Analysis and Countermeasures of Agricultural Product Trade Between China and the United States

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Abstract: The volume of bilateral commerce between China and the United States has increased quickly since those links were established, and the trade gap between the two nations has also been widening year after year. The tariffs between China and the US started to rise in 2018, gradually hurting agricultural products. Nearly all agricultural items traded between China and the US in bilateral commerce are included in the three lists of goods susceptible to extra tariffs that have been jointly released by both parties. The trade of agricultural goods is well-known to play a significant part in Sino-US commerce. This article analyzes the characteristics of agricultural product trade between China and the United States from 2015 to 2019 using relevant data and various indicators, and puts forward corresponding suggestions for the future development of agricultural products in China.

Keywords: Trade Frictions Between China and the US; Agricultural Trade; Trade Deficit

1. Introduction

China and the US are two significant nations with sizable economies in the globe. They have a long history of agricultural-related commercial contacts. The development in agricultural commerce between the two nations showed an intensification when China joined the World commerce Organization in. With an average annual growth rate of 17%, the total quantity of agricultural commerce between them shown an increasing tendency, outpacing the pace of agricultural trade growth globally. At one point, the United States became China's largest importer of agricultural products. But in 2018, the growth rate fell to negative, indicating that the trend of agricultural trade between China and the United States is very unstable.

2. Method

Using the Revealed Comparative Advantage Index (RCA) and the Trade Dependence Index (Cij), this paper analyzes import and export data of agricultural commodity transactions between China and the US from 2015 to 2019 and examines the explicit comparative advantages of their respective agricultural trade. In order to assess the degree of proximity and historical shifts in the bilateral trade ties between China and the US for agricultural goods, the Trade Intensity Index was also employed to gauge the intensity of agricultural commerce between the two countries.

3. Index analysis

3.1 Data Description

Due to the existence of various commodity regulations in international trade, and the commodity regulations for agricultural products are also very different, in order to ensure the convenience of the study and the consistency and authority of the data, this paper decides to adopt the HS code commodity classification method of the United Nations Commodity Trade Statistics Database (UN comtrade).

Table 3.1 HS codes of agricultural products and corresponding commodity category classification

HS Code	Category

1	Living animals and meat products
2	Meat and viscera
3	Fish, crustaceans, Mollusca and other aquatic Invertebrate
4	Dairy products; Bird eggs; Natural honey;
5	Animal products not specified elsewhere
6	Trees and other plants, bulbs, rhizomes
7	Vegetables and certain edible roots and tubers
8	Fruits and nuts, peel of citrus fruits or melons
9	Tea, coffee, and spices
10	Cereals and miscellaneous grains
11	Products in the grinding industry; Malt, starch
12	Oilseeds and oily fruits;
13	Paint; Gum, resin, and other plant extracts
14	Plant based woven fabrics
15	Animal or plant wax
16	Meat, Mollusca and other aquatic Invertebrate;
17	Sugar and Candy
18	Cocoa and its preparations
19	Cereal flour, flour, starch or milk products
20	Preparation of vegetables, fruits, nuts
21	Various edible preparations
22	Beverages, spirits, and vinegar
23	Processed food and its residues and waste
24	Tobacco and its substitutes

3.2 Comparative advantage analysis

This article uses the revealed comparative advantage index, also known as the RCA index, to better compare the competitive advantages of agricultural products between China and the US. This index was proposed by Balassa (1989), where X_{ik} represents the export value of k goods in country i, X_i represents the export value of all goods in country i, W_k represents the world export volume of category k goods, and W represents the total world export volume of all goods; M_{jk} represents the import volume of k goods in country j, M_j represents the import value of all goods in the country.

The calculation formula is as follows:

$$RCA_{xik} = \frac{X_{ik}/X_i}{W_k/W}$$

$$RCA_{mjk} = \frac{M_{jk}/M_j}{W_k/W}$$

Table 3.2 RCA of China's Agricultural Product Exports and US Imports from 2015 to 2019

Year	2015		2016		2017		2018		2019	
HS Code	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
1	0.21	1.12	0.24	0.97	0.20	0.95	0.18	0.88	0.17	1.01
2	0.07	0.62	0.06	0.52	0.06	0.52	0.05	0.51	0.05	0.50
3	0.97	1.12	0.97	1.10	0.88	1.24	0.84	1.11	0.78	1.09
4	0.06	0.27	0.06	0.25	0.05	0.23	0.05	0.23	0.05	0.24
5	1.43	0.88	1.57	0.86	1.76	0.87	1.71	0.83	1.59	0.73

6	0.12	0.81	0.13	0.83	0.13	0.86	0.13	0.86	0.14	0.92
7	0.98	0.99	1.15	1.06	1.19	1.05	1.13	1.17	1.07	1.20
8	0.36	0.97	0.38	1.02	0.35	1.06	0.33	1.06	0.37	1.06
9	0.38	1.23	0.47	1.21	0.44	1.27	0.53	1.23	0.59	1.26
10	0.02	0.18	0.03	0.16	0.05	0.17	0.06	0.18	0.08	0.18
11	0.23	0.68	0.24	0.67	0.24	0.73	0.30	0.77	0.31	0.79
12	0.24	0.20	0.22	0.18	0.21	0.17	0.21	0.17	0.23	0.17
13	1.30	1.77	1.37	1.43	1.47	1.55	1.42	1.55	1.42	1.44
14	0.97	0.71	1.00	0.81	1.04	0.78	1.06	0.70	0.99	0.71
15	0.06	0.49	0.05	0.53	0.07	0.54	0.09	0.57	0.11	0.55
16	1.30	0.85	1.35	0.83	1.43	0.89	1.48	0.92	1.32	0.88
17	0.28	0.75	0.28	0.71	0.28	0.67	0.33	0.79	0.35	0.87
18	0.07	0.77	0.07	0.76	0.06	0.78	0.06	0.73	0.06	0.75
19	0.17	0.73	0.18	0.77	0.18	0.79	0.20	0.82	0.21	0.86
20	0.91	1.00	0.94	1.01	0.95	1.07	0.94	1.10	0.90	1.08
21	0.34	0.51	0.37	0.49	0.36	0.51	0.36	0.77	0.37	0.81
22	0.14	1.52	0.16	1.56	0.15	1.59	0.15	1.57	0.12	1.63
23	0.27	0.28	0.31	0.29	0.29	0.29	0.30	0.31	0.28	0.32
24	0.25	0.37	0.26	0.37	0.25	0.38	0.24	0.36	0.24	0.37

The RCA index of HS 03, 05, 07, 13, 16, 20 item in China is greater than 1, indicating that these categories of commodities have strong international competitiveness in the Chinese and American markets. The RCA index of HS 09, 03, 22 in the US is approximately 1.5, indicating strong international competitiveness in these three categories of goods.

Through comparison, it can be found that the RCA of agricultural products with advantages in the US is higher than that of Chinese products. There are more types of agricultural products with advantages in the US.

3.3 Trade complementarity analysis

This paper uses the Trade Complementarity Index to establish a Trade Complementarity Index C_{ij} for exports and imports of countries i, which is used to measure the trade complementarity of agricultural products between China and the US. The calculation formula is as follows:

$$C_{ijk} = RCA_{xik} \times RCA_{mjk}$$

Among them, RCA_{xik} represents the explicit comparative advantage index of country i in category k products; RCA_{mjk} represents the explicit comparative disadvantage index of country j in category k products. When C_{ij} value is greater than 1, it indicates that there is complementarity between the two countries in terms of commodity k; When C_{ij} value is less than 1, it indicates that complementarity is not strong.

Table 3.3 China US Agricultural Product Trade Complementarity Index from 2015 to 2019

HS Code	2015	2016	2017	2018	2019
1	0.23	0.23	0.19	0.16	0.17
2	0.04	0.03	0.03	0.03	0.02
3	1.09	1.06	1.10	0.93	0.84
4	0.02	0.01	0.01	0.01	0.01
5	1.26	1.35	1.53	1.42	1.17
6	0.09	0.11	0.11	0.11	0.13
7	0.98	1.21	1.24	1.33	1.28
8	0.35	0.39	0.37	0.35	0.39

9	0.47	0.57	0.56	0.65	0.74
10	0.00	0.01	0.01	0.01	0.01
11	0.16	0.16	0.17	0.23	0.24
12	0.05	0.04	0.04	0.04	0.04
13	2.31	1.96	2.27	2.20	2.05
14	0.69	0.81	0.81	0.74	0.70
15	0.03	0.03	0.04	0.05	0.06
16	1.10	1.13	1.28	1.36	1.16
17	0.21	0.20	0.19	0.26	0.31
18	0.05	0.05	0.05	0.05	0.04
19	0.13	0.14	0.14	0.16	0.18
20	0.90	0.95	1.02	1.04	0.97
21	0.17	0.18	0.18	0.28	0.30
22	0.21	0.24	0.24	0.23	0.20
23	0.08	0.09	0.09	0.09	0.09
24	0.09	0.10	0.09	0.09	0.09

Agricultural products with strong complementarity between China and the U.S. include HS 03, 07, 13, 16, and 20, which fits with the RCA index of agricultural products between China and the U.S., indicating that China and the U.S. have strong complementarity in the above categories of agricultural products, and there is more room for bilateral trade.

4. Conclusion and Suggestions

1. Adjust the agricultural planting structure. At present, the problem that cannot be solved in the short term is that China's oilseeds and oils need to be supplemented by the international market. It is necessary to pilot the cultivation of high-yield varieties in domestic regions, encourage and support the production of other alternative oilseed crops in China, and ensure supply in various ways to ensure the agricultural industry and domestic food security.

2. For some agricultural products with large import volumes, we cannot overly rely on a certain trading partner. We should adjust the trade structure reasonably to diversify risks and enhance our resilience in the face of unexpected events.

3. Conduct commercial and economic talks effectively. The trade dispute over agricultural goods did not result in any gains for either side, but rather in a large net loss of societal welfare. The two nations must identify effective negotiating channels and set up an effective communication system based on WTO free trade principles.

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Funds: "Digital Transformation and Quality Upgrading of Manufacturing Exports: Influencing Mechanisms and Guangdong Practice" (GD23YYJ24);

Funded by the Guangdong Social Sciences Planning 2023 Youth Project.