

Investment Environment Assessment and Strategic Policy for Subjects of Federation in Russia

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Abstract: Russia is the largest neighboring country of China. Between the two countries, the resources and industry are complemented, the political mutual trust is at a high level, and trade cooperation has a broad prospect. Choosing the best regions and the best industries to strengthen investment in Russia has a major strategic significance in promoting ‘the Belt and Road Initiative’ and China-Mongolia-Russia Economic Corridor Construction. However, the related researches are extremely limited. The investment environment is unclear, and the investment risk is unknown, which seriously restrict the investment in Russia and the trade cooperation with Russia. Our research team carried out scientific expedition, government visits and scientific research cooperation in Russia for several years, and obtained a great number of first-hand valuable data. According to the analysis on the data and Russian regional policies, this study constructed an investment environment evaluation model (ESI-PRA model), scientific assessed the investment environment for 83 subjects of federation in Russia, in terms of economic, social, infrastructure, policy, resource and accessibility, classified 4 types of investment regions, chose 3 investment priority regions, revealed the investment priority industries, demonstrated the main investment risks, and proposed the strategic policies. The research results provide direct scientific and technological support for strategic decisions, such as investment in Russia, bilateral economic and trade cooperation, and overseas layout of Chinese-funded enterprises. Moreover, it has an important practical and strategic significance for improving overseas geo-strategic interests of China and ensuring the construction of China-Mongolia-Russia Economic Corridor.

Keywords: Russia; investment environment assessment; investment risk; strategic policy; China-Mongolia-Russia Economic Corridor; the Belt and Road Initiative

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1 Introduction

Russia is the largest neighboring country of China. Since the China-Russia comprehensive strategic partnership entered a new stage in 2014 (Aliullin and Shakirova, 2014), high-level leaders of the two coun-

tries have exchanged visit frequently, and actively jointed the national development strategy of ‘The Belt and Road Initiative’ and ‘The Eurasian Economic Union’ (Liedtke, 2017). In terms of bilateral trade, since 2010 China had become the largest trading partner of Russia for six consecutive years, and the bilateral trade

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volume reached nearly 70 billion dollars in 2016 (Russian statistics department, 2016). In terms of foreign investment, the direct investment of China in Russia was 2.96 billion dollars in 2015, ranking second among countries along ‘the Belt and Road’ (Novoselov et al., 2017). In terms of regional cooperation, until the end of 2016, China and Russia had established 26 pairs of friendly provinces, 101 pairs of sister cities, dozens of pairs of economic and trade win-win regions. Between the two countries, the resources and industry are complemented each other, the political mutual trust is at a high level, which provided a strong support for the development of bilateral economic and trade cooperation (Locatelli, 2006).

In June 2016, China, Mongolia and Russia signed the ‘Program of Construction Planning for China-Mongolia-Russia Economic Corridor’, manifesting the official implementation of the first multilateral cooperation planning program under the framework of ‘The Belt and Road’ Russia is the largest country along ‘the Belt and Road’ and is the core country for China-Mongolia-Russia Economic Corridor Construction. Research on the investment environment in Russia have a great value in deepening mutual political trust, expanding the field of China-Russian economic cooperation, optimizing the cooperation structure, and enhancing the coordinated development of bilateral trade (Hu and Zhao, 2004).

As an important part of the world economy, Russia has always attracted much attention of foreign investors with its superior location conditions, abundant natural resources and open capital market (Kuzmina et al., 2014; Lygina et al., 2015; Ershova, 2017). However, in recent years, along with the global economic slowdown, geopolitical environment deterioration in the Asia-Pacific region, and the domestic policies failure (Guo, 2008; Li, 2009), Russia’s economic growth has declined continuously since 2008, and its investment environment has changed a lot (Yakovlev and Zhuravskaya, 2013; Berezinskaya, 2017; Bykova and Jardon, 2017). Meanwhile, Russia has a vast territory spanning two continents of Europe and Asia. The regional resources, economy, society, and policies have a great difference (Xu, 2015). There are many factors to consider before making a transnational investment (Wheeler and Mody, 1992; Devan and Estrin, 2004; Dang, 2013). How is the investment environment in Russian? Which regions and industries should be preferred and which risks should be

avoided? Could the investment achieve the expected target? Could the investment promote China-Mongolia-Russia Economic Corridor Construction and ‘the Belt and Road Initiative’? Could the investment enhance the win-win economies and society development of the two countries? A series of issues are the strategic issues must be clarified before carry out investment to Russia, which urgently need the scientific and technological support of relevant research.

Currently, research of Russian investment environment mostly set the whole Russia as study area (Duan et al., 2018), to analyze the investment strategy and risks in Russia. For example, Zhou analyzed Russian investment environment and its impact on foreign investment (Zhou, 2014). Han analyzed the advantages and disadvantages of investment in Russia (Han, 2017). Meanwhile, most researches were qualitative analysis (Song and Song, 2011; Dong, 2014). For example, He reviewed the investment environment of mineral industry in Russia (He, 2015). Yang analyzed the characteristics and major issues for the investment of China in Russia under ‘The Belt and Road Initiative’ (Yang, 2017). However, the existing researches were much lack of systematic and quantitative analysis on different subjects of federation in Russia. Moreover, there was little research analyzed on the key investment industries and specific investment risks in depth (Zhou and Xu, 2018). Russia has a vast territory and is composed of 83 subjects of federation. A national scale qualitative analysis is too rough to meet the actual requirements for the investment strategic decision-making of China, under the background of China-Mongolia-Russia Economic Corridor Construction. Therefore, a systematic quantitative study for the investment environment, investment priorities, and investment risks of Russia was urgently needed.

This study is directly oriented to the strategic demand of China-Mongolia-Russia Economic Corridor Construction, aiming at the investment goal of promoting economic and social win-win development of China and Russia. Based on valuable data collected by the research team who has carried out scientific expedition in Russia for many times, this study set the 83 subjects of federation in Russia as the study area (including 21 autonomous republics, 9 border regions, 46 states, 1 autonomous state, 2 federal municipalities, 4 autonomous regions, and excluding Crimea Republic and Sevastopol Municipalities), constructed investment environment

evaluation index system and quantitative evaluation model, systematically analyzed the spatial differentiation characteristic of Russian investment environment, quantitatively assessed investment environment, classified the investment environment types, chose the investment priority areas, revealed the investment priority industries, demonstrated the main investment risks, and proposed the strategic policies. The research results provided direct scientific and technological support for strategic decisions, such as investment in Russia, bilateral economic and trade cooperation, and overseas layout of Chinese-funded enterprises. Moreover, it has an important practical and strategic significance for improving overseas geo-strategic interests of China and ensuring the construction of China-Mongolia-Russia Economic Corridor.

2 Materials and Methods

2.1 Investment environment evaluation model

The quantitative assessment of Russian investment environment is a complex system project. Economic, social, infrastructure, policy, resource and accessibility of investment in various subjects of federation of Russia should be comprehensively considered. These six factors have different data types, valuation forms, and evaluation methods. Firstly, we quantitatively assessed three factors of the economic environment, social environment, and infrastructure environment. Then, we added the policy environment, resource base, and the accessibility to carry out the second quantitative assessment. Based on the above analyze, we constructed an investment environment comprehensive evaluation model: ESI-PRA model (Economic social infrastructure-Resource policy accessibility Model), in order to quantitatively assess the investment environment of the subjects of federation in Russia.

2.1.1 Evaluation for economic, social, infrastructure environment of investment

We built a matrix of economic, social, and infrastructure, including 83 subjects, 56 indicators. In this matrix, m expresses the subject and $m = 83$, n expresses indicator and $n = 56$.

$$X = \begin{bmatrix} x_{11} & \cdots & x_{1n} \\ \vdots & \ddots & \vdots \\ x_{m1} & \cdots & x_{mn} \end{bmatrix} \quad 0 \leq i \leq m, 0 \leq j \leq n \quad (1)$$

The indicators were standardized by formula (2).

$$\begin{cases} \text{positive indicator} & x'_{ij} = \frac{x_{ij} - x_{j\min}}{x_{j\max} - x_{j\min}} \\ \text{negative indicator} & x'_{ij} = \frac{x_{j\max} - x_{ij}}{x_{j\max} - x_{j\min}} \end{cases} \quad (2)$$

where $x_{j\max}$ express the maximum of x_{ij} , $x_{j\min}$ express the minimum of x_{ij} .

The entropy of indicator j is defined as

$$e^j = -k \sum_{i=1}^m s_{ij} \ln s_{ij} \quad (3)$$

where e^j express entropy of indicator j , $s_{ij} = x'_{ij} / \sum_{j=1}^m x'_{ij}$ and s_{ij} expresses the proportion of indicator j , $k=1/\ln m$.

Then we obtain the evaluation scores of economic, social, and infrastructure environment.

$$\begin{cases} \text{economic enviroment} & C_{1i} = \sum_{j=1}^n w^j x'_{ij} \\ \text{social enviroment} & C_{2i} = \sum_{j=1}^n w^j x'_{ij} \\ \text{infrastructure enviroment} & C_{3i} = \sum_{j=1}^n w^j x'_{ij} \end{cases} \quad (4)$$

where w^j is the weight of entropy for indicator j , $w^j = \frac{g^j}{\sum_{j=1}^n g^j}$ ($0 \leq w^j \leq 1$) and $\sum_{j=1}^n w^j = 1$. In which, g^j is

the information value, and $g^j = 1 - e^j$. C_{1i} , C_{2i} , C_{3i} expresses the score of economic, social, and infrastructure environment of subject i , respectively.

2.1.2 Evaluation for policy environment of investment

The policy environment of investment indicates that the subjects are benefited some certain preferential policies for foreign investment. Different indicators express the subject is benefited by different policies. The policy environment of investment includes 83 subjects and 27 indicators. The indicators are quantitative assessed by the following formula.

$$p_{ij} = \begin{cases} 1 & \text{benefit} \\ 0 & \text{unbenefit} \end{cases} \quad 0 \leq i \leq m, 0 \leq j \leq n \quad m = 83, n = 27 \quad (5)$$

where p_{ij} express the score of subject i be benefited by a single policy, 1 express the object is benefited by the policy, but 0 express the object is not benefited by the policy.

Then we obtain the evaluation scores of policies environment.

$$C_{4i} = \sum_{j=1}^n p_{ij} \quad (6)$$

where C_{4i} express the score of policy environment in subject i .

2.1.3 Evaluation for resource base of investment

The resource base of investment includes 83 regions and 9 indicators. The indicators are quantitative assessed by the following formula.

$$r_{ij} = \begin{cases} 1 & \text{exist} \\ 0 & \text{unexist} \end{cases} \quad 0 \leq i \leq m, \quad 0 \leq j \leq n \quad m = 83, \\ n = 9 \quad (7)$$

where r_{ij} express the score of a resource.

Then we obtain the evaluation scores of resources base.

$$C_{5i} = \sum_{j=1}^n r_{ij} \quad (8)$$

where C_{5i} express the score of resources base in subject i .

2.1.4 Evaluation for the accessibility of investment

The accessibility of investment indicators are the different transportation modes that Chinese investors choose to reach the investment area, and the different transportation time cost. The indicator is quantitative assessed by step-by-step discriminant method, as the following formula:

$$t_i = \begin{cases} \text{border AU} & t_i = 30 \text{ min} \\ \text{non-boundary AU} & t_i = t_{i1} + t_{i2} + t_{i3} + t_{i4} \end{cases} \quad (9)$$

where t_i is the minimum time that Chinese investors cost to reach the study administrative unit. t_{i1} , t_{i2} , t_{i3} , t_{i4} is the time that investors cost by airplane, shipping, railways and highways in the minimum time.

Since the time cost is a reverse indicator, the evaluation score of the accessibility is:

$$C_{6i} = \frac{1}{t_i} \quad (10)$$

where C_{6i} express the score of the accessibility in subject i .

2.1.5 Comprehensive evaluation for investment environment

The quantitative assessment of the Russian investment environment is a complex system project. Economic, social, infrastructure, policy, resource and accessibility of investment in various subjects of federation of Russia should be comprehensively considered. The different regions have different characteristics in these six factors, and different investors pay attention to different factors, as a result, six factors are assigned equal weight.

The initial scores of each object is standardized by the following formula.

$$C'_{qi} = \frac{C_{qi} - C_{q\min}}{C_{q\max} - C_{q\min}} \quad (1 \leq q \leq 6) \quad (11)$$

where q express factors: economic, social, infrastructure, policy, resource and accessibility.

The comprehensive evaluation scores of the investment environment in each subject could be calculated as:

$$Hi = \sum_{q=1}^6 C'_{qi} w_q \quad (12)$$

where $\sum_{q=1}^6 w_q = 1$ and w_q express the weight of each factor.

2.2 Investment environment evaluation system

The investment environment in this research has some special characteristics compared with other studies. Our research aims at the demand of national strategic, such as China-Mongolia-Russia Economic Corridor Construction and Chinese investment plan in Russia. Investment plans should take into account not only economic benefits but also social effects and ecological impacts. Our research group undertake the project of 'Science & Technology Basic Resources Investigation Program of China', and have carried out scientific expedition in Russia form 2005. We have established a close cooperative research relationship with Russian scientists. The investment environment evaluation system was determined by combining the cooperative research results of Chinese and Russian experts. The indicators were chosen based on two principles: one is the indicator that can accurately reflect the development level of Russia; the other is an indicator that can be obtained

from Russia's statistical system or from our scientific expedition. Therefore, we constructed a set of investment environment evaluation system composed of 'target-factor-indicator', including 6 factors of the economic environment of investment, the social environment of investment, the infrastructure environment of investment, the policy environment of investment, the resource base of investment, and the accessibility of investment, and 96 indicators (Table 1).

The economic environment, social environment, and infrastructure environment data $X1$ – $X56$ came from Russian Statistical Yearbook 2016 (Russian Statistics Department, 2016), and the evaluation method is in Section 2.1.1.

The policy environment data mainly came from our scientific expedition in Russia. $X57$, $X58$, $X59$, $X60$ came from the investigation result of the visit to the Tourism Administration of the Respublika Buryatiya in September 2016; $X61$, $X67$, $X68$, $X69$ came from the investigation result of the visit to the Economic Development Ministry of the Respublika Buryatiya in September 2016; $X62$, $X66$, $X71$, $X72$ came from the result of the visit to the Economic Development Ministry of the Vladivostok in October 2017; $X63$, $X64$ came from the result of the visit to the local government of Primorsky Krai in October 2017; $X65$, $X73$ came from the result of the visit to the local government of Yevreyskaya avtonomnaya oblast in October 2017; $X70$ came from the result of the visit to the local government of Khabarovsk in October 2017; $X74$, $X77$ came from the result of the visit to the Economic Development Ministry of Irkutsk in October 2015; $X75$, $X76$, $X78$ came from the result of the visit to the local government of Novosibirsk in April 2017; $X79$ came from State Taxation Administration of China (State Taxation Administration, 2016); $X80$ came from Bank of China official website (<http://www.boc.cn/ru/>); $X81$ came from Industrial and Commercial Bank of China official website (<http://www.icbc.com.cn/ICBC/海外分行/莫斯科网站/cn/>); $X82$ came from Agricultural Bank of China official website (http://www.ru.abchina.com/cn/news/201512/t20151209_812545.htm); $X83$ came from China Construction Bank official website (<http://ru.ccb.com/russia/cn/index.html>). The evaluation method is in Section 2.1.2.

The resource base data came from 'Report Series of

Comprehensive Scientific Expedition in North China and Its Adjacent Areas'. $X84$ came from 'Scientific Expedition Report of the River Basin and Typical Lakes' (Liu et al, 2017); $X85$ and $X86$ came from 'Comprehensive Report on Scientific Expedition' (Dong and Sun, 2017); $X91$ and $X92$ came from 'Scientific Expedition Report of Biodiversity' (Ouyang and Chen, 2016). The evaluation method is in Section 2.1.3.

The accessibility of investment indicators came from passenger transportation official website. $X93$ came from China International Airlines official website (<http://www.airchina.com.cn>). $X94$, $X95$, $X96$ came from Russian passenger transportation official website (<https://rasp.yandex.ru>). The evaluation method is in Section 2.1.4.

3 Results

According to the ESI-PRA model, we obtained the spatial distribution pattern for the economic environment, social environment, infrastructure environment, policy environment, resources base and accessibility of investment in Russia (Fig. 1) and assessed the comprehensive investment environment assessment for Russia (Fig. 2). The 83 subjects of federation were divided into four levels according to their evaluation scores based on the natural fracture method, which were excellent (level I), good (level II), medium (level III), poor (level IV).

3.1 Economic environment assessment of investment

The economic environment of investment was mainly evaluated from the perspectives of economic development, development potential, foreign trade and investment cost. In terms of the overall spatial distribution of economic development in Russia, the central and western regions were relatively traditional economic developed areas with high development level, while the eastern region belonged to the traditional economic less developed area (Fig. 1a). There was significant difference in market development degree, economic scale and activity between the eastern and western regions. The economic environment of investment in the eastern region was poorer than that in the western region. However, though the western region was relative prosperous, economic competition in it was fierce, investment cost and devel-

Table 1 Investment environment evaluation system for subjects of federation in Russia

Target	Factor	Indicator
Comprehensive Evaluation for Investment Environment of Administrative Units in Russian	Economic environment of investment	X1: Per capita income; X2: Gross fixed asset formation; X3: Foreign direct investment; X4: Labor supply; X5: Employment rate; X6: Proportion of primary industry; X7: Proportion of secondary production; X8: Industrial production index; X9: Agricultural production index; X10: Proportion of the tertiary industry; X11: Outbound tourists; X12: Exports to commonwealth of independent states; X13: Imports to commonwealth of independent states; X14: Exports to far east country; X15: Imports to far east country; X16: Purchase foreign currency; X17: Sale foreign currency; X18: Housing prices index; X19: Housing prices; X20: Average monthly wage
	Social environment of investment	X21: Density of population; X22: Total population; X23: Natural population growth rate; X24: Elderly ratio; X25: Adolescent ratio; X26: Adult ratio; X27: Proportion of low-income population; X28: Unemployment rate; X29: Retirement ratio; X30: Amount of crimes; X31: Amount of wage arrears; X32: Total Amount of national institutions; X33: Amount of religious organizations, X34: Amount of beds for 10 000 people; X35: Amount of doctors for 10000 people; X36: Amount of scientific researchers, X37: Amount of scientific research organizations; X38: Amount of educational institutions; X39: Amount of cultural heritage; X40: Amount of archaeological heritage; X41: Amount of exhibitions; X42: Amount of tourism company; X43: Inbound tourists; X44: Net migration population
	Infrastructure environment of investment	X45: Amount of self-driving per 1000 people; X46: Amount of buses for 10 000 people; X47: Railway density; X48: Highway density; X49: Freight; X50: Freight turnover; X51: Passenger capacity; X52: Passenger turnover; X53: Electricity production; X54: Residential area; X55: Mobile radio telephone users per 1000 people; X56: Percentage of Households accessing the internet
	Policy environment of investment	X57: The Eurasian Economic Union; X58: 'Tea Road' Tourism Cooperation Agreement; X59: The first joint declaration between Tourism Ministers in China, Mongolia and Russia; X60: 'Tea Road' Tourism Map; X61: Russian Special Economic Zone; X62: Russian advance development area; X63: Russian Federation Foreign Investment Law; X64: Foreign Investment into the Procedure Law of National Security Industry in Russia; X65: Free Distribution of Land in the Far East of Russia; X66: Eastern Russia Economic Agenda; X67: Far East and Baikal Regional Development Fund; X68: Social and Economic Development Strategy for Far East and Baikal Region in 2025; X69: Social and Economic Development Planning for Far East and Baikal Region; X70: Development Outline for Russian Far East Border Area in 2015–2025; X71: Russian Federation Special Economic Zone Law; X72: Russia Leapfrog Development Zone; X73: Agricultural Support Development Plan; X74: VAT Act to Compensate Foreigners Purchased in Russia; X75: Siberia Development Strategy in 2020; X76: Vladivostok Free Port; X77: Irkutsk Innovation Strategy 2008–2020; X78: Investment Law of the Republic of Tatar; X79: No. 64 Business Property Tax Law of Moscow; X80: Bank of China; X81: Industrial And Commercial Bank of China; X82: Agricultural Bank of China; X83: China Construction Bank
	Resource base of investment	X84: Water resources; X85: Land resources; X86: Forest resources; X87: Coal resources; X88: Oil and gas resources; X89: Metal minerals; X90: Non-metallic minerals; X91: Fishing and hunting resources; X92: Biological resources
Accessibility of investment	X93: Aviation accessibility; X94: Navigation accessibility; X95: Railway accessibility; X96: Highway accessibility	

opment potential were limited, while the eastern region was at potential state to be developed, with high accessibility of investment, low investment cost and prosperous development potential. Therefore, in recent years, the Russian government had paid special attention to guiding investment to east region through support policies, so as to improve the overall investment environment in the east region.

The subjects of federation with excellent economic environment of investment were Rostov Oblast, Yamalo-Nenets Autonomous Okrug, Nenets Okrug, Moskva Oblast and Novgorod Oblast. And the subjects of federation with poor economic environment of investment were Republic of North Ossetia-Alania, Primorsky Krai, Tuva Republic, Jewish Autonomous Oblast, Zabaykalsky Krai (Table 2).

3.2 Social environment assessment of investment

Social environment of investment mainly reflected the social features of population structure, social security and stability, science and education level, and regional attractive power. The subjects of federation with excellent social environment of investment were Moscow, Saint Petersburg, Moscow Oblast, Chukotka Autonomous Okrug, and Yamalo-Nenets Autonomous Okrug (Table 3), which were mainly located in the central and eastern region (Fig. 1b), where there were plenty of young and middle-aged labor force, unemployment rate was low, and there were many natural and cultural heritages which increase its regional attractive power and extroversion. The western region, especially the northwest part, was relatively poor, mainly including Penza Oblast, Pskov Oblast, Tula Republic, Tambov Oblast,

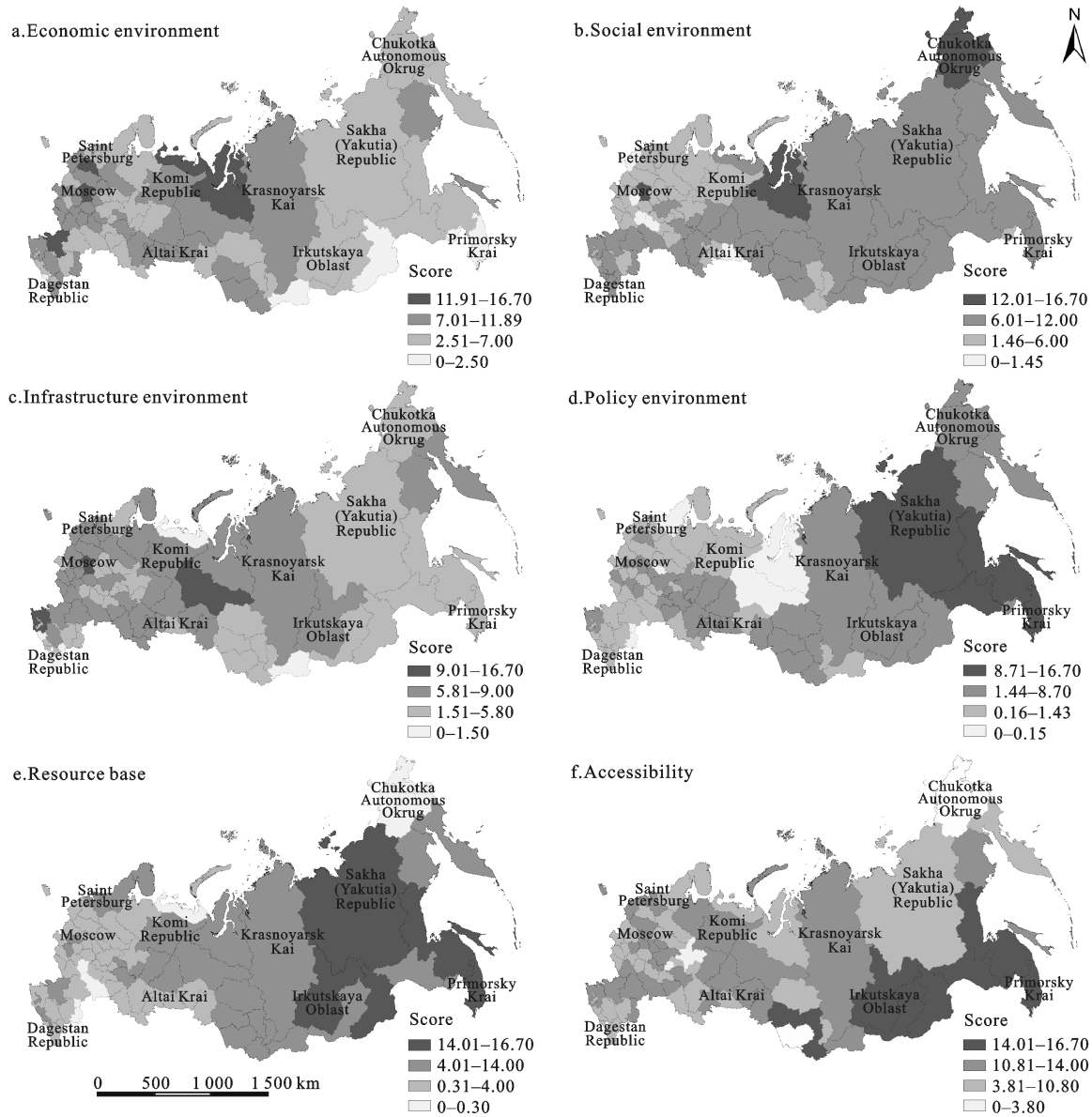


Fig. 1 Spatial distribution pattern for economic environment (a), social environment (b), infrastructure environment (c), policy environment (d), resources base (e) and accessibility (f) of investment in Russia

and Kurgan Oblast. It was mainly because that the trend of aging population is obvious, unemployment and proportion of low-income population is high, the region lacks attractive and important cultural and natural heritages, the population mobility was less, and the ethnic and religious were complex.

3.3 Infrastructure environment assessment of investment

The subjects of federation with excellent infrastructure environment of investment were Moscow Oblast, Moscow, Saint Petersburg, Krasnodar Krai, and Khanty-

Mansi Autonomous Okrug (Table 4). The good regions were mainly concentrated in 37 western and central subjects of federation, such as Rostov Oblast. The medium and poor regions were mainly concentrated in the eastern regions and scattered parts of the western regions (Fig. 1c).

3.4 Policy environment assessment of investment

The policy environment of investment was obviously better in the east than in the west (Fig. 1d), which was the opposite to the economic environment. The subjects of federation with excellent policy environment of

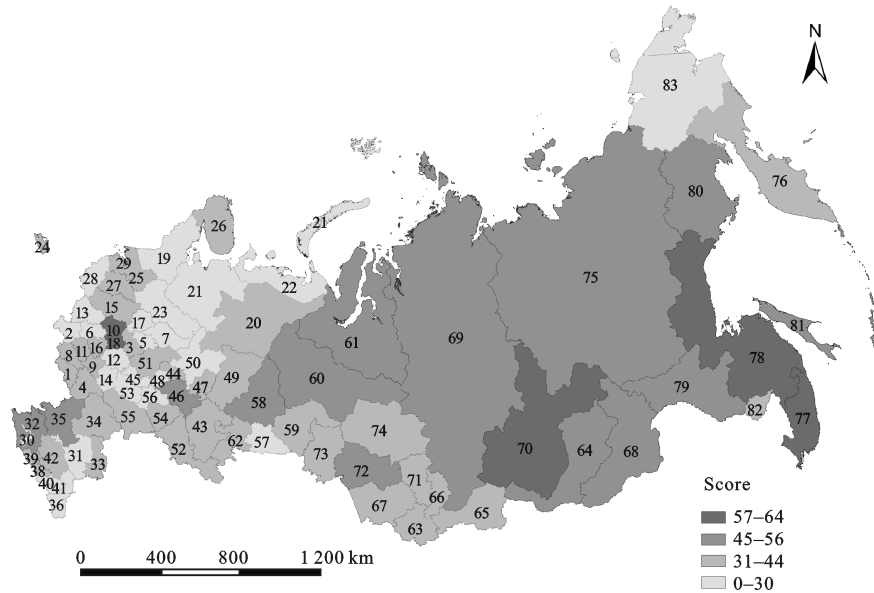


Fig. 2 Spatial distribution pattern for investment environment in Russia. The 83 subjects of federation are: 1. Belgorodskaya Oblast; 2. Bryanskaya Oblast; 3. VI-adimirskaya Oblast; 4. Voronezhskaya Oblast; 5. Ivanovskaya Oblast; 6. Kaluzhskaya Oblast; 7. Kostromskaya Oblast; 8. Kurskaya Oblast; 9. Lipetskaya Oblast; 10. Moscow; 11. Orlovskaya Oblast; 12. Ryazanskaya Oblast; 13. Smolenskaya Oblast; 14. Tambovskaya Oblast; 15. Tverskaya Oblast; 16. Tulsckaya Oblast; 17. Yaroslavskaya Oblast; 18. Moscow Oblast; 19. Karelia Republic; 20. Komi Republic; 21. Arkhangel'skaya Oblast; 22. Nenets Autonomous Okrug; 23. Vologodskaya Oblast; 24. Kaliningradskaya Oblast; 25. Leningradskaya Oblast; 26. Murmanskaya Oblast; 27. Novgorodskaya Oblast; 28. Pskovskaya Oblast; 29. Saint Petersburg; 30. Adyge Republic; 31. Kal-mykika Republic; 32. Krasnodar Krai; 33. Astrakhanskaya Oblast; 34. Volgogradskaya Oblast; 35. Rostovskaya Oblast; 36. Dagestan Republic; 37. Ingush Republic; 38. Kabardin-Balkarskaya Republic; 39. Karachay-Cherkessskaya Republic; 40. Respublika Severnaya Osetiya-Alaniya; 41. Chechenskaya Republic; 42. Stavropol Krai; 43. Respublika Bashkortostan; 44. Mariy-El Mari El Republic; 45. Respublika Mordoviya; 46. Respublika Tatarstan; 47. Udmurtskaya Respublika; 48. Chuvashskaya Respublika; 49. Perm Krai; 50. Kirov Oblast; 51. Nizhny Novgorod Oblast; 52. Orenburg Oblast; 53. Penza Oblast; 54. Samara Oblast; 55. Saratov Oblast; 56. Ulyanovsk Oblast; 57. Kurgan Oblast; 58. Sverdlovsk Oblast; 59. Tyumen Oblast; 60. Khanty-Mansi Autonomous Okrug; 61. Yamal-Nenets Autonomous Okrug; 62. Chelyabinsk Oblast; 63. Altai Republic; 64. Respublika Buryatiya; 65. Tyva Republic; 66. Respublika Khakasiya; 67. Altai Krai; 68. Zabaykalsky Krai; 69. Krasnoyarsk Krai; 70. Irkutsk Oblast; 71. Kemerovo Oblast; 72. Novosibirsk Oblast; 73. Omsk Oblast; 74. Tomsk Oblast; 75. Respublika Sakha; 76. Kamchatka Krai; 77. Primorsky Krai; 78. Khabarovsk Krai; 79. Amur Oblast; 80. Magadanskaya Oblast; 81. Sakhalin Oblast; 82. Yevre-yskaya avtonomnaya oblast; 83. Chukotka Autonomous Okrug

Table 2 Economic environment levels of investment in Russia

Level	Score	Subjects of federation
Level I: excellent	11.91–16.70	Rostov Oblast (16.67), Yamalo-Nenets Autonomous Okrug (14.37), Nenets Autonomous Okrug (12.53), Moscow Oblast (11.98), Novgorod Oblast (11.91)
Level II: good	7.01–11.90	Bryansk Oblast (11.26) and other 36 subjects of federation
Level III: medium	2.51–7.00	Respublika Ingushetiya (6.87) and other 35 subjects of federation
Level IV: poor	0–2.50	Republic of North Ossetia-Alania (2.38), Primorsky Krai (2.06), Tuva Republic (1.01), Jewish Autonomous Oblast (0.50), Zabaykalsky Krai (0.01)

Table 3 Social environment levels of investment in Russia

Level	Score	Subjects of federation
Level I: excellent	12.01–16.70	Moscow (16.67), Saint Petersburg (13.09), Moscow Oblast (12.98), Chukotka Autonomous Okrug (12.05), Yamalo-Nenets Autonomous Okrug (12.03)
Level II: good	6.01–12.00	Krasnodar Krai (11.86) and other 36 subjects of federation
Level III: medium	1.46–6.00	Murmansk Oblast (5.98) and other 35 subjects of federation
Level IV: poor	0–1.45	Penza Oblast (1.45), Pskov Oblast (1.40), Tula Republic (1.18), Tambov Oblast (0.65), Kurgan Oblast (0.01)

investment were Primorsky Krai, Khabarovsk Krai, Amur Oblast, Sakha (Yakutia) Republic, and Sakhalin Oblast. The poor region were mostly concentrated in Khanty-Mansi Autonomous Okrug, Yamalo-Nenets Autonomous Okrug, Republic of Karelia, Ivanovo Oblast, Astrakhan Oblast and other western regions (Table 5).

The policy environment of investment was mainly influenced by regional investment support policies. Recently, the Russian government had attached great importance to the development of the central and northeastern regions, and had successively issued many Far East development strategies and other supporting policies, such as Russian Special Economic Zone and Russian Advance Development Area, to improve investment environment in the central and eastern regions, especially in the Far East region. Take the Primorsky Krai as an example, this region was benefited from 16 policies such as ‘Russian Advance Development Area’, ‘Free Distribution of Land in the Far East of Russia’, ‘Eastern Russia Economic Agenda’, ‘Far East and Baikal Regional Development Fund’, and it became the region with the highest level of support policies in Russia. In addition, the Khabarovsk Krai, the Amur Oblast, the Sakha (Yakutia) Republic and the Sakhalin Oblast were

benefited from 15 and 13 policies respectively, and ranked in the forefront. Moreover, in recent years, due to the deepening of China-Russia economic and trade cooperation, these regions have set up branches of major banks in China, which has played a great role in supporting the regional financial environment, especially the financial support on Chinese enterprises. However, in the western region, the economic development is higher, but there were no obvious advantages in the central and eastern regions in terms of policy environment.

3.5 Resource base assessment of investment

The resources base of investment was obviously better in the east than the west (Fig. 1e). The subjects of federation with excellent resources base of investment were Sakha (Yakutia) Republic, Irkutskaya Oblast, Primorsky Krai, Zabaykalsky Krai, Sakhalin Oblast, and Khabarovsk Krai. The good regions mainly included 31 subjects of federation in the central part, including the Komi Republic. While the poor regions included Tambov Oblast, Chukotka Autonomous Okrug, Saratov Oblast, Astrakhan Oblast, Nenets Autonomous Okrug and other western regions (Table 6).

Table 4 Infrastructure environment levels of investment in Russia

Level	Score	Subjects of federation
Level I: excellent	9.01–16.70	Moscow Oblast (16.67), Moscow (14.58), Saint Petersburg (11.28), Krasnodar Krai (10.02), Khanty-Mansi Autonomous Okrug (9.75)
Level II: good	5.81–9.00	Rostov Oblast (8.83) and other 36 subjects of federation
Level III: medium	1.51–5.80	Astrakhan Oblast (5.76) and other 35 subjects of federation
Level IV: poor	0–1.50	Respublika Ingushetiya (1.30), Tuva Republic (1.27), Karachay-Cherkess Republic (0.83), Republic of Dagestan (0.56), Nenets Autonomous Okrug (0.01)

Table 5 Policy environment levels of investment in Russia

Level	Score	Subjects of federation
Level I: excellent	8.71–16.70	Primorsky Krai (16.67), Khabarovsk Krai (14.66), Amur Oblast (12.36), Sakha (Yakutia) Republic (8.83), Sakhalin Oblast (8.80)
Level II: good	1.44–8.70	Moskva (8.65) and other 36 subjects of federation
Level III: medium	0.16–1.43	Kaliningrad Oblast (1.43) and other 35 subjects of federation
Level IV: poor	0–0.15	Khanty-Mansi Autonomous Okrug (0.13), Yamalo-Nenets Autonomous Okrug (0.11), Republic of Karelia (0.07), Ivanovo Oblast (0.03), Astrakhan Oblast (0.01)

Table 6 Resources base levels of investment in Russia

Level	Score	Subjects of federation
Level I: excellent	14.01–16.70	Sakha (Yakutia) Republic (16.67), Irkutskaya Oblast (14.60), Primorsky Krai (14.43), Zabaykalsky Krai (14.16), Sakhalin Oblast (14.14), Khabarovsk Krai (14.10)
Level II: good	4.01–14.00	Komi Republic (11.26) and other 30 subjects of federation
Level III: medium	0.31–4.00	Omsk Oblast (3.97) and other 40 subjects of federation
Level IV: poor	0–0.30	Tambov Oblast (0.28), Chukotka Autonomous Okrug (0.17), Saratov Oblast (0.16), Astrakhan Oblast (0.02), Nenets Autonomous Okrug (0.01)

The regional resources base of investment mainly reflected that whether this region had international or national resource, such as water resources, farmland resources, forest resources, coal resources, oil and gas resources, metal minerals, non-metallic minerals, fishing and hunting resources, and animal and plant resources. The more resources the region had, the better the regional resources base was.

The Sakha (Yakutia) Republic had a wide range of resources and abundant reserves. It had hydropower resources, coal resources, oil and gas resources, and metal and non-metallic minerals. And the diamond production in this region ranked first in Russia. So, the resources base of investment in Sakha (Yakutia) Republic is the top in Russia. Irkutskaya Oblast and Zabaykalsky Krai are located around the Lake Baikal. Lake Baikal is the deepest and highest-storage freshwater lake in the world, with 20% of global freshwater resources. In addition, Irkutskaya Oblast had abundant forest resources, and the forest coverage rate was 82.8%. The coal, oil and gas resources and rare metal reserves in these two regions were also very rich. As a result, the resources base of investment in Irkutskaya Oblast and Zabaykalsky Krai ranked the second and fourth respectively in Russia. Due to the diversity of mineral resources, the resources base of investment in Primorsky Krai's ranked third in Russia. The main resources in this area were coal, tin, tungsten, lead, titanium, fluorite and other mineral deposits. Meanwhile, the output of fluorite in this area was extremely high, accounting for 80% of all Russia. The resources base of investment in Sakhalin Oblast and Khabarovsk Krai were ranked fifth and sixth respectively in Russia. They have abundant forest resources and mineral resources, which had great potential for exploitation under develop mode optimizing and ecological damage reducing.

3.6 Accessibility assessment of investment

For Chinese enterprises, the areas with better accessibility of investment were concentrated in the China-Russian border regions, important ports and airport hub areas, which were the cores with surrounding advantage diminishing areas. The subjects of federation with excellent accessibility of investment are Kemerovo Oblast, Khabarovsk Krai, Amur Oblast, Zabaykalsky Krai, Respublika Altay, Jewish Autonomous Oblast, Primorsky Krai, Respublika Buryatiya, Irkutskaya Oblast, Novosibirsk Oblast (Table 7), which were concentrated in the surrounding area of Lake Baikal, Southern of Far East and Novosibirsk Region (Fig. 1f). These regions were adjacent to the Chinese border, had direct air routes or land routes to China, owned well-developed transportation facilities, and relatively well-established port facilities. The subjects of federation with poor accessibility of investment were Respublika Ingushetiya, Altai Krai, Kirov Oblast, Chukotka Autonomous Okrug, and The Chuvash Republic. These areas were far away from the Chinese border, and required a combination of multiple transportation modes to exchange logistics and people with China.

3.7 Comprehensive investment environment assessment

According to the assessment of the six major investment environment subsystems based on the ESI-PRA model, the comprehensive score and the spatial differentiation pattern of the investment environment in Russian were obtained (Fig. 2). The 83 subjects of federation were divided into four types according to their investment environment evaluation scores, which were priority investment regions, potential investment regions, medium investment regions, and investment risk regions (Table 8).

Table 7 Accessibility levels of investment in Russia

Level	Score	Subjects of federation
Level I: excellent	14.01–16.70	Kemerovo Oblast (16.67), Khabarovsk Krai (16.67), Amur Oblast (16.67), Zabaykalsky Krai (16.67), Respublika Altay (16.67), Jewish Autonomous Oblast (16.67), Primorsky Krai (15.81), Respublika Buryatiya (15.54), Irkutskaya Oblast (15.50), Novosibirsk Oblast (14.61)
Level II: good	10.81–14.00	Sakhalin Oblast (13.72) and other 31 subjects of federation
Level III: medium	3.81–10.80	Stavropol Krai (10.78) and other 35 subjects of federation
Level IV: poor	0–3.80	Respublika Ingushetiya (3.64), Altai Krai (3.49), Kirov Oblast (1.24), Chukotka Autonomous Okrug (0.97), The Chuvash Republic (0.01)

Table 8 Investment environment regionalization in Russia

Level	Score	Subjects of federation
Priority investment regions	57–64	Moscow (63.60), Khabarovsk Krai (61.74), Primorsky Krai (60.81), Moscow Oblast (58.28), Irkutskaya Oblast (57.67)
Potential investment regions	45–56	Rostov Oblast (55.74) and other 14 subjects of federation
Medium investment regions	31–44	Respublika Altay (41.54) and other 36 subjects of federation
Investment risk regions	0–30	Respublika Adygeya (29.19) and other 25 subjects of federation

The priority investment regions represented by Moscow, Khabarovsk Krai, Primorsky Krai, Moscow Oblast and Irkutskaya Oblast. These regions have good economic and social foundations, rich resources, and open investment environment. They are the most attractive areas for investment. The potential investment regions scored 45–56 points, represented by Novosibirsk Oblast, Rostov Oblast, Yamalo-Nenets Autonomous Okrug, and Saint Petersburg. These regions have outstanding investment advantages in individual fields. Although the current economic development level and other practical conditions are still relatively limited, they have broad investment prospects, high expected returns, and large potential investment value. These regions are investment regions with greater potential in the future. In the medium investment regions, the investment environment is general, the advantages on investment were not obvious, and there are certain risks in some areas. The medium investment regions should be carefully considered when investing. The investment environment score in the investment risk regions were less than 30 points, represented by Kurgan Oblast, Chukotka Autonomous Okrug and other regions. These regions have terrible natural condition, low level of economic and social development, backward infrastructure foundation, and poor social environment stability. The investment risk regions are the area which should be avoided for investment as much as possible currently, even in the future.

4 Discussion

According to the comprehensively investment environment assessment of 83 subjects of federation in Russia based on the ESI-PRA model, we found that Russian priority investment regions were mainly concentrated in three major zones. They were Khabarovsk Krai and Primorsky Krai, Irkutskaya Oblast, Moscow and Moscow Oblast. These three regions were in the forefront of investment environment in the whole Russia,

but they had their own characteristics and advantages in economic and social development, resources base, and investment policies. Therefore, the investment choice and risks among three regions were obvious different.

4.1 Investment choice in priority investment regions

According to the above analysis, there are three priority investment regions in Russia. In order to select the priority industry for each priority investment regions, we analyzed the indicator of industry value-added index, which reflects the profitability of different industries in the region. The data source is Russian Statistical Yearbook 2016 (Russian Statistics Department, 2016).

4.1.1 Investment choice in Khabarovsk Krai and Primorsky Krai

According to the ESI-PRA model, Khabarovsk Krai and Primorsky Krai mainly have superior advantages in border and coastal location, resources endowment of coal, metals, oil and gas, and fishery resources, as well as a series of investment support policies such as Russian special economic zone, Russian advance development area, and Free distribution of land in the Far East of Russia. Therefore, this region was in the forefront of Russian investment environment. According to the analysis on industry value-added index, in 2015, the transportation and communications industry in Khabarovsk Krai and Primorsky Krai accounted for 25.7% and 20.0% respectively, the wholesale and retail trade accounted for 15.1% and 19.8% respectively, and the manufacturing industry accounted for 9.4%, which were high value-added industries in this region, even in the whole Russia (Fig. 3).

In addition, in July 2017, China and Russia signed a cooperation agreement on the ‘Coastal No. 1’ and ‘Coastal No. 2’ International Traffic Corridors. As an important strategic connection area, Khabarovsk Krai and Primorsky Krai have closely linked ‘Far East Development Strategy’ of Russia and China’s strategy ‘Northeast Revitalization Strategy’ of China, through

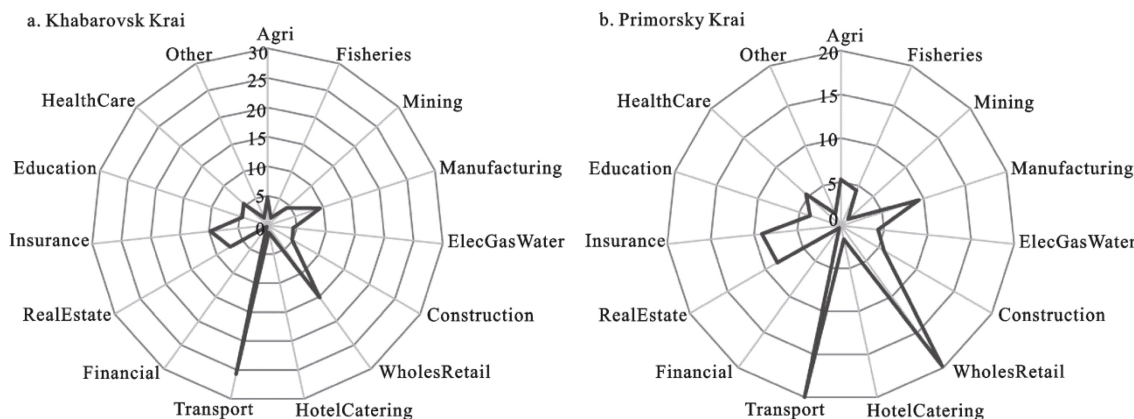


Fig. 3 The industry value-added index of Khabarovsk Krai (a) and Primorsky Krai (b). The 15 industries are agriculture, hunting and forestry (Agri); fisheries (Fisheries); mining industry (Mining); manufacturing industry (Manufacturing); electricity, gas, water production and distribution (ElecGasWater); construction industry (Construction); wholesale and retail trade (Wholes Retail); hotel catering industry (HotelCatering); transportation and communications industry (Transport); financial industry (Financial); real estate transaction industry (RealEstate); social insurance industry(Insurance); education industry (Education); health care and social service industry (HealthCare); other service (Other)

cross-border cooperation in Transport. So that this region had won more opportunities and advantage in logistics, information flow, and personnel flow of cross-border and cross-region, which brought about broad future development prospect.

Based on the ESI-PRA model assessment and regional industrial value-added index analysis, considering local unique traffic location, cross-border logistics development, bulk resource exploitation and trade cooperation, and the prosperous coastal market, we proposed to choose transportation and communications industry, wholesale and retail trade, and manufacturing industry centered on the deep processing of port resources as the priority investment industries in the region of Khabarovsk Krai and Primorsky Krai.

4.1.2 Investment choice in Irkutskaya Oblast

According to the ESI-PRA model, Irkutskaya Oblast has the worldwide unique advantages in freshwater resources and international tourism destination of Lake Baikal. In addition, this region also has rich resources of mineral, biodiversity, oil and gas, forests, and water, as well as convenient investment accessibility and a series of investment support policies such as ‘Tea Road’ Tourism Cooperation Agreement, Irkutsk innovation strategy 2008–2020. Therefore, this region was also in the forefront of Russian investment environment. According to the analysis on industry value-added index, in 2015, the mining industry, transportation and communications industry and manufacturing industry accounted for

19.9%, 15.8%, and 12.8%, respectively, significantly ahead of other regions in the same industry (Fig. 4).

Meanwhile, Irkutskaya Oblast is close to Lake Baikal, which is the largest freshwater lake in the world. The water reserve of Lake Baikal is large, accounting for 20% worldwide, and the quality is excellent. Lake Baikal is also a world-famous tourist destination for its beautiful scenery. In recent years, the number of tourists has grown rapidly, especially among high-end tourists from China, Japan, Korea, Europe and the United States. Therefore, we proposed to choose tourism, mining industry, transportation and communications industry and manufacturing industry centered on the exploitation and deep processing of mineral resources as the priority investment industries in Irkutskaya Oblast.

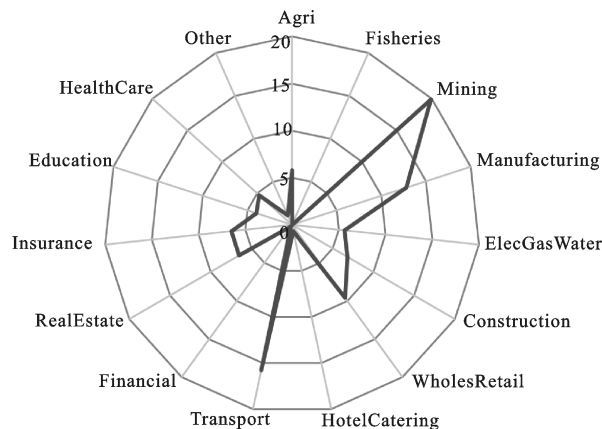


Fig. 4 The industry value-added index of Irkutskaya Oblast. The 15 industries are the same as those in Fig. 3

4.1.3 Investment focus in Moscow and Moscow Oblast

According to the ESI-PRA model, Moscow and Moscow Oblast owns prosperous and mature international market, the most advanced economic development level in Russia, the most convenient transportation infrastructure, and the highest level of scientific and technological research ability. Therefore, Moscow and Moscow Oblast was the priority investment region in Russia. According to the analysis on industry value-added index, in 2015, wholesale and retail trade of Moscow and Moscow Oblast accounted for 35.4% and 22.7%, the real estate transaction industry accounted for 18.5% and 17.9%, and the manufacturing industry accounted for 15.6% and 17.7%, respectively (Fig. 5).

In addition, according to the ‘2016 Statistical Bulletin of Foreign Direct Investment of China’, manufacturing industry, wholesale and retail trade and real estate transaction industry were the second, third, and fifth highest amount of foreign direct investment of Chinese enterprises in 2016, which proved that the direction of Chinese enterprises foreign investment much coincided with the dominant industries of Moscow and Moscow Oblast. Therefore, when investing in Moscow and Moscow Oblast, it should make full use of the regional dominant position in commodity consumption, real estate, finance, high-end services, high technology, conform to the direction of foreign investment, choose wholesale and retail trade, real estate transaction industry, manufacturing industry and high-tech research and development industries as the priority investment industries, in order to maximize economic benefits.

4.2 Investment risk in priority investment regions

According to the above analysis, the three priority investment regions in Russia had different investment environment characteristics and advantage industries. In the future, the investment strategy decision should choose the priority investment regions and their advantage industries. It was worth noting that, according to the ESI-PRA model, there were several obvious investment risks in priority investment regions, which should pay full attention to and should be avoided in the actual investment.

4.2.1 Investment risk in Khabarovsk Krai and Primorsky Krai

(1) Lagging economy. According to the ESI-PRA model, the economic development level of Khabarovsk Krai and Primorsky Krai was lower than other regions in Russia. The secondary industry lagged behind in with the proportion of 23.0% and 20.5%, respectively, which were the ninth and third lowest in Russia. Meanwhile, the regional foreign trade vitality was poor, and the export trade with Commonwealth of Independent States was the tenth and eleventh lowest in Russia. The lower of economic development level and the foreign trade vitality had brought greater influence on investment of China in Khabarovsk Krai and Primorsky Krai.

(2) Poor infrastructure. Due to the limit of economic and climatic, it is difficult to construct railways and highways in Khabarovsk Krai and Primorsky Krai. Compared with the eastern region, the density of road network in this region is relatively small. In the Khabarovsk Krai, the density of railways ranked 65th in Russian, and the density of highways ranked 75th. In the

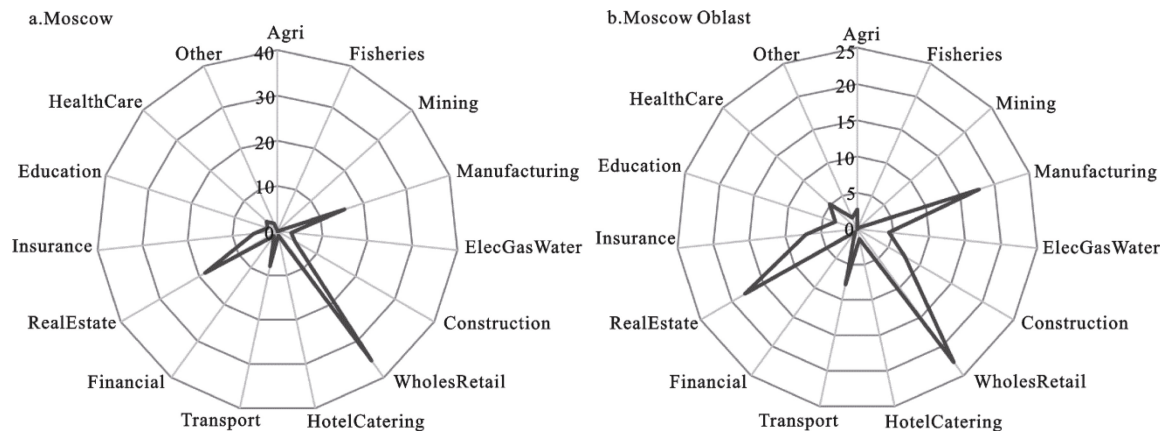


Fig. 5 The industry value-added index of Moscow (a) and Moscow Oblast (b). The 15 industries are the same as those in Fig. 3

Primorsky Krai, there were 77th and 57th (Fig. 6). Poor traffic and backward infrastructure have brought serious restrictions on the investment of China in Khabarovsk Krai and Primorsky Krai.

4.2.2 Investment Risk in Irkutskaya Oblast

(1) Extreme low temperature. The investment environment in the surrounding areas of Lake Baikal is greatly restricted by natural climate. The average winter temperature in the region was lower, with 22.5°C, 21.2°C, and 15.2°C in Zabaykalsky Krai, Respublika Buryatiya and Irkutskaya Oblast, respectively. Extreme low temperature caused great difficulties in transportation and construction. The terrible climate condition has become a huge challenge for investment of China in this region.

(2) Labor risk. There existed a serious problem of arrears wages and population outflow in Irkutskaya Oblast. In 2015, the regional total arrears wages were

17.08 million RUB, which was the fifth most serious in Russia. And it was the sixth net population outflow region in Russia (Fig. 7), with a population migration of 67 740 in 2015. Arrears wages and population outflow brought huge challenges for the regional labor scale. For Chinese enterprises, it should consider the labor risk for investing in the Irkutskaya Oblast.

(3) Ecological damage. Irkutskaya Oblast is rich in resources, and Lake Baikal is the world-class fresh water resource, which are the important investment advantages. For its world-class ecological significance, the economic activities in this area have higher risk of ecological damage, as well as, the object, scale and mode of investment activities are more limited. As a result, in the process of investment, it should pay more attention to adopting green development mode and strictly avoid the risk of ecological damage.

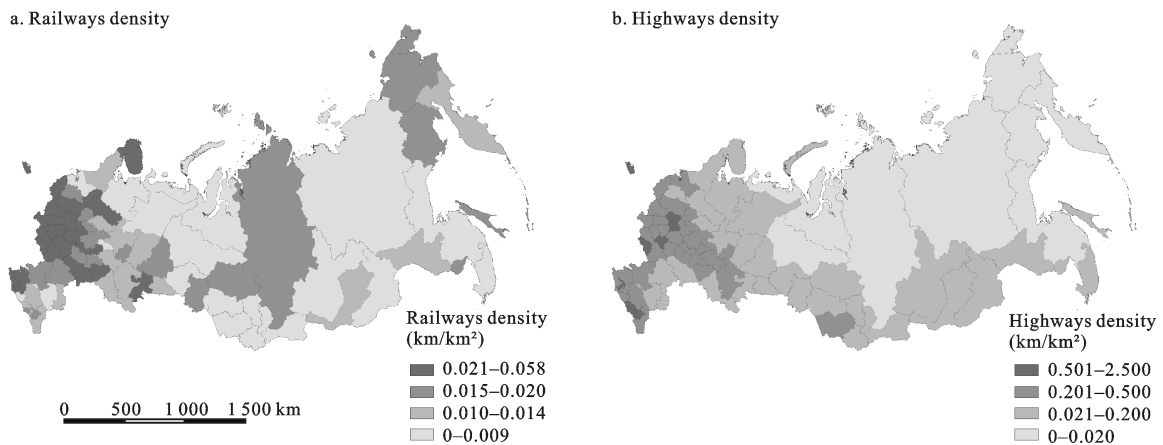


Fig. 6 Spatial distribution of railway network (a) and highway network density (b) in Russia. Data resource: Russian Statistical Yearbook 2016

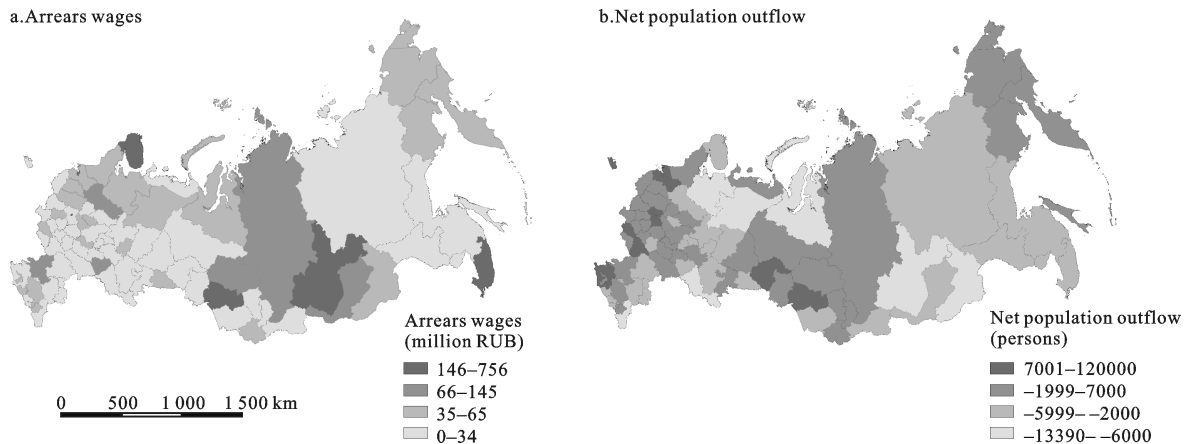


Fig. 7 Spatial distribution of arrears wages (a) and population outflow (b) in Russia. Data resource: Russian Statistical Yearbook 2016

4.2.3 Investment risk in Moscow and Moscow Oblast

(1) High investment costs. The investment cost is the most important factor for enterprises to choose location. Moscow and Moscow Oblast were the priority investment regions with high housing prices and high labor costs. The house prices in Moscow ranked first in Russia and labor costs ranked fifth, and the price in Moscow Oblast ranked the fourth (Fig. 8). High investment costs will increase the uncertainty for the investment of Chinese enterprises in Moscow and Moscow Oblast.

(2) Serious security risk. According to 2015 data, there existed many religious organizations in Moscow and Moscow Oblast. The complexity of personnel constitutes formed the major factor affecting social stability. In Moscow, there were 1493 religious organizations, ranked the second in Russia. And in Moscow Oblast,

there were 778, ranked the fifth. Meanwhile, the amount of violent crimes in Moscow and Moscow Oblast remained high. In 2015, the amount of violent crimes was 16 124 and 12 996, which ranked the first and fifth in Russia (Fig. 9). Serious social security risks caused a serious threat to the safety of personnel and capital security of Chinese enterprises investing in the region.

4.3 Strategic policy for cross-border investment in Russia

Based on the analysis of the ESI-PRA model, aiming at the regional choices, industrial choices and the investment risks, the following strategic policies were proposed, in order to strengthen China-Russia trade contacts and promote Chinese enterprises to invest in Russia.

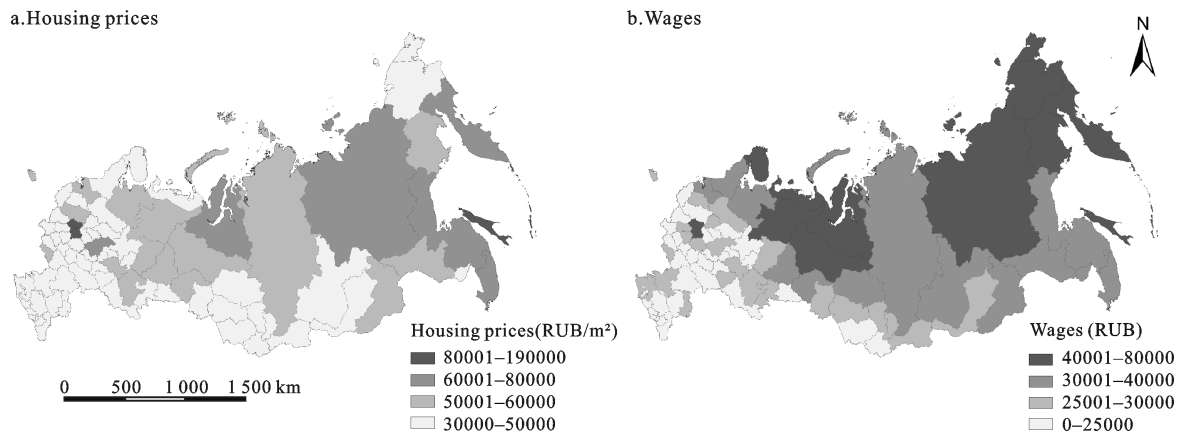


Fig. 8 Spatial distribution of housing prices (a) and wages (b) in Russia. Data resource: Russian Statistical Yearbook 2016

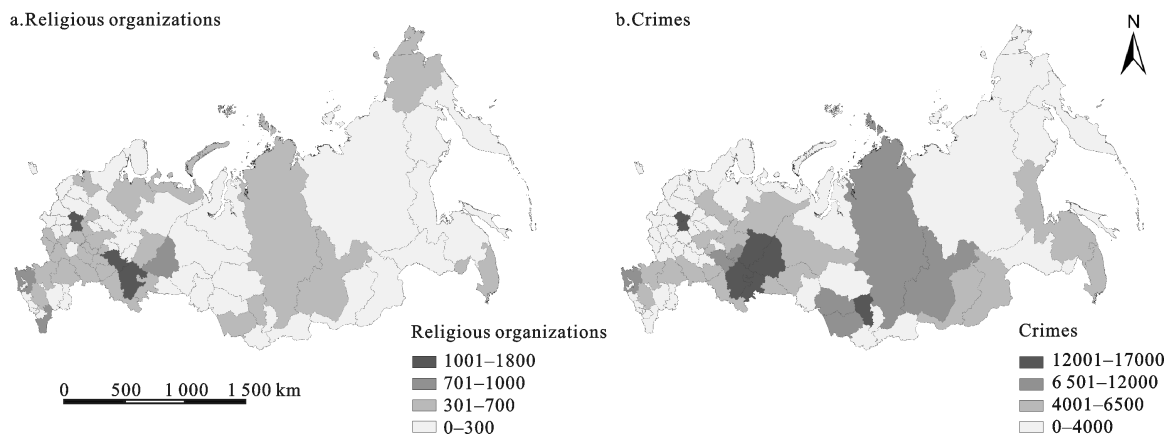


Fig. 9 Spatial distribution of Amount of religious organizations (a) and Amount of crimes (b) in Russia. Data resource: Russian Statistical Yearbook 2016

(1) It should invest in the order that investment should be concentrated in priority investment regions recently, expanded to potential investment regions in the medium term, and avoided the medium investment regions and investment risk regions. Based on the research results, it is suggested that the overseas investment of China in Russia should adopt an orderly mode. Recently, the investment should be concentrated in priority investment regions, such as Khabarovsk Krai and Primorsky Krai, Irkutskaya Oblast, Moscow and Moscow Oblast. In the medium term, the investment should be gradually expanded to potential investment regions and should be invested to the industries such as resources exploit, tourism, finance, and manufacturing. The medium investment regions should not be considered in the early and mid-term, and could be taken into account after investment environments greatly improved in the long-term. The investment risk regions should be avoided.

(2) It should choose the advantage industries and focus on strategic investment industries. Focusing on the strategic needs of China-Mongolia-Russia Economic Corridor Construction, we should implement strategic investment on the advantage industries in the priority investment regions. We proposed to choose Transport, WholesRetail, and Manufacturing centered on the deep processing of port resources as the priority investment industries in the region of Khabarovsk Krai and Primorsky Krai, in order to provide a strong support for China-Russia coastal channel construction and China-Russian economic and trade cooperation. In Irkutskaya Oblast, we proposed to choose tourism, Mining, Transport and Manufacturing centered on the exploitation and deep processing of mineral resources as the priority investment industries, and construct a comprehensive industrial demonstration cluster of China-Mongolia-Russia economic corridor, in order to form an green growth core in Siberia region. For Moscow and Moscow Oblast, it should choose WholesRetail, RealEstate, Manufacturing and high-tech research and development Industries as the priority investment industries, in order to promote China-Russian economic and trade cooperation in the field of high-tech industries, scientific research cooperation and cross-border transfer of scientific and technological achievements, as well as benefit the people of two countries.

countries.

(3) The investment should be promoted by government and operated by enterprises. A promotion mechanism of investment cooperation at the national level should be established to expand the consensus and reduce social risk. Chinese national departments should strengthen the consultation with Russia, jointly signed the agreements of regional investment access and protection, and construction agreements of overseas economic and trade cooperation zones, to strengthen investment protection from a legal perspective, and reduce project construction risks. Through the signing of an inter-governmental investment cooperation agreement, it should establish a dispute settlement mechanism generally recognized by two countries, in order to expand the interests between China and Russia and provide protection for overseas investment of Chinese enterprises in Russia.

(4) It is necessary to strengthen the research of Russia and the personnel training, to ensure scientific investment, effective investment, safety investment and win-win investment. It is necessary to strengthen the research of investment in Russian, train professional talents for Russian research, set up specialized institutions, and promote the cooperation with Russian scientific research institutions and investment enterprises. It should carry out in-depth research on the economic development, social environment, legal and policy, cultural customs, and investment needs of specific investment regions in Russia, and provide long-term decision-making advice for Chinese-funded enterprises, in order to ensure scientific investment, effective investment, safe investment and win-win investment. For example, Russia prohibits foreign investment in gambling industry and life insurance industry, restricts in defense industry, production of nuclear materials, aerospace facilities and aircraft, and federal-level underground resources exploited, and encourages in oil, natural gas, coal, wood processing, transportation, and communications equipment.

(5) It should enhance cultural exchanges and promote 'people-to-people inter-connectivity' between China and Russia. It is positive to establish a China-Russia cultural exchange mechanism, promote extensive exchanges between folk culture and art groups, and arrange overseas Chinese cultural communication and training institutions such as Confucius Institutes, strengthen the ex-

port of Chinese cultural products to Russia, and pay attention to integration with local culture. It should adapt to Russian national conditions while embodying Chinese characteristics, promote mutual trust between the Chinese and Russian cultures, and help investment enterprises deal with the relations with the local people, companies and labor unions, in order to reduce cultural conflicts, and realize the 'people-to-people inter-connectivity' of China and Russia. As a result, it will increase the acceptance and popularity of Russian people to Chinese funded projects, and eliminate various risks caused by misunderstandings and cultural barriers.

(6) Investment enterprises should heighten the sense of social responsibility, and become main body for the development of China and Russia. Chinese enterprises in Russia are a symbol of Chinese image. Therefore, enterprises must clearly define their own responsibilities, earnestly fulfill their social responsibilities, create a good business environment inside and outside, and promote harmony development with local companies. They should responsibly participate in local affairs, combine the enterprise benefits with local development, to achieve win-win development. Meanwhile, through the good economic and social influence of Chinese-funded enterprises, it will promote long-term and in-depth investment cooperation between China and Russia.

(7) It should pay attention to ecological protection and avoid negative impacts of investment activities on the ecological environment. The priority investment regions of Russia are rich in resources and good in ecology, as well as the government and people have a strong awareness of ecological protection. In the process of investment activities, investment projects must be screened in strict accordance with the requirements of Russian environmental protection, and low-carbon, green and circular resource development and utilization mode should be adopted as far as possible to reduce and eliminate the ecological environment impact, avoid the risk of ecological damage and avoid the rejection of investment events caused by environmental problems.

5 Conclusion

Based on the valuable data collected by the research team through scientific expedition in Russia, this research constructed Russian investment environment evaluation index system and quantitative evaluation

model, comprehensively assessed the economic environment, social environment, infrastructure environment, policy environment, resource base, and accessibility of investment for 83 subjects of federation in Russia, and classified them as priority investment regions, potential investment regions, general investment regions, zones, and investment risk regions.

Investment choices in priority investment regions were proposed. We proposed to choose transportation and communications industry, wholesale and retail trade, and manufacturing industry centered on the deep processing of port resources as the priority investment industries in the region of Khabarovsk Krai and Primorsky Krai, in order to provide a strong support for China-Russia coastal channel construction and China-Russian economic and trade cooperation. In Irkutskaya Oblast, we proposed to choose tourism, mining industry, transportation and communications industry and manufacturing industry centered on the exploitation and deep processing of mineral resources as the priority investment industries, and construct a comprehensive industrial demonstration cluster of China-Mongolia-Russia economic corridor, in order to form a green growth core in Siberia region. For Moscow and Moscow Oblast, it should choose wholesale and retail trade, real estate transaction industry, manufacturing industry and high-tech research and development industries as the priority investment industries, in order to promote China-Russian economic and trade cooperation in the field of high-tech industries, scientific research cooperation and cross-border transfer of scientific and technological achievements.

The evaluation model, assessment results and strategic policies were put forward, based on the comprehensive analysis on a large number of first-hand survey data and multiple Russian regional policies, which obtained from the scientific expedition in Russia for many years. The research results provided direct scientific and technological support for strategic decisions such as investment in Russia, bilateral economic and trade cooperation, and overseas layout of Chinese-funded enterprises. Moreover, it has an important practical and strategic significance for improving overseas geo-strategic interests of China and ensuring the smooth implementation of China-Mongolia-Russia Economic Corridor Construction.

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