Opportunities and Challenges Faced by the Trade Cooperation of China and Africa

TANG Xiaobin[a],*; MA Shan[a]; Dong Li[b]

[a]School of Statistics, University of International Business and Economics, Beijing, China.
[b]School of Management, China Women's University, Beijing.
* Corresponding author

Abstract

This paper is based on the new normal background that the early days macroeconomic stimulation lead to the waste of manufacturability and hasted to find a new trade market, so we use the RCA Index proposed by Balassa in 1965 to compute the RCA Index and RMA Index of the mainly ten products of the export and import trade between China and Africa, Then specifies the competitive industries and the disadvantage industries in two countries, furthermore affirms the high growth potential trading products among the China and Africa. At the end of the paper, several opportunities and challenges are proposed according to the empirical results.

Key words: Africa trade market; RCA index; RMA index; Opportunities and challenges

INTRODUCTION

Owing to the effect of global economic crisis, the world economy has undergone the period of big adjustment and transition. While in this big era background, China's macroeconomic faced three period overlap's new normal. They are the shift period of economic growth rate: The economy has shifted gear from the previous high speed to a medium-to-high speed growth; the adjustment time of economy's structure: it's hard to handle the over produced capacity and industry's structure in short time; the digest period of early days economy's stimulation policy, particularly, in the year of 2008 and 2009 in order to cope with the global financial crisis, those stimulation effect of macroeconomic policy need time to witness. While under the impact of financial crisis, global trade activity moving slowly and trade protectionism is rising, compared with the trade friction like anti-dumping, anti-subsidies, developed country released more new standards, those result in the trade among China and Europe, American, Japan and other developed country are badly blocked. Under new circumstance, in order to handle the problem of over manufacturability. it's necessary for us to find the new trade market. At this time, Africa, the new emerging economy market has enormous potential value for us to develop.

Africa has 900 million populations and more than 3,000 ten thousand square kilometers' land area. It has rich resource, but it production capacity is outdated. And the products which exported by Africa mainly in resource products. While for equipment, daily necessities and medicines still depend on import. Since China has great consumer market and huge foreign exchange reserve, so, it has the strong ability to resist the crisis. As for Africa, due to the influence of financial crisis and the situation that the cooperation between Africa and developed countries that in Europe and America is decreasing, it is more eager for Africa to increase the cooperation with China. Actually, there is no doubt that it's a rare opportunity for Chinese companies.

Currently, though, the global economy keeps low increase trend, While China-Africa economic and trade relationships still maintain a good momentum of development, the foundation for cooperation is solid and the willing is intense, the mechanism is improved and more new highlights emerges in the cooperation.. In

2013, the senior official between China and Africa visits each other more frequently. In March 2013, Chinese President Xi Jinping has chosen the Africa continent as one of his destinations that in his first visit. During the visit in Tanzania, he promised that China will continually committed to promote the development of Africa: China will strengthen the mutually beneficial cooperation in Africa in the areas such as agriculture and manufacturing, meanwhile, help Africa transform resource advantage into develop advantage and achieve its self-development and sustainable development (Qin, 2014).

This paper is based on above background and uses the competitive commodities and the disadvantage commodities in the China-Africa trade as a key point, to study the opportunities and challenges faced by the trade Cooperation between China and Africa.

1. THE SITUATION ANALYSIS OF AFRICA TRADE MARKET

During the past 10 years, the trade between China and Africa growth rapidly. China-Africa trade volume hitting 10 billion US dollars in 2000. In 2013, Chinese President Xi Jinping first visit three countries in Africa which lay a solid foundation for China to develop the trade market in Africa, since then, the trade volume between China and African countries increased rapidly. According to statistics from Chinese Customs, at the end of 2013, the import and export volume between China and Africa breaks 200 billion US dollars, topped 210.24 billion US dollars. China-Africa trade developed rapidly at an average annual growth rate of 26%.

According to the figure (see Figure 1) of the import and export trade volume of China and Africa from 2000 to 2013, we can know that from 2000 to 2009, the trade between China and Africa keeps a balance status. Actually, the trade between China and Africa developed rapidly from 2000 to 2008 and the trade volume of import and export show exponentially growth. While from 2008 to 2009, owing to the impact of America's subprime crisis, global economic downturn which results in a big decline in the trade volume. However, after 2009, China-Africa trade developed quickly. Particularly, the import volume from African countries far beyond the total exports volume to Africa, the trade deficit between China and Africa increased year by year. In recent years, China-Africa trade mainly exhibit those characteristics can owe to the global financial crisis which results in the bilateral trade between China and Europe, the United States, Japan and other developed countries suffered a serious setback. In this case, It's urgent for us to develop new trade market, since Africa has broad trade resources which are the main reason for the China-Africa trade developed rapidly in these years.
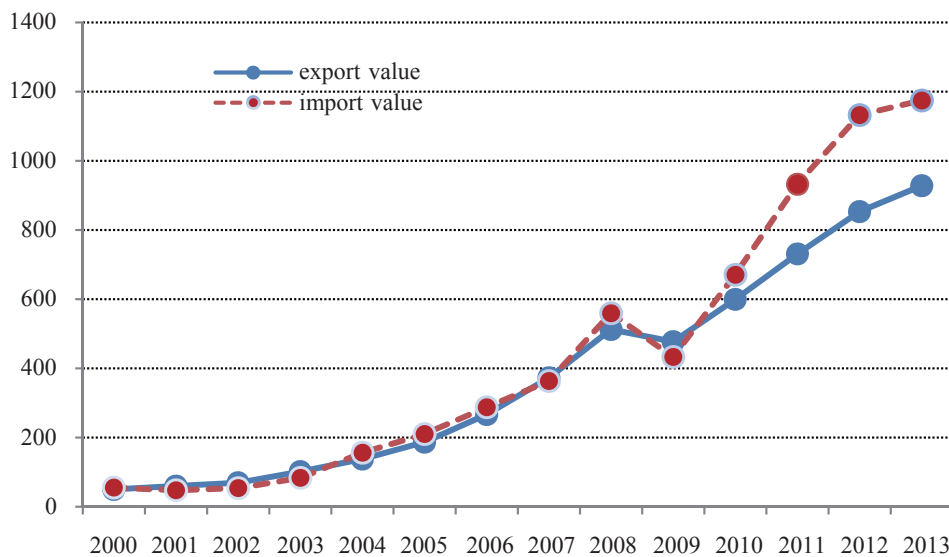

Figure 1
The Import and Export Trade Value Trend Between China and Africa
Note. Data from the CEInet Statistics Database.

Table 1 shows the trade structure of commodities that China export to Africa. From it we can know, during the past years, the commodities that China export to Africa mainly conclude: 85 (electrical, electronic equipment), 84 (nuclear reactors, boilers, machinery, etc.), 87 (vehicles other than railway, tramway), 73 (articles of iron or steel), 39 (plastics and articles thereof), 94 (furniture, lighting, signs, prefabricated buildings), 64 (footwear, gaiters and the like, parts thereof), 61 (articles of apparel, accessories, knit or crochet), 62 (articles of apparel, accessories, not knit or crochet), 76 (aluminium and articles thereof). The absolute value of those export commodities showed a rapid upward trend, especially in 84 (nuclear reactors, boilers, machinery, etc.) and 85 (electrical, electronic

equipment) and in these years, the export share of both two commodities are more than 10%. In 2000, the export volume of two commodities are 26.82 billion US dollars and 46.07 billion US dollars respectively and export share are 10.8% and 18.5%. By 2013, the export volume of both 84 and 85 amounted to up to 381.15 billion US dollars and 562.31 billion US dollars respectively and export share are 17.3% and 25.5%. It shows, in those years, machinery and electronic goods accounted for a large proportion in commodities that China exported to Africa.

Table 1
The Top Ten Commodities That Export to Africa Between 2000 and 2013

Year	2000		2005		2010		2011		2012		2013	
Commodity	Export value (hundred millions of dollars)	Export proportion (%)	Export Value (hundred millions of dollars)	Export proportion (%)	Export value (hundred millions of dollars)	Export Proportion (%)	Export value (hundred millions of dollars)	Export proportion (%)	Export value (hundred millions of dollars)	Export proportion (%)	Export value (hundred millions of dollars)	Export proportion (%)
85 electrical electronic equipment	460.7	18.5	1723	22.6	3836,	24.3	4431,	23.3	4,868	23.8	5,623	26
84 nuclear reactors,boilers, machinery, etc.	268.2	10.8	1497	19.6	3,148	20	3,562	18.8	3,755	18.3	3,812	17
87 vehicles other than railway, tramway	45.4	1.8	166	2.2	384	2.4	495	2.6	551	2.7	585.5	2.7
73 articles of iron or steel	54.8	2.2	190	2.5	391	2.5	512	2.7	562	2.7	573.5	2.6
39 plastics and articles thereof	63.9	2.6	178	2.3	349	2.2	457	2.4	555	2.7	620.7	2.8
94 furniture, lighting, signs, prefabricated buildings	70.2	2.8	224	2.9	506	3.2	593	3.1	779	3.8	864.1	3.9
64 footwear, gaiters and the like, parts thereof	98.5	4	191	2.5	356	2.3	417	2.2	468	2.3	507.6	2.3
61 articles of apparel, accessories, knit or crochet	134.2	5.4	309	4.1	667	4.2	802	4.2	871	4.2	967.9	4.4
62 articles of apparel, accessories, not knit or crochet	188.7	7.6	350	4.6	544	3.4	631	3.3	612	3	682.5	3.1
76 aluminium and articles thereof	10.3	0.4	61.1	0.8	145	0.9	187	1	186	0.9	200.4	0.9

Note. Data from the UN Comtrade.

Table 2 shows the trade structure of commodities that China imported from Africa, From it we can know, the commodities that China imported from Africa mainly conclude: 26 (Ores, slag and ash), 27 (Mineral fuels, oils, distillation products, etc.). In 2000, the export volume of two commodities are 3.13 billion US dollars and 20.68 billion US dollars respectively and export share are 1.4% and 9.2%. By 2013, the import volume of both 26 and 27 amounted to up to 148.77 billion US dollars and 315.23 billion US dollars respectively and import share are 7.6% and 16.2%. Those indicated that the commodities that China imports from Africa mainly in minerals which are mainly decided by the export trade structure of Africa.

Table 2
The Top Ten Commodities That Import From Africa Between 2000 and 2013

Year	2000		2005		2010		2011		2012		2013	
Commodity	Export value (hundred millions of dollars)	Export proportion (%)	Export value (hundred millions of dollars)	Export propor-tion (%)	Export value (hundred millions of dollars)	Export proportion (%)	Export value (hundred millions of dollars)	Export proportion (%)	Export value (hundred millions of dollars)	Export propor-tion (%)	Export value (hundred millions of dollars)	Export propor-tion (%)
27 mineral, fuels, oils, dis-tillatio-n, prod-ucts, etc.	206.8	9.2	640.9	9.7	1890	13.5	2758	15.8	3131	17.2	3152	16.2
26 ores, slag and ash	31.3	1.4	260.3	3.9	1094	7.8	1507	8.6	1337	7.4	1488	7.6
41 raw hides and skins (other than furskins) and leather	29.5	1.3	48.3	0.7	59.4	0.4	68.5	0.4	71.2	0.4	80.3	0.4
99 commo-dities not elsewhere specified	17.2	0.8	20	0.3	184.3	1.3	495	2.8	687.7	3.8	1047	5.4
25 salt, sulphur earth, stone, plaster, lime, and cement	7.1	0.3	21.7	0.3	45.1	0.3	57.9	0.3	63.5	0.3	59.9	0.3
71 pearls, precious stones, metals, coins, etc.	10.2	0.5	34.7	0.5	108.5	0.8	149.1	0.9	132.2	0.7	183.4	0.9
72 iron and steel	95.7	4.3	262.1	4	253.3	1.8	283.8	1.6	232.8	1.3	213.4	1.1
74 copper and articles, thereof	46.6	2.1	129	2	461.8	3.3	542.5	3.1	545.2	3	498.3	2.6
51 wool, animal hair, horsehair yarn and fabric, thereof	18.3	0.8	21.5	0.3	28.3	0.2	38.4	0.2	35.9	0.2	36.7	0.2
47 pulp of wood, fibrous cellulosic material,waste etc.	26.8	1.2	61.8	0.9	141.8	1	189.1	1.1	172.5	0.9	173.1	0.9

Note. Data from the UN Comtrade.

2. THE ANALYSIS OF COMPARATIVE ADVANTAGE AND COMPARATIVE DISADVANTAGE

2.1 Measurement Method

Through the analysis of the trade structure situation of one country, we can judge its advantage in comparative cost, resources and scale. the most commonly-used analytical method is to construct the revealed comparative advantage (*RCA*) index and the revealed comparative disadvantage (*RMA*) index, those two types of index can measure all kinds of goods' competitiveness, comparative advantage and comparative disadvantage in the foreign trade.

RCA index indicates that one country's exports of certain goods accounted for the proportion of the country's total exports volume, then, divided the proportion of certain goods in world trade volume. The equation can be write as follow:

$$RCA_{ij} = \frac{X_{ij} / X_i}{W_j / W}.$$

Actually, RCA_{ij} means the *i* country's revealed comparative advantage index in the *j* commodity, X_{ij} means the *i* country's export volume of *j* commodity, X_i means the total export volume of all commodities in *i* countries; W_j represent the world aggregate export volume of *j* commodity, W represent the world aggregate export volume. if the value of *RCA* is more than one, it indicates

that country has a revealed comparative advantage in the export of those goods, that is one country has a comparative advantage in the production of those goods, otherwise, it doesn't have the revealed comparative advantage.

RMA index indicates that one country's import of certain goods accounted for the proportion of the country's total import volume, Then, divides the proportion of certain goods in world trade total volume. The equation can be write as follow:

$$RMA_{ij} = \frac{M_{ij} / M_i}{W_j / W} .$$

Actually, RMA_{ij} means the i country's revealed comparative disadvantage index in the j commodity, M_{ij} means the i country's import volume of j commodity, M_i means the total import volume of all commodities in i countries; W_j represent the world aggregate import volume of j commodity, W represent the world aggregate import volume. if the value of RMA is more than one, it indicates that country has a revealed comparative disadvantage in the import of those goods, that is one country has a comparative disadvantage in the production of those goods, otherwise, it doesn't have the revealed comparative disadvantage.

2.2 Result and Analysis

According to the above mentioned method, we compute the revealed comparative advantage (*RCA*) index of commodities that China export to Africa and revealed comparative disadvantage *(RMA)* index of commodities that China import from Africa in the past ten years (see Table 3 and Table 4).

Table 3
The *RCA* Index of the Main Ten Commodities

Commodity year	84	85	87	73	39	94	64	61	62	76
2000	0.73	1.19	0.20	1.61	0.84	2.27	5.27	4.26	4.73	0.40
2005	1.44	1.69	0.24	1.50	0.72	2.39	3.78	3.31	3.18	0.78
2010	1.65	1.92	0.33	1.54	0.71	2.85	3.44	3.48	3.00	0.95
2011	1.61	2.02	0.36	1.62	0.78	2.89	3.38	3.56	2.95	1.03
2012	1.56	1.99	0.36	1.59	0.87	3.13	3.38	3.63	2.84	1.03
2013	1.48	2.21	0.33	1.45	0.87	2.92	3.37	3.63	2.93	0.99

Note. Data from the UN Comtrade.

Table 4
The *RMA* Index of the Main Ten Commodities

Commodity year	27	26	41	99	25	71	72	74	51	47
2000	0.90	2.90	4.18	0.24	1.00	0.21	2.10	3.31	4.49	2.82
2005	0.71	4.75	3.00	0.13	1.05	0.27	1.43	2.78	2.69	3.25
2010	0.88	5.22	2.47	0.42	1.08	0.30	0.72	3.25	2.63	3.12
2011	0.90	5.16	2.25	1.02	1.13	0.28	0.63	2.98	2.59	3.41
2012	0.93	4.85	2.32	1.34	1.19	0.27	0.55	3.08	2.60	3.40
2013	0.88	4.62	2.48	2.08	1.09	0.42	0.52	2.74	2.51	3.00

Note. Data from the UN Comtrade

From Table 3, we can conclude two facts as follows:

(i) The *RCA* index of commodity 85, 73, 94, 64, 61, 62 are more than one for each year, it indicates those six commodities have the revealed comparative advantage. As for commodity 84, in 2000, the *RCA* index is 0.73, while after 2005, *RCA* index is more than 1, this shows China have certain advantages in the export of those commodities after 2005.while for the *RCA* index of commodity 94, 64, 61, 62 are more than 2, this indicates that China has the particular comparative advantage in the export of the four commodities. With regard to commodity 76, in 2000, 2005, 2010, 2013, the *RCA* index are less than 1, however,in 2011 and 2012,the *RCA* index reached 1.03,we can speculate that in those two years, China has the advantage of the export of commodity 76. For commodity 87, 39, since the *RCA* index is less than 1 for each year, this shows the two commodities don't have the revealed comparative advantage.

(ii) In the those commodities which have revealed comparative advantage, the *RCA* index of commodity 85 and 94 shows an increasing trend. While in 2000, the *RCA* index of commodity 64, 61, 62 are more than 4, but in 2005, the *RCA* index are less than 4, this indicates, the revealed comparative advantage index of those three goods shows a downward trend.

In recent years, the main reason for the revealed comparative advantage (*RCA*) index of the commodities that China export to Africa show above characteristics can be concluded as follow:

(i) Africa is rich in resources, but weakness in manufacturing. The commodities that China exported to Africa mainly in industrial products and semi-finished products which occupy a large proportion in the China-Africa trade and it's trade value has increased steadily. But in the early trade between China and Africa, the commodity mainly in textiles, clothing, bags and other light industrial products. Therefore, the revealed comparative advantage index of commodities 64 (footwear, gaiters and the like, parts thereof), 61 (articles of apparel, accessories, knit or crochet), 62 (articles of apparel, accessories, not knit or crochet) that China exported to Africa in 2000 are more than 4.

(ii) With the development of Africa economy and the Africa market's demand for electrical appliances, electronic products significantly increased and Chinese engineering contracting business in Africa boom flourishing. At this time, the product structure of China-Africa trade changes from the labor intensive industries like textile, light industry to the value-added, high-tech mechanical and electrical, mechanical industry. Therefore, After 2000, the revealed comparative advantage index of commodity 64, 61, 62 showed downward trend, and commodity 94 (furniture, lighting, signs, prefabricated buildings), 85 (electrical, electronic equipment), 84

(Nuclear reactors, boilers, machinery, etc.) showed increasing trend.

Furthermore, from the revealed comparative disadvantage *(RMA)* index of commodities that China import from Africa (see Table 4). We can conclude two facts as follows:

(i) The *RMA* index of commodity 26, 41, 25, 74, 51, 47 are more than 1 for each year, it indicates those six commodities have the revealed comparative disadvantage. As for commodity 72, in 2000 and 2005, the *RMA* index is 2.1 and 1.43, while after 2010, *RMA* index is less than 1, this shows China doesn't have the revealed comparative disadvantages in the production of those commodity after 2010. While the *RMA* index of commodity 26, 41, 74, 51, 47 are more than 2, this indicate China have the comparative disadvantage in the import of the five commodities, that is China have the particular comparative disadvantage in the production of those commodity. With regard to commodity 99, in 2000, 2005 and 2010, the *RMA* index are less than 1, however, in 2011, 2012 and 2013, the *RCA* index in turn to reach 1.02, 1.34, 2.08, it shows in those ten years, the commodity 99 changes from does not have comparative disadvantage into possess comparative disadvantage. For commodity 27, 71, since the *RMA* index is less than 1 for each year, this shows the two commodities don't have the revealed comparative disadvantage.

(ii) In the those commodities which have revealed comparative disadvantage, the *RMA* index of commodity 25 showed an increasing trend expects in 2013. While for commodity 26, the *RMA* index is more than 4 except in 2000, this shows China have the particular comparative disadvantage in the production of those commodity. For commodity 41, 51, the *RMA* index is more than 4 in 2000, while after 2000 the *RMA* index is less than 4, this shows the revealed comparative disadvantage index of two commodity shows a downward trend. As for commodity 74 and 47, the *RMA* index is more than 2 and present changes in alternating fluctuation. This shows China has the particular comparative disadvantage in the production of those commodity.

In recent years, The revealed comparative disadvantage (*RMA*) index of the commodities that China import from Africa show above characteristic can attribute to some reasons:

(i) The commodity that China import from Africa mainly for resource- based products like crude oil, iron ore, timber, copper and among them energy and Mineral resources which account for a large proportion, because of this, the *RMA* index of commodity 26 (ores, slag and ash) are more than 4 after 2000, while for commodity 47 (pulp of wood, fibrous cellulosic material, waste etc.), 74 (copper and articles thereof), the *RMA* index of two commodity are more than 2 and shows fluctuated feature. At the same time, although with the proportion of China's demand for Africa's oil is increasing. However, since China is

the latter entrant of Africa energy market. The share of oil market still dominated by Occident, thus, it has small share in the import of world's oil. Therefore, in recent year, the *RMA* index of commodity 27 (mineral fuels, oils, distillation products, etc.) are less than 1.

(ii) In the sustain rapid development of China's economy, steel industry developed rapidly. The export volume of steel product shows an increasing trend, while import volume shows a downward trend year by year. Thus, commodity 72 (iron and steel) changes from possessing revealed comparative disadvantage into does not have revealed comparative disadvantage. Meanwhile, with the rapid growth of economy, our demands for the resources like energy and mineral increasing faster, while the growth rate of import of primary product slows down. So, we can see that in 2000 the RMA index of commodity 41 (raw hides and skins (other than furskins) and leather), 51 (wool, animal hair, horsehair yarn and fabric thereof) are more than 4, however in 2013 it dropped into 2.4-2.5.

3. OPPORTUNITIES AND CHALLENGES

3.1 Opportunities

China-Africa trade is highly complementary. Since Africa is the world's second largest continent which is rich in resources and vast territory, but its machinery equipment, daily necessities and medicine mainly rely on import. While now, Chinese economy is in the new normal of the shift period of growth rate, the adjustment time of economy's structure and the digest period of early days economy's stimulation policy. Due to the economy's stimulation in early days which over produced large capacity, so, in order to handle the rest of capacity, it's necessary for us to develop new trade market and achieve the Marshall plan of the Chinese version.

The forum on China-Africa cooperation and China-Africa's senior official frequently visit which strengthen the economic and trade cooperation between the two sides. In 2013, Chinese president Xi Jinping visit Africa and came up with the concept of China-Africa "community of shared destiny". In 2014, Chinese Premier Li Keqiang visit Africa and proposed four principles for deepening cooperation and underlined six primary areas of cooperation and complete one platform. In 2014 from November 13th to November 14th, in the Roundtable conference on China-Africa cooperation of theme of "transform and upgrade, cooperation and win", During the conference, the enterprise summit forum and China-Africa cooperation forum conduct a extensive discussion in how to achieve an upgraded version in China-Africa cooperation which put the China-Africa cooperation into a new stage.

Africa provides a huge market for Chinese product. According to statistics, among the world's top 10 fastest growing economies, there were 6 in Africa. Meanwhile, Many African countries reduce the dependence on

its own resources like oil and so on. And from 2009, China has been Africa's biggest trading partner for the past five years. While Africa has been the significant import place of sources and the second largest overseas project contracting market and potential investment place of China. The economic and trade cooperation of China-Africa plays an important role in promoting the development of global economy.

3.2 Challenges

The products that China export to Africa mainly in the bottom shelf product, while top shelf product basically monopolized by Occident. In Africa commodity market, especially in the central business district of a big city, most top shelf products are monopolized by distributors in western developed countries. While our products that exported to Africa mainly in labor-intensive products of low value-added.

Secondly, the import-export structure of China-Africa trade is simple and trade volume of import or export account for a low proportion in their own total trade volume and recent years deficit became larger. At the same time, since the undeveloped countries have low stability in the aspect of economy, policy, law. So, it will exist more risks in the trade with those countries. Therefore, how to avoid risks in the trade or to minimize the risk level is an urgent issues to be addressed.

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