*10^{-18}$	0,052074	−0,38769	1	$-1,8*10^{-16}$
Residuals[22]	$1,16*10^{-16}$	$8,85*10^{-17}$	$8,65*10^{-17}$	$-1,8*10^{-16}$	1

It can be seen from the calculation results that the covariance between each explanatory variable and the error term is a constant close to zero. To a certain extent, it can be said that although this model has the possibility of "endogeneity" problems, its possibility is relatively small. However, the correlation coefficient between explanatory variables is not a constant close to zero. Although it can be assumed from economic theory that there cannot be a completely linear relationship between most explanatory variables, nevertheless, the possibility of multicollinearity among the explanatory variables in this model cannot be completely rejected, but can be considered to be extremely small.

3. Factors affecting China's investment in Central Asia

3.1 Innovation of Chinese companies

The results show that Chinese enterprises' foreign direct investment in C.A. is positively correlated with the development of new projects by enterprises Chinese companies are increasingly inclined to innovate, develop new products, and strive for monopoly advantages, thereby more effectively entering the host country's market, competing with local companies.

Figure 1. Sales of new products of Chinese enterprise (Source: National Bureau of Statistics of China)

In addition, as shown in Figure 1, from 2004 to 2022, the revenue generated by the export sales of newly developed products by Chinese companies has continued to increase, and its average proportion in the total revenue of new products is 20%.

3.2 Market size

The results of this quantitative analysis show that the purchasing power of the C.A. population, that is, the market size, is a positive factor influencing Chinese companies to adopt FDI investment. In this article, the relationship between FDI and market size is mainly explained by the following three reasons.

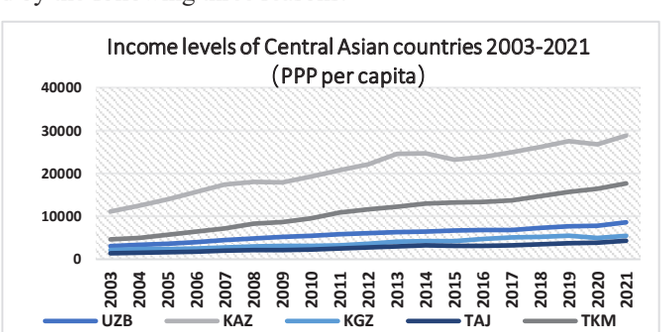

Figure 2. C.A. purchasing power (international dollar/person) (Source: World Bank)

Expected earnings of the company. According to Figure 2, the economies of the C.A. countries have shown a stable growth trend in the past 20 years, and the scale of investment by Chinese companies in these countries has also increased. Secondly, Kazakhstan has a relatively strong population purchasing power with high degree of economic liberalization. Compared with other C.A. countries, the amount of investment by Chinese enterprises in Kazakhstan is relatively high. Therefore, the continuous increase in the market size of these countries has played an important role in the investment decisions of Chinese companies.

Market capacity. The size of the C.A. market determines the possibility that the C.A. market can accept overseas investment. Over the past 20 years, the development of various economic sectors in C.A. countries has brought the region's demand for diversified products, as well as products with higher processing levels, technology and capital investment, such as production technology, electrical appliances and automobiles, luxury goods, etc.

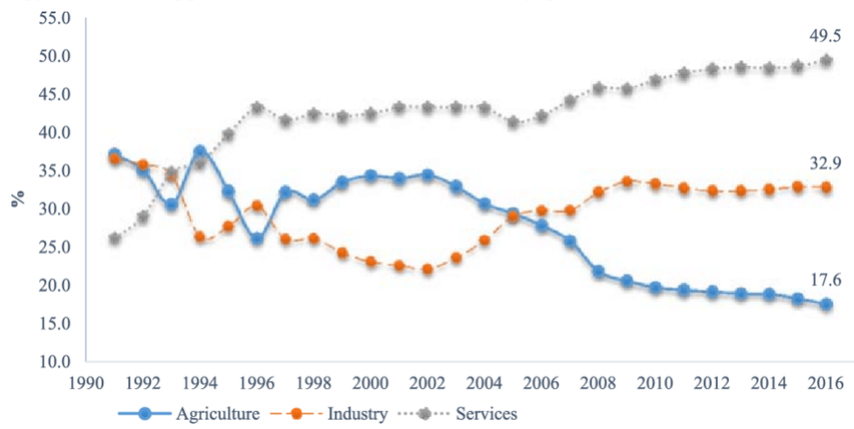

Figure 3. Economic sectors share of Uzbekistan's GDP (Source: Asian Development Bank)

Service industry externalities. Total income is total output, which refers to the total value of final products and services produced by the country in a certain period. Therefore, the growth of the host country's income can be referred to in this article as the increase in country's manufacturing, service, infrastructure, etc. scale of value-added activities and government spending. With the economic growth of the C.A. countries, various value-added activities providing services such as banking, telecommunications, news media, insurance, express delivery, and hotel industries in Central Asia have increased in scale and quality, making the C.A. investment environment better, as far as Chinese companies are concerned.

3.3 Host country population

China's foreign direct investment in Central Asia is positively correlated with the total population of the host country. As the population of C.A. countries grows, more Chinese-funded companies are to invest in the region. The reasons for this relationship are as follows:

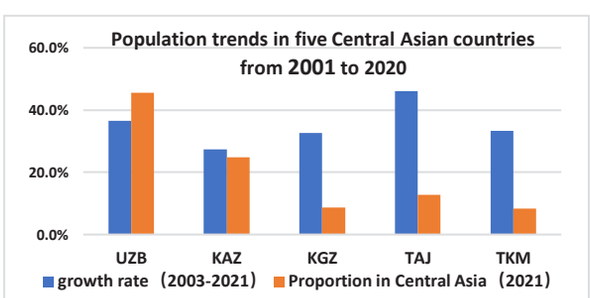

Figure 4. Total population growth rate and proportion of the C.A. (Data source: World Bank)

Number of consumers. Central Asians are countries with relatively high population growth rates. Taking Uzbekistan and Tajikistan as examples, as shown in Figure 4, they have increased by more than 35% and 45% respectively in the past 20 years. The former's population accounts for more than 35% of the total population of C.A. The growth of population can shorten the consumption cycle of durable goods in the domestic market, bringing new business opportunities to Chinese companies operating related products.

Low-cost labor.

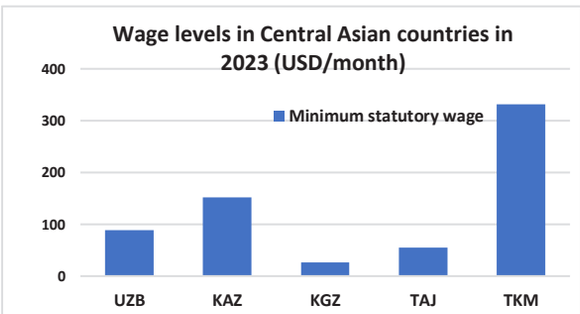

Figure 5. Minimum wage standards in C.A. countries in 2023 (Data sources: Law of Kazakhstan "On the Budget of the Republic for 2023-2025", the State Statistical Committee of Uzbekistan, "Budget of the Republic of the Kyrgyzstan for 2023", the Presidential Decree of Tajikistan on January 13, 2022)

Table 3. Minimum wage standards in various provinces, autonomous regions and municipalities in China (Data source: Ministry of Human Resources and Social Security of China)

October 1, 2023 Minimum wage standards in China in US dollars (at exchange rates on Monday, December 18, 2023)									
Region	Monthly minimum wage standard				Region	Monthly minimum wage standard			
	1 class	2 class	3 class	4 class		1 class	2 class	3 class	4 class
Beijing	339,14				Hunan	270,47	243,84	217,22	
Tianjin	305,51				Guangdong	322,32	266,27	241,04	227,03
Hebei	308,31	280,28	252,25		Shenzhen	330,73			
Shanxi	277,48	263,46	249,45		Guangxi	253,65	221,42	200,40	
Inner Mongolia	277,48	267,67	259,26		Hainan	256,46	242,44	235,44	
Liaoning	267,67	239,64	221,42	199,00	Chongqing	294,29	280,28		
Jilin	263,46	246,65	229,83	215,82	Sichuan	294,29	276,08	262,06	
Heilongjiang	260,66	225,63	203,20		Guizhou	264,87	246,65	232,63	
Shanghai	376,98				Yunnan	278,88	257,86	236,84	
Jiangsu	319,52	290,09	257,86		Tibet	294,29			
Zhejiang	319,52	290,09	257,86		Shaanxi	302,70	287,29	273,27	
Anhui	288,69	270,47	262,06	249,45	Gansu	255,06	248,05	241,04	234,03
Fujian	284,49	274,68	253,65	232,63	Qinghai	263,46			
Jiangxi	259,26	242,44	225,63		Ningxia	273,27	257,86	245,25	
Shandong	308,31	281,68	255,06		Xinjiang	266,27	238,24	227,03	215,82
Henan	280,28	252,25	224,22		average	288,73	259,37	239,81	223,35
Hubei	281,68	252,25	231,23	213,01					

Generally, multinational companies hope to reduce operating costs by hiring employees with lower wage levels in the host country. If Figure 5 is compared with Table 3, it can be found that the minimum wage standards of the C. A. countries are lower than the minimum income standards of each province in China. Therefore, Chinese companies can hire cheaper labor by entering the C.A. market to reduce operating costs.

The host country's labor supply is increasing and employment problems are intensifying. In addition, as the population of C.A. countries grows, facing more employment problems. The host government and communities will also be willing to provide preferential treatment to attract more foreign enterprises. When Chinese companies promoted localization in C.A., they began to adapt to new requirements, continuously increasing the proportion of local workers among their employees (as shown in Table 3), and conducting training and training in the host country, thus filling the shortage of experts. Chinese companies' active localization of operations also welcomes consumers in host countries, making it easier to adapt to the social environment of C.A. countries.

Table 4. Large Chinese companies hire local employees in Kyrgyzstan and Tajikistan (Source: Dirk van der Kley, Niva Yau. (2020) How Central Asian countries pushed Chinese companies to localize)

Investment project (host country)	Company name	Initial proportion of local staff	Later proportion of local staff
Zhongda Refinery (Kyrgyzstan)	Shaanxi Coal and Chemical Industry	30%（in2013）	67% (586/873 people, 2016)
Gold Mining Company "Altynken"(Kyrgyzstan)	Zijin Mining Group And KyrgyzAltyn	Less than50%（in2012）	90%（in2016）
Gold Mining Company "Kuru-Tegerek" (Kyrgyzstan)	China National Gold Group	60%（in2014）	60%（in2018）
Zhongta Mining Co., Ltd. (Tajikistan)	Tibet Summit Holdings	62% (1200/1700 people, 2014)	70%（in2017）
Gold mining company "Zarafshon" (Tajikistan)	Zijin Mining Group	In 2011, there were over 1,500 local workers; their total percentage is unknown	97% (total employees: 2,229, 2015)
"Huaxin Gayur Cement" Cement Plant (Tajikistan)	Huaxin Cement	70% (250 people)	79% (270/340 people, in2020)
"Huaxin Gayur (Sugd) Cement" (Tajikistan)	Huaxin Cement	63% (500/800 people, 2015)	90% (in2016)
"Dangara" Dangara Textile Complex	Xinjiang Zhongtai	unknown	95% (600/630 people, 2019)

3.4 Distance between the investing country and the host country

The results of this quantitative analysis show that the distance between the investing country and the host country can affect foreign direct investment. Generally, Chinese companies prefer to invest in countries that share borders with China. The reasons are mainly explained by the following conclusions:

There is sufficient information about neighboring countries and relatively low moral hazard. The longer the distance between countries, the less information investors have about the host country's society, culture, laws, and consumer preferences and habits, and the risks will be higher when making decisions. In addition, due to the information asymmetry problem, multinational companies will be uncertain about the behavior of their employees and partners in the host country, causing more Chinese companies to ignore some large-scale projects when investing in C.A. First, focus on countries that are relatively close, that is, China's neighboring countries, such as Kazakhstan, Kyrgyzstan and Tajikistan. Only after gaining successful experience in the C.A. market can Chinese companies begin to enter other countries that are far away, such as: Uzbekistan and Turkmenistan.

Convenient transportation and relatively complete logistics system. China has two railway lines on its border with Kazakhstan: Horgos-Almaty-Manas (Kyrgyzstan) and Dostyk-Aktogai; and three highway lines: Horgos-Almaty-Manas (Kyrgyzstan), Dostyk-Aktogai and Mekapshagai-Karbatau; In Kyrgyzstan, in addition to the Horgos-Almaty-Manas highway line that passes through the territory of Kazakhstan, there is also the Kashgar-Osh-Tashkent (Uzbekistan) highway, and Tajikistan has the Kashgar-Murgab Highway Line. However, for Uzbekistan and Turkmenistan, the land transportation between these countries and China must pass through the territory of one to two intermediate countries. Thus, Chinese companies can face a series of problems, such as: crossing the border of a third country, imperfect logistics system, high transportation costs, etc.

4. Conclusions and suggestions

Chinese enterprise innovation, market size, host country population, and the distance between the investing country and the host country are all found as factors that can affect China's investment in the C.A. market. In conclusion, Chinese enterprises play an increasingly important role in the economic value-added activities of C.A. countries, promoting the development of the C. A. economy, bringing more differentiated products and services, promoting competition in the C. A. market, resisting monopoly, and improving the global supply chain. In this case, further studying the factors that attract Chinese companies is crucial to promoting the economic development of the C. A. countries.

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