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Industrial Economic Cooperation Between China and Nordic Countries Under the Double Circulation Pattern: Basis and Prospect

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Abstract. This article takes the formula of trade complementarity index to calculate the degree of trade complementarity of various industries between China and Nordic countries based on the data of import and export from 2013 to 2018. The results indicate that the trade complementarity between China and Nordic countries has three major characteristics, that is, intensive concentration of specific complementary categories, structurally complementary in bilateral export and import and complementarity based on respective comparative advantages, and clarify the dual complementarities both in inter-industry trade and intra-industry trade. Our findings show that the basis of bilateral cooperation is stable due to strong complementarity each other. In addition, expanding the volume of trade complementary goods and cooperation are not only to promote the development of dual circulation in China, but also to reduce the segmentation costs in the processes of production for both sides.

Key words. Industrial economic cooperation; trade complementarity index; double circulation pattern

1. Introduction

The core of establishing the new development pattern of double circulation at home and abroad is to stimulating mutual enhancement and to achieve more strong and sustainable development through unleashing the potentiality of domestic demand and enhancing resource utilization between Chinese and international markets [1].

The Nordic countries are the important parts of "the belt and road" and have a vital bearing on the interests of China. The development and utilization of Arctic resources will influence on international trade, the pattern of energy supply, and Chinese economy whom is the largest trading and energy consuming country in the world [2].

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The significance of pushing up industrial economic cooperation and trade connection with Nordic countries lies in expanding the scale of trade and foreign direct investment, and contributing to promote the development pattern of double circulation and achieving mutually beneficial cooperation for both sides.

Many scholars have focused on the facts that economic globalization makes the industrial chain of a country extending to all over the world and forms a new production model. It has become a common sense in academic circles that the improvement of national industrial economic competitive power depends on the industrial coordination of transnational upstream and downstream, rather than relying on the narrow domestic market and internal limited resources [3]. Particularly, "production segmentation", the new international production model would affect the position of a country's industries in the global value chain through international trade [4]. Moreover, the integration of industrial chains between the upstream and downstream has been made by the model of "production segmentation" characterized by allocation and transaction of production processes among countries or regions [5].

As the cost of production segmentation involves all costs arising from the separation of specific production links from upstream to downstream, such as costs of tariff, cross-border management and transportation, etc. [6]. Thus, the roles of tariff relief can greatly expand import and export [7] and increase the diversity of trade commodities [8]. The function of trade facilitation is to abate the cost of production segmentation due to cross-border management, and to deepen the division of production between countries [9]. In addition, the improvement of transport infrastructure between trading partners will lead to increasing trade volume [10], enhancing the national position of division of labor in the global value chain indirectly and elevating the international competitiveness of domestic industries [11].

Since the production processes are completed by transnational industrial chain of upstream and downstream, and thus involves the basis of industrial economic cooperation between countries. A number of literatures demonstrate the potentiality of transnational industrial economic cooperation based on trade complementarity which reflects the interdependence of industrial sectors among different countries. The higher the degree of interdependence is, the stronger the basis of industrial cooperation will be.

In the light of the data between China and the 66 countries along "the belt and road", some scholars [11] found that the strongest trade complementary between both sides is concentrated on resource intensive products. Moreover, the trade complementarity in the above countries is more than trade competition [12]. Bojnec and ferto pointed out that the structural complementarity in different industrial sectors between the two countries would release potential and huge benefits due to the signing of bilateral free trade agreements [13]. In accordance with the calculation of the trade complementarity index between China and Norway, Chen and Lai [14] believe that there is a strong trade complementarity between the two countries. Predictably, it will be a drive force to push up the cooperation both in the upstream and downstream of industrial chains and in the field of high technology as long as establish a free trade area between China and Norway.

The significance of previous literature is associated with pointing out the new production model of industrial connection across boundary, indicating the role of international trade in "production segmentation", mentioning the possible costs within the processes of "production segmentation" and making efforts towards deal with issues. Yet, how to reduce the cost of "production segmentation" and release the

economic benefits among partner countries has still been a challenge both in theory and practice so far. This article further analyzes the basis and prospects of industrial economic cooperation between China and Nordic countries[①] by means of the calculation of trade complementarity index as per data of international economic organizations and national governments from 2013 to 2018. The purpose of this study is to illustrate that it is possible not only to reduce the segmentation costs in the processes of production through increasing the transactional volume of trade complementary goods and cooperation among trading partners, but also to promote the development of dual circulation pattern in China.

2. Methods and Sources

In line with widely used in academia, this paper takes the trade complementarity index as the rationale for demonstrating the basis of industrial cooperation between partner countries. Trade complementarity is defined as the product between the specific exported merchandise with revealed comparative advantage index of country A and the imported goods with revealed comparative disadvantage index of country B [15], which indicates the interdependence of industries and the feasibility of cooperation between both sides. The calculation formula is as follows:

$$TCI^{k}_{ij} = RCA^{k}_{xi} \times RCD^{k}_{Mj}$$

Where TCI^{K}_{ij} represents the trade complementarity index of merchandise K both in country i and country j, RCA^{k}_{xi} means the revealed comparative advantage index of merchandise K in country i, RCD^{k}_{Mj} shows the revealed comparative disadvantage index of merchandise K in country j and K refers to the specific types of commodity.

Firstly, Revealed Comparative Advantage Index (RCA^{k}_{xi}) is estimated by export (x) in general. The equation is:

$$RCA^{k}_{xi} = (X^{k}_{i} / X_{i}) /(X^{k}_{W} /X_{W})$$

Where RCA^{k}_{xi} is the revealed comparative advantage index of commodity K in country i, X^{k}_{i} and X^{k}_{W} are the export volume of commodity K from country i and from the world separately, X_{i} and X_{W} are the total exports of country i and the world as the whole, respectively.

Secondly, the Revealed Comparative Disadvantage Index (RCD^{k}_{mj}) is measured by import (m). The estimated equation is:

$$RCD^{k}_{mj} = (M^{k}_{j}/ M_{j})/(M^{k}_{W} /M_{W})$$

Where:

RCD^{k}_{mj} — import comparative disadvantage index of commodity K in country j

M^{k}_{j} — import volume of commodity K of country j

M_{j} — total import of commodity k of country j

M^{k}_{W} — import volume of commodity K in the world w

M_{W} — total import in the world w

Commodity K is determined in accordance with the classification standards for global commodities in the third edition of Standard International Trade Classification (SITC rev.3) of the United Nations. Among the ten categories of commodities classified

by the standard[②], there are seven of which involve in the trade complementary commodities between China and the four Nordic countries (Norway, Finland, Sweden and Denmark).

Simply, when trade complementarity index value (TCI) is greater than or equal to 1（≧1), it means that the commodity K of a country has strong trade complementarity to its partner countries. The larger the index value is, the stronger the trade complementarity will be. When the value of revealed comparative advantage index is greater than 1（RCA＞1), or the value of revealed comparative disadvantage Index is greater than 1（RCD＞1), it indicates that there is a revealed comparative advantage or revealed comparative disadvantage of commodity K in a country.

This research assesses the categorical effects of global trade commodities on the trade complementarity between China and the four Nordic countries in line with data from international and national sources from 2013 to 2018. The data of international trade of commodity classification, total volume of export and import and tariffs in the world, and national trade volume are separately obtained from the database of international trade data of the United Nations (UN Comtrade Database), the world trade organization (WTO) and the bureaus of statistics of the FNCs, the general administration of customs of China and the national bureau of statistics of China.

The time coverage is affected by the UN Comtrade Database availability, of which the key data of classified trade updates every two years in general and the latest data is available as of 2019, and the latest data about China is as of 2018. Nevertheless, this limitation does not imply that the trend and fundamental trade linkage between China and Nordic countries may be changed after 2018 or unable to extent analysis in the field.

3. The basis of mutually beneficial cooperation between China and Nordic countries

This study applies the above formulas to calculate the trade complementarity (TCI), RCA and RCD of specific commodity categories between China and four Nordic countries (FNCs) separately, and demonstrates a stable basis of_bilateral industrial cooperation.

In accordance with the calculated results, we summarize the characteristics of commodity complementarity between both sides as follows:

First, there is intensive concentration of specific complementary merchandise categories between bilateral trading.

Table 1 shows that Chinese trade complementary goods to the four Nordic countries are clustered on three categories: raw materials, manufactured goods, machinery and transportation equipment, and miscellaneous goods because the average value of trade complementarity index is greater than 1 (TCI≧1).

Table 1. Trade complementarity index of export by China and import from the FNCs (2013-2018)

Types of commodities	EXP. – IMP.	2013	2014	2015	2016	2017	2018	Average value
Manufactured goods classified chiefly by materials (SITC 6)	China-Norway	1.735	1.832	1.686	1.656	1.993	1.718	1.770
	China-Finland	1.293	1.320	1.276	1.273	1.435	1.374	1.329
	China- Sweden	1.462	1.458	1.425	1.407	1.467	1.465	1.447
	China-Denmark	1.598	1.607	1.607	1.619	1.607	1.243	1.547
Machinery and transport equipment (SITC 7)	China-Norway	2.000	1.853	1.684	1.563	1.426	1.426	1.659
	China-Finland	1.357	1.285	1.230	1.277	1.193	1.184	1.254
	China- Sweden	1.777	1.646	1.539	1.469	1.364	1.359	1.526
	China-Denmark	1.533	1.487	1.351	1.298	1.226	1.519	1.402
Miscellaneous goods (SITC 8)	China-Norway	3.296	3.258	2.869	2.853	2.670	2.572	2.920
	China-Finland	2.091	2.039	1.827	1.774	1.732	1.675	1.856
	China- Sweden	1.362	2.093	2.027	1.895	5.541	1.946	2.477
	China-Denmark	3.264	3.368	2.971	2.911	3.024	1.423	2.827

Note: The results of Table 1 is obtained by employing the formula of trade complementarity index to be calculated based on data of .international trade data of the United Nations, the world trade organization, the bureaus of statistics of the FNCs, the general administration of customs of China and the national bureau of statistics of China from 2013 to 2018.

Especially, Chinese miscellaneous goods present stronger trade complementarity to Norway, Sweden and Denmark owing to TCI ＞ 2.5 in average value.

As Table 2 reports, the strongest complementary commodities of the FNCs to China are converged on two groups, crude materials (non-edible raw materials excluding fuel) and oils of anim. & veg (SITC 2+4) whose TCI average value of Finland, Sweden and Denmark to China are up to 8.9, 6.6 and 4.5, respectively. The TCI of Norwegian mineral fuels and lubricants (SITC 3) to China are 5.6 in average value. Moreover, the TCI of chemical products (SITC 5) of Denmark (including pharmaceutical products), machinery and transport equipment (SITC 7) of Sweden, and manufactured goods classified chiefly by material of Finland to China are greater than 1.

Table 2. Trade complementarity index of export by the FNCs and import from China (2013-2018)

Types of commodities	EXP. – IMP.	2013	2014	2015	2016	2017	2018	Average value
Crude materials + oils of animals & vegetables (SITC 2) + (SITC 4)	Norway-China	1.71	1.94	2.23	2.43	1.50	1.66	1.91
	Finland-China	9.25	9.09	10.42	10.68	7.10	7.09	8.94
	Sweden-China	7.08	7.73	7.55	7.44	5.11	4.77	6.61
	Denmark-China	5.27	5.01	5.47	4.82	3.54	3.09	4.53
Mineral fuels & lubricants (SITC 3)	Norway-China	3.72	4.16	5.56	6.82	6.84	6.42	5.59
Chemical products (SITC 5)	Denmark-China	1.04	1.05	1.36	1.01	1.72	1.69	1.31
Manufactured goods classified chiefly by materials (SITC 6)	Finland-China	1.63	1.81	1.56	1.50	1.40	1.36	1.54
Machinery & transport equip. (SITC 7)	Sweden-China	1.47	1.39	1.39	1.35	1.18	1.17	1.33

Note: The results of Table 2 is obtained by employing the formula of trade complementarity index to be calculated based on data of .international trade data of the United Nations, the world trade organization, the bureaus of statistics of the FNCs and the national bureau of statistics of China from 2013 to 2018.

Second, it shows the structurally complementary in bilateral export and import. The industry chain of upstream and downstream, for example, has been formed between both sides. On the one hand, the crude materials (SITC 2) exported by the FNCs to China are the upstream linked with raw material supply chain to Chinese manufactured goods classified chiefly by material (SITC 6). On the other hand, the SITC 6 exported by China is the downstream industrial chain of the FNCs. In addition, the average value of TCI of Chinese miscellaneous goods (SITC 8) to Norway, Sweden, Denmark and Finland are 2.9, 2.5, 2.8 and 1.9 separately (despite fluctuations in different years). It indicates that Chinese export goods (SITC 8), including boxes, bags, shoes, clothing, furniture, heating equipment of housing sanitary water and lighting equipment, can make up for the shortage of the FNCs.

The characteristics are linked with the complementary of intra-industry trade of SITC 7 between China and Sweden, and SITC 6 between China and Finland. The commodities, SITC 7, exported from Sweden to China are mainly the goods of high technology and high added value, while the grade of similar group exported from China to Sweden is relatively low since the average value of the intra-industry trade index (IITI) of SITC 7 in Sweden is 0.97 which is higher than 0.80 in China along with the calculation of the IITI (see Table 3). The average value of the IITI about SITC 6 between China and Finland is close to each other, but Finland is slightly higher, 0.58, than that of China, 0.54 (see Table 4).

Table 3. Intra industry trade index of machinery and transportation equipment between China and Sweden (2013-2018)

Countries	2013	2014	2015	2016	2017	2018	Average value
China	0.812	0.807	0.784	0.799	0.809	0.819	0.805
Sweden	0.943	0.973	0.978	0.987	0.983	0.981	0.974

Note: The results of Table 3 is obtained by employing the formula of Intra industry trade index to be calculated based on data of .international trade data of the United Nations from 2013 to 2018.

Table 4. Intra industry trade index of SITC 6 between China and Finland (2013-2018)

Countries	2013	2014	2015	2016	2017	2018	Average value
China	0.581	0.602	0.511	0.512	0.544	0.547	0.549
Finland	0.553	0.56	0.556	0.582	0.657	0.59	0.584

Note: The results of Table 4 is obtained by employing the formula of Intra industry trade index to be calculated based on data of .international trade data of the United Nations from 2013 to 2018.

These results illustrate the transactions of heterogeneous commodities within same category, and shape the structural complementarity in SITC 7 between China and Sweden and SITC 6 between China and Finland, respectively.

Third, the trade complementarity between China and the four Nordic countries is based on their respective comparative advantages. The three major exported categories (SITC 6, SITC 7 and SITC 8) with revealed comparative advantage (RCA) in China are exactly the imported commodities with revealed comparative disadvantage (RCD) in the FNCs as the average value of RCD in those countries are more than 1.The exported merchandises (SITC 2, SITC4 and SITC 3) by the FNCs with revealed comparative advantage (RCA) to China are precisely the revealed comparative disadvantage (RCD) of imported goods in China, in particular, the average value of RCD about SITC 2 + SITC4 is as high as 3.9 which means a strong trade complementary to China (see Table 5).

The characteristics of bilateral trade complementarity are manifested by the connections:(1)The integration of industrial chain between the upstream and the downstream by way of the bilateral transaction of SITC 2 exported by the FNCs and SITC 6 exported by China; (2)structural complementarity of heterogeneity commodities of SITC 7 through intra industry trade between China and Sweden; (3)structural complementarity of heterogeneity goods of SITC 6 by intra industry trade between China and Finland;(4)complementarity between supply and demand via exported chemical merchandises (SITC 5) from Denmark to China.

Table 5. Average values of comparative advantage index and comparative disadvantage index between China and the FNCs

Countries	Types of commodities	Average value
Comparative advantage index of China	SITC 6	1.388
	SITC 7	1.364
	SITC 8	2.115
Comparative disadvantage index of China	SITC 2 + SITC 4	3.989
	SITC 3	1.117
	SITC 7	1.208
Comparative advantage index of the FNCs	SITC 2 + SITC 4	2.258 (Finland)
		1.658 (Sweden)
		1.134 (Denmark)
	SITC 3	4. 941 (Norway)
	SITC 7	1.097 (Sweden)
Comparative disadvantage index of the FNCs	SITC 6	1.275 (Norway)
		1.043 (Sweden)
		1.547 (Denmark)
	SITC 7	1.215 (Norway)
		1.118 (Sweden)
		1.402 (Denmark)
	SITC 8	1.378 (Norway)
		1.026 (Sweden)
		2.820 (Denmark)

Note: The results of Table 5 is obtained by employing the formulas of revealed comparative advantage index and revealed comparative disadvantage index to be calculated based on data of .international trade data of the United Nations, the world trade organization, the bureaus of statistics of the FNCs, the general administration of customs of China and the national bureau of statistics of China from 2013 to 2018.

Generally, the complementary commodities of the FNCs to China cover almost all types of goods, except for SITC 8, in which include not only resource-intensive products (SITC 2+4, SITC 3) and capital intensive goods (SITC 5, SITC 7), but also complementary merchandises between intra-industry (SITC 7) and inter- industry trade (SITC 6). The converge of bilateral complementary commodities is shown that the complementary commodities of China to FNCs are highly concentrated in SITC 6, SITC7 and SITC 8, while the resource intensive goods of the FNCs with strong complementarity to China are mainly centralized in SITC 2 + 4 and SITC 3. The differences of bilateral complementary commodities is reflected by the discrepancy or gap of supply and demand between both sides, in other words, the exporting goods of SITC 6, SITC7 and SITC 8 from China involve in the shortage and demand ones in FNCs and the main exporting goods of SITC 2 + 4 and SITC 3 from FNCs mean the lack and demand of those resources in China. Especially, the complementary groups SITC 2 + 4 of Finland (TCI＞8.9), Sweden (TCI＞6.6) and SITC 3 (TCI＞5.5) of Norway to China are extremely stronger than the rest categories. In addition, the intra-industry trade of SITC 6 between China and Finland presents that the technical level is very close one and other, which indicates the potential competition and implies the urgency of upgrading industrial structure in China.

The characteristics indicate that the industrial economic cooperation between China and the FNCs has a solid basis and sustainability because of the highly interdependent according to their respective export comparative advantages. Therefore, further bilateral cooperation should focus on releasing the trade potential of those commodities, in particular, enhancing the catena between supply chain (SITC 2) and industrial chain SITC 6, and expanding foreign direct investment to Danish chemicals as well.

4. Prospect of enhancing bilateral industrial economic cooperation

4.1 Expanding bilateral import and export for mutual benefit cooperation

Countries of Norway, Finland, Sweden and Denmark are export-oriented economies which promote free trade policies, and the proportion of export to GDP is close to or more than half [16]. Also, as previously mentioned, the trade complementarity commodities of Nordic countries to China are substantially on resource categories based (SITC 2+ SITC 4, SITC 3). Correspondingly, the demand for industrial resources is increasing rapidly with stimulating economic growth, and thus exacerbates the shortage of domestic resources in China. The imported volume of oil and natural gas, for example, was separately reached 80% and 43% in 2020.

Currently, the efficiency of import from the FNCs is far from meeting Chinese demand for industrial resources. According to the data of international trade published by the United Nations from 2013 to 2017, of the total amount of $254.5 billion of SITC 2+ SITC 4 imported from the world, the average total amount of imported from the FNCs just accounted for $2.5 billion that was less than 1% of Chinese total imports and less than one ninth of the total exports of the FNCs. Meanwhile, the total volume of SITC 3 imported from the world was $250 billion but the import from Norway was less than $0.5 billion, only one-five-hundredth of Chinese total import and one in 145 of Norwegian total export ($72.4 billion) ③.

Obviously, this is a positive sum game and mutual benefit for both sides through increasing import and export of complementarity commodities.

4.2 Constructing express channel for China railway express

One of the reasons of restricting enlarging bilateral complementarity commodities is linked with small loading capacity and expensive freight by air transport or taking long time by ocean shipping. The price of China railway express (the China - Europe block train ferry) is one fifth lower than that of air transport, and one third less than that of sea shipping. It can avoid the special security risks of traditional ocean routes, such as war or piracy, and make up for the shortcoming of freezing eight months per year of the Arctic channel to be opened in the future.

However, insufficient imported goods in return trip from Nordic countries have led to a high rate of empty box loading of China railway express (CR express). Moreover, different countries have to delay across boundary due to the inconsistency of rail gauge, and thus affect speed and the connection of transport capacity.

In order to deal with this problem, the possible solution is to push on the high-speed railway project of “Moscow-Beijing” under construction between China and Russia ④and to extend it from Moscow to Helsinki based on existing passenger route from Helsinki to Moscow (15 hour one -way arrival). Judging from the feasibility level, Russia lacks capital and technology and is willing to cooperate with China in infrastructure and other investment projects. Finland is inclined to promote the abutting joint between Chinese initiative of “the belt and road” and Finnish “Arctic corridor” plan, so that the transportation network of Finland will become a transportation hub connected with Arctic and Eurasian continent. Chinese production capacity of railway and the technology of high-speed rail rank first in the world. Once open up the high-speed rail line from Beijing to Moscow to Helsinki relying on the cooperation

among China, Russia and Finland, the bottleneck of transport capacity between China and Nordic countries will be significantly alleviated. The commodities of Norway and Sweden will be also increasingly sold to China, Russia and other countries through the freight high-speed rail linked between China and Finland.

4.3 Promoting bilateral free trade via institutional arrangements

4.3.1 Reducing tariff and non-tariff barriers

Tariff relief between trading partners are conducive to enhancing the international competitiveness of bilateral industries and investment opportunities as well [17]. At present, there are still some tariff and non-tariff barriers between China and the FNCs. Chinese tariffs on trade complementary products remained at a relatively low level, the average tariffs on SITC 3, SITC 2, (SITC 0), and SITC 4 are 5.3%, 6.9%, 10.3%, and 12.4%, respectively, for example. The tariff of Nordic countries was generally low, but there were still various non-tariff barriers and value-added tax were higher than that of China along with the HS classification data of the WTO tariff from 2013 to 2017.

Tariff relief on commodities of trade complementarity can not only increase the mutual benefit in investment and trade, but also contribute to build free trade area network between China and FNCs. On the strength of the institutional arrangement of free trade area, both sides can form a larger market scale and elevate the international competitiveness of member countries [18].

4.3.2 Implementing consistent policies and standards of trade facilitation

Trade facilitation is the simplification of trade procedures in rules and regulations of market access, e-commerce, customs and port management for the purpose to promote free flow of goods. With decreasing costs of transaction and coordination through trade facilitation, the total trade volume will be expanded while the cost of production segmentation will be reduced between partner countries. For example, the burst of potential trade volume owing to trade facilitation has been more significant than the roles of tariff relief or regional economic integration in the countries of “the belt and road”[19].

At present, the degree of trade facilitation in China and the FNCs needs to be improved. Based on the survey, the lingering situation of CR express caused by harmonizing various transport routes and conducting customs inspection will be dropped by at least 40% through promoting unified conventions of railway transport and integrating standards of customs inspection among countries of CR express passed through [20].

5. Conclusion

With increasing industrial interdependence among countries, the depth and breadth of cooperation among partner countries are bound to be promoted and expanded under economic and production globalization. The trade complementarity between China and FNCs provides a stable basis for bilateral cooperation and development space. Moreover, the cooperation based on win-win result shows the common interests in the

long term because bilateral industrial economies depend on each other and economic interests are integrated. However, trade barriers caused by tariffs, inconsistent regulations of customs formalities and imperfect transport infrastructure have pushed up transaction costs and limited the trade expansion of bilateral complementary commodity.

For the sake of setting off domestic circulation, meeting the demand of resources and decreasing costs of trade and production segmentation, it is urgent to promote external circulation with Arctic countries. The further cooperation should focus on reducing tariffs, improving transportation infrastructure, pursuing the common policies and standards for trade facilitation, and promoting free trade zone so that release potentiality of trade and investment.

The aim of enhancing the industrial economic cooperation between China and the FNCs is to promote more open world economy and to create new advantages in international cooperation and competition.

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Notes

① The Nordic countries mentioned in this paper only include Norway, Finland, Sweden and Denmark because Iceland established a free trade zone with China in 2013. Thus, this study does not include Iceland.

② As some commodity categories are merged in international trade database about the commodity classification of the United Nations: Food and live animals (SITC 0) + beverages and cigarettes (SITC 1), crude raw materials (SITC 2) + animal and vegetable oils and waxes (SITC 4), this paper also takes the merged data. In addition, unclassified commodities (coins: non legal tender, non-monetary gold excluding gold ore, SITC 9) are not widely traded commodities and thus are not covered into the analysis of this paper.

③ According to the international trade data of the United Nations from 2013 to 2017, authors calculated the average volume of import and export of SITC 2, SITC 4 and SITC 3.

④ In accordance with Russian media report, the project of "Moscow-Beijing" high-speed railway aimed at building the Eurasian high-speed transportation corridor was determined by signing a memorandum of understanding on high-speed railway transportation between Chinese railway construction corporation and the Ministry of transport of the Russian Federation, and between Chinese Commission of development and reform and Russian Railway Corporation in October 2014. Chinese side would provide technology for the implementation of the project and for the planning and construction (Source: The Chinese will build a subway station in Moscow, *True*, Russia, January 25, 2017).

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