The Trend of Import and Export Trade Terms of Agricultural Products Between China and the United States

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Abstract: It has been observed that the U.S-China trade has increased extraordinarily in the last couple of years. However, China is also the biggest market for U.S. agricultural products. Therefore, the main objective of the presented report is to illustrate the trends and development of the trade of agricultural products between China and the U.S., which can play a substantial role in the further economic development of these countries. Furthermore, it will facilitate the policymakers to design future trade policies which can maximize the benefits proactively.

Keywords: U.S-China trade, agricultural products, the trends and development, economic

1. Introduction

China and the United States are considered the world's developed economies; these countries have observed consistent growth in almost all of their sectors, specifically in agriculture [1]. China is also playing an extraordinary role in the global agriculture market. One of the primary reasons behind the increasing demand for china's agricultural products is that they offer relatively good quality products at affordable rates [2]. The major agricultural products of China included Potato, wheat, peanuts, cotton, rice, and sorghum. It was also analyzed that the increasing dominance of China in the global agriculture market cannot negatively impact the economy of other countries [3]. On the other side, China relies on other countries to import certain products as the demand for the soybean has increased to an extent for china in the last couple of years [2].

The trade of agricultural products has increased rapidly between China and US in the last few years. It was also found that China must depend on the USA to fulfill its agricultural needs. The US agriculture exports to China accounted for $25 billion in 2013 [4]. In contrast, China's exports to the US were relatively minimal, as they were recorded below $5 Billion in the same year. It was found that 50% of China's agriculture imports belong to oil seeds, including Soybeans, oils, and fats [2]. The imported oil seeds are further processed in order to extract the Oils. The USA was a significant and prominent supplier of oil seeds to China as almost 24% of China's imports, specifically agricultural products, come from the USA [4].

2. Literature Review

There are different agricultural products that China cannot produce. Due to this, it has to depend on other countries. Gale, Valdes & Ash researched to examine the interdependence between China and

the United States, specifically the in the soybean trade [5]. The findings of Gale, Valdes & Ash express that China's overall Soybean imports are almost 60% of the global soybean import [5]. China also prefers investing in the U.S. and other countries like Brazil to install the soybean farm. Salin and Somwaru believe that different factors, like the affordable cost of transportation and the availability of a variety of transportation modes in the U.S., provide a competitive advantage to the U.S., specifically in the soybean market [6]. Internal transportation costs play a significant role in attaining agricultural products at lower rates. The covid-19 outbreak also impacted the U.S. and China agricultural products trade due to the border restriction. However, the trade restriction was lifted, and it again took a boost as in 2020, the overall USA agricultural products increased by 91.1 %. The overall volume of China's agricultural imports reached 26.435 billion dollars in 2020 from 13.68 billion dollars in 2019. Zhang researched to investigate agricultural trade relations by analyzing the pressure of delocalization. The findings suggest that the covid-19 outbreak created uncertainty and delay in the US-China trade deals [7]. China and U.S. also signed the phase one deal to further enhance their agriculture trade [8]. The people of the U.S. and China also see this as a good move, as this is the first time that both countries have agreed to ease the tariff rates [7].

Moreover, the implication of strict policies and taxation can also significantly impact trade between two or more countries. The recent literature expresses that the higher tariff on U.S. imported products, specifically agricultural products, has impacted the U.S. agricultural industry badly. Bown researched to analyze the phase one agreement and the impact of the U.S.- China trade war [8]. It has been found that every country is increasing its trade tariff by 20% annually. China was the substantial destination for the agricultural products of the United States, and the trade war impacted negatively. However, phase one trade agreement can reduce these tensions to some extent. Muhammad and Smith evaluated the trade trends of the agricultural products between China and the U.S. it has been found that china has almost 20% of the world's population [9]; it is on top in terms of population which is why their demand for the agricultural product is relative which is the best opportunity for the U.S. to capture China's agricultural market. Ji, Zhang, and Zhu conducted similar research to investigate the consequences of trade friction between the U.S. and China on the future market [10]. The findings indicate that as the tariff was implemented on soy, both countries' investigators and investors preferred to show their hedging behaviors.

Consequently, it was observed that the future market of soy showed less correlation. China has always remained the most prominent advocate of free trade agreements as it reduces the burden of taxes and tariffs for the final consumer. The phase one deal between U.S. and China was also the result of this, as it can enhance regional economic activities further [11].

The conventional approaches of farming and its related activities are also serious concerns for the environment as causes exert hazardous gases that pollute the water. Yao et al. researched to demonstrate the impact of the U.S. and China crop trade relationships on the environment [12]. The results show that the "implementation of the higher tariff by the China's government on us agricultural product increases the pollution to the extent level as the level of the hazardous gases like Phosphorus and Nitrogen were increased due to the farmer's inclination on the other pollution producing crops instead of the soybeans. The increasing economic tension between both of these countries has negative consequences on the environment as well. It was also seen that the agricultural products trade between both of these countries has also had significant impacts across the borders. The findings of Chowdhry and Felbermayr illustrate that the trade deal between China and the U.S. can have diversion effects on China's top trading partners, and the demand for aircraft, industrial machinery, and vehicles in Germany can decline further in the future [13]. It was also demonstrated that due to the ETA, the soybean export in China could decline by almost $5 billion. Hence, the concerns of the trading partners can be eliminated by mutual agreement.

3.   Methodology

The main objective of the presented report is to analyze and evaluate the U.S-China agricultural trade development concerning the current trends of the imports and exports between these countries. In order to accomplish the main objective of the presented report, secondary data will be utilized. In addition, the quantitative research approach demonstrates the research problem, as the numeric data will play a substantial role in the analysis.

The key variables of the presented report are China's overall agricultural imports and China's overall agricultural exports to the U.S. There are different agricultural products like Tobacco, Silks, Sugars, Dry fruits, Vegetables, Soybean, Cotton, Wheat, Dairy products, tree Nuts and some other that have been traded between U.S. and China on a broader scale that will facilitate in the phase of the data collection.

The secondary data on the imports and exports of China and U.S. agricultural products will be procured from the "UN Comtrade Database," a credible source. The presented report will focus on the historical data of 10 years (2010-2010) of agricultural trade in both countries by including different agricultural products like Sugars, Dry fruits, Vegetables, Soybean, Cotton, Wheat, Dairy products, Tobacco, and many more. R studio will be used for the analysis of the data. In addition, the regression model will demonstrate the trends of the imports and exports of agricultural products between the U.S. and China. Furthermore, the tables and graphs are prioritized to understand the outcomes clearly.

The findings of the presented report will be based on valid and authentic sources. Therefore, the results and findings do not contain a bias factor. Furthermore, the data on the imports and exports of agricultural products will be rechecked from other sources like worldbank.org.

4.   Results and Findings

This section of the study is related to the analysis of china's imports and export to the US. The trend of china's imports with the US is shown in figure 1. China's imports from the US increased from 2010 to 2014. Meanwhile, in 2016 import value suddenly decreased, and consequently, in 2019, it experienced a significant decrease. The main agricultural product imported from china from the US includes corn, cotton, dairy product, soybean, tree nut, wheat and Wool, fine or coarse animal hair, horsehair yarn, and woven fabric.
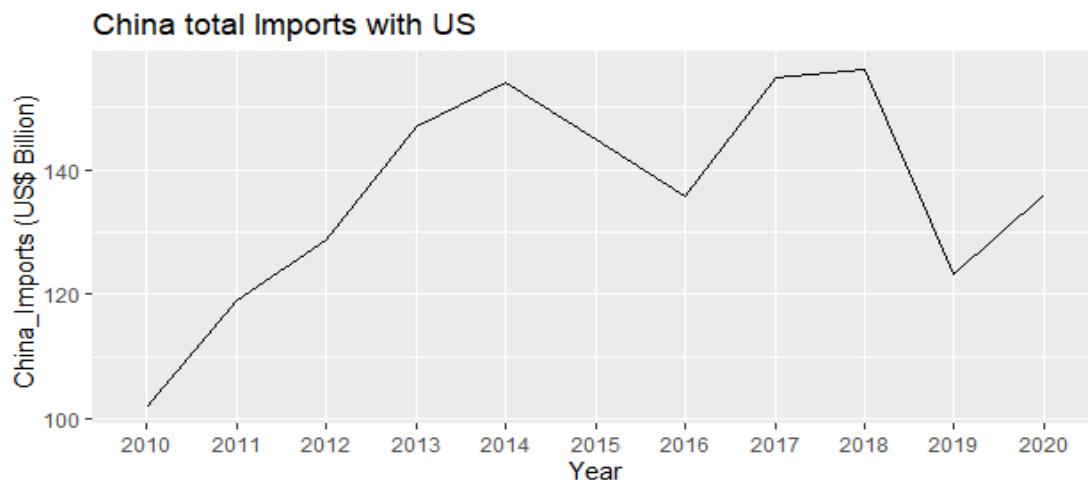

Figure 1: A China imports with the US from 2010 to 2020.

The total value of china's export to the US is shown in figure 2. This shows that china's export to the US was high in 2018, while similar to the import pattern, exports also experienced a sudden decrease in 2019. In the context of agricultural products, china's agricultural exports to the US include Tobacco, Silk, Sugar, Tea &spices, Dry Fruit, vegetables, etc.

The most important agricultural product of import from china to the US is soybean, with the most significant import in 2014 of 16.3B US $, in 2015 12.4 B US $, while in 2020, the total soybean imports from china to the US was 10.6 B US $. The second most significant agricultural product of import from china from the US is cotton. The highest value of cotton import from the US was seen in 2012, which was 3.7B US $, .whereas in 2019, the cotton import from the US was only 427.8M US $. Consequently, in 2012, China imported corn worth 165.8M US $ from the US. However, Corn import is significantly decreasing from 2015 to 2019. Finally, the most significant import of other agricultural products of china from the US includes during the last decade (2010-2020) include wheat (2013, 126.3M US $), Dairy product (2014, 587.2 M US $).
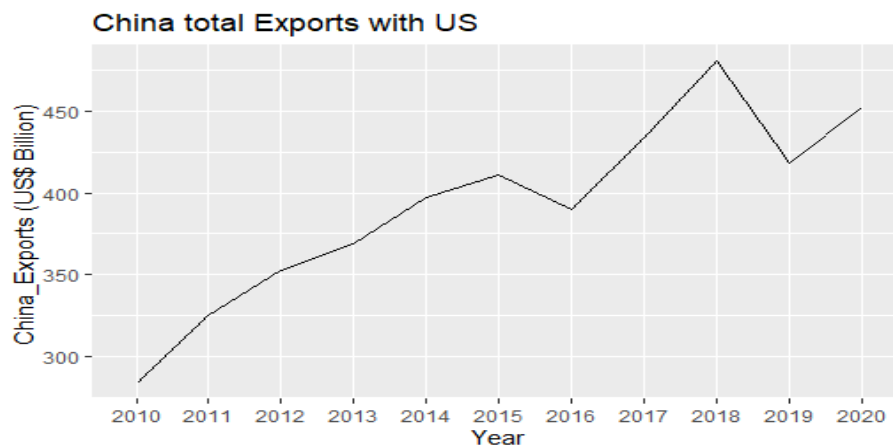

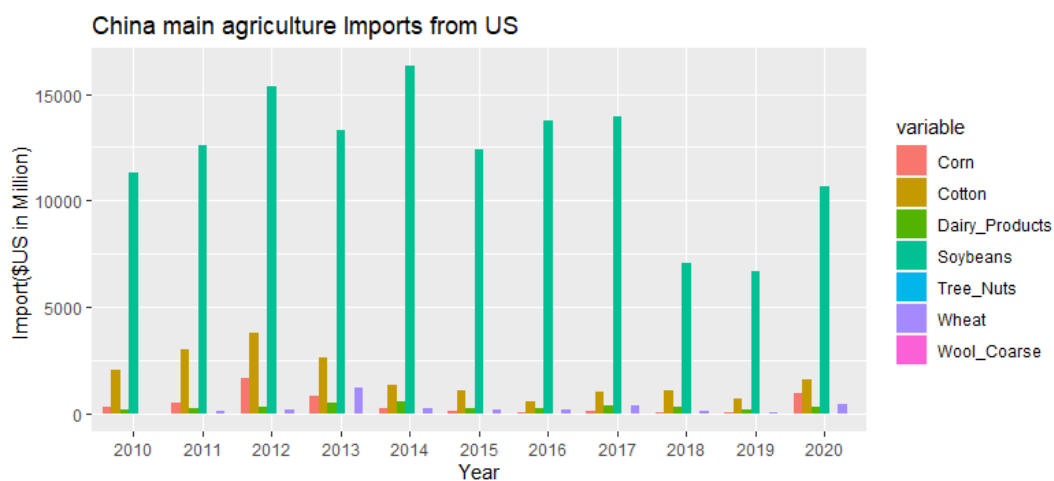Figure 2: China's export with the US from 2010 to 2020.

Figure 3: China imports from US agricultural product.

The export of china to the US is vegetable, followed by Tea and spices, and sugar. In 2017 china exported 777.18M US $ of vegetables to the US, which was the highest value of agriculture export to the US. The pattern of vegetable export shows random behavior. Consequently, in 2010 the value of china's export of Tea and spices was 170.96M US $; meanwhile, in 2011, the value of china's

export of Tea and spices was 109.6M US $; consequently, in 2019, this value increased to 231.4M US $. The third necessary china export to the US is sugar; the data shows that the value of china's export of sugar to the US in 2020 was 200.5M US $, making it the enormous value of sugar export from 2010 to 2020. However, the sugar import in 2012 was 156.9M US $. Moving other third-largest agricultural export of china to the US is Silk export. The highest value of silk export from 2010 to 2020 was in 2012 (44.7 M US $). However, the smallest value of silk export from china to the US was in 2020 (12.8M US $). The trend of other china's agriculture products to the US can be analyzed from the figure.
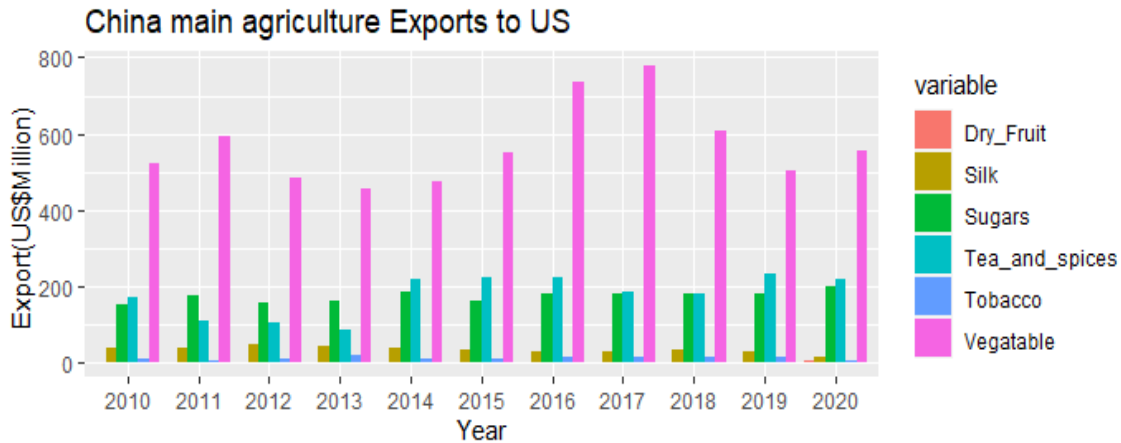

Figure 4: U.S imports from China by agricultural product.

Using the Regression model, the impact of china's agricultural products imports from the US (corn, cotton, dairy product, soybean, tree nut, wheat, and Wool or coarse) on china's overall imports from the US are examined. The P-value of the regression coefficient is only significant for Dairy Products, indicating that china Dairy products imported from the US significantly impact overall china imports from the US.

Table 1: Regression model results.

Coefficients				
	Estimate	Std. Error	t value	Pr(>|t|)
Soybeans	-1.917	1.559	-1.229	0.307
Cotton	-14.942	7.425	-2.013	0.138
Wheat	-10.719	13.980	-0.767	0.499
Dairy Products	143.474	42.642	3.365	0.044
Corn	25.805	14.622	1.765	0.176
Tree Nuts	18016.458	14269.901	1.263	0.296
Wool Coarse	1180.166	822.899	1.434	0.247

The value of the R squared is suggesting the overall adequacy of the regression model.

Table 2: Summary of the regression model.

Multiple R	0.949
R Square	0.901
Adjusted R Square	0.670

5.   Discussion

From the data analysis of the import and export of the U.S. and china in the context of agricultural products, it has been analyzed that along with overall trade; the agriculture trade also has decreasing trend from 2018; however, before 2018; the import and export were significantly high. Moreover, the main agricultural products China exported to the U.S. included tobacco, silk, sugar, tea, spices, dry fruit, vegetables, etc., with vegetables, tea, and spices being one of the most significant exports. In contrast, the agricultural products of China imported from the U.S. include corn, cotton, dairy, soybean, tree nut, wheat, and Wool. The most significant import is fine or coarse animal hair having soybean and cotton. The negative impact on the import and export between US-China trades is also experienced in recent literature. The US-China trade war is the most common justification for this decrease [14]. According to Yao et al. [12], tariff imposition on U.S. agricultural products causes sudden changes in imports and export as the import of soybeans (the main agricultural product U.S. to china) get a significant decline in 2018 and 2019 (soybeans), which indicate that soybeans import was considered a central defense of the Chinese government to cope with the United States (U.S.) in the trade war. However, He et al. argued that this change in international soybean trade would inevitably increase worldwide ecological costs in the short term due to the soybean excess production and less demand in the U.S., and the amplified food transportation distance [15]. The 25% increase in Chinese tariff on the U.S. agriculture product, including soybean, corn, wheat, sorghum, and beef imports. According to Taheripour and Tyner, Chinese imports from the United States decreased to 48 percent, whereas United States worldwide export declined to 24 percent [16]. Moreover, this decline in imports from the U.S. also hurts the domestic market of the U.S. and China.

Along with the significant decrease in import and export of US-China trade, the study also concludes that the import of the Diary product has a significant and positive impact on overall china import from the US. This suggested that, compared to other agricultural products, dairy product imports have experienced an increase. Furthermore, Figure attached in an appendix in is showing china's overall export (% of the GDP). China's overall Exports of goods and services as a percent of GDP were high in 2010, but they had a continuous decreasing pattern from 2010 to 2016. Moreover, in 2017, it experienced a slight increase. This indicates the overall impact of china's imports and export on the US. Moreover, china's overall imports (% of the GDP) of the GDP, from the Figure in the appendix, can be analyzed that China's overall Imports of goods and services as a percent of GDP, were high in 2011 as compared to 2011, but it continuous decreasing pattern from 2011. Furthermore, in 2018, the value of the percentage of GDP of Imports of goods and services increased 2018.

6.   Conclusion and Recommendations

This study analyzed the trend of the import and export of the agricultural culture product of China and the US from 2010 to 2020. The selected significant imports in the context of China include tobacco, silk, sugar, tea, spices, dry fruit, and vegetables, and the significant exports to china that are included in this study for analysis are corn, cotton, dairy product, soybean, tree nut, wheat, and Wool or coarse animal hair. The overall analysis depicted that the trend of the agriculture trade

between the US and China experienced a significant decline in 2018 and 2019 due to the US-China trade war. Moreover, the study conducted the regression analysis to check the impact of the individual import value of each selected agriculture product on overall china imports with the US. The result of the regression analysis shows an insignificant impact of the selected agriculture product import value on the overall imports except for Dairy product imports value, which shows a positive impact.

Considering the result of the study, some recommendations and implications are suggested for the concerned authorities. Firstly, the trade policies between two countries must be applied to generate more possible trade opportunities. Moreover, the implication of the trade policies must be taken by considering the environment and economic impact. Secondly, trade policies between countries must be transparent to build sustainable trade worldwide. Finally, the implication of strict policies and taxation can significantly impact overall trade between two or more countries.

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