

Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Management



Master's Thesis

Agrarian Foreign Trade

Jignesh Kiritkumar Dhanani

© 2024CZUPrague

DIPLOMA THESIS ASSIGNMENT

Jignesh Kiritkumar Dhanani

Economics Policy and
Administration Business
Administration

Thesis title

Agrarian Foreign Trade

Objectives of thesis

The main objective is to assess the impact of agrarian foreign trade on domestic agricultural economies within a specified geographical region.

- To examine the patterns and trends of agrarian foreign trade, including import and export volumes, commodities traded, and trade partners.
- To analyze the economic, social, and environmental benefits derived from agrarian foreign trade for domestic agricultural sectors.
- To identify the challenges and barriers faced by domestic agricultural economies in engaging with foreign trade, such as market access limitations, trade barriers, and fluctuating prices.
- To evaluate the role of government policies and international agreements in shaping agrarian foreign trade dynamics and their effects on domestic agricultural economies.
- To propose recommendations for policymakers and stakeholders to optimize the benefits and mitigate the challenges associated with agrarian foreign trade, promoting sustainable development and resilience within domestic agricultural sectors.

The outcomes of this research endeavor aim to provide valuable insights and actionable recommendations for enhancing the efficiency, sustainability, and resilience of agrarian foreign trade, thereby contributing to the advancement of domestic agricultural economies within the specified geographical region.

Methodology

The method outline for this study involves a comprehensive review and synthesis of existing literature and secondary sources pertaining to agrarian foreign trade dynamics, theories, and relevant concepts. This review will encompass scholarly articles, books, reports, and official publications from governmental and international organizations. The aim is to gather a diverse range of perspectives and insights on the subject matter, covering aspects such as trade patterns, trends, economic impacts, policy frameworks, and regulatory environments. Additionally, specialized databases and online repositories will be utilized to ensure the inclusion of up-to-date and relevant information. The method outline emphasizes a rigorous

and systematic approach to literature review, enabling the formulation of a robust theoretical framework to guide subsequent data collection and analysis processes



The proposed extent of the thesis

60-80 pages

Keywords

Trade policy, Agribusiness, Asian Foreign Trade, Foreign trade, Global economy, Trade policies, Geopolitical influences, Market demands, India and China

Recommended information sources

Ilyina, D., 2016. Review of the Agro-Food Trade Policy in the Post-Soviet Countries 2014-15. FAO,
Kozlovskiy, S., Baidala, V., Tkachuk, O. & Kozyrskaya, T., 2018. Management of the Sustainable Development
of the Agrarian Sector of the Regions of Ukraine. Montenegrin Journal of Economics, Volume 14,
Mazhikeyev, A., Edwards, T. H. & Rizov, M., 2015. Openness and Isolation: The Trade Performance of the
Former Soviet Central Asian Countries. International Business Review, Volume 24
Pohlová, K., 2017. Agrarian Foreign Trade Yearbook 2016. s.l.:s.n. Pohlová, K. & Mezera, J., 2014. Analysis
of Development of Czech Foreign Trade in Foods and Beverages. Agris on-line Papers in Economics
and Informatics, Volume 6
Řezbová, H., Maitah, M. & Sergienko, O. I., 2015. EU Quota Sugar Market Concentration – the Main
Drivers of EU Sugar Market. Agris on-Line Papers in Economics and Informatics, Volume 7

Expected date of thesis defence

2023/24 WS – PEF

The Diploma Thesis Supervisor

doc. Ing. Irena Jindřichovská, CSc.

Supervising department

Department of Trade and Finance

Electronic approval: 26. 3. 2024

prof. Ing. Luboš Smutka, Ph.D.

Head of department

Electronic approval: 26. 3. 2024

doc. Ing. Tomáš Šubrt, Ph.D.

Dean

Prague on 26. 03. 2024

Declaration

I declare that I have worked on my master's thesis titled "Agrarian Foreign Trade" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the master's thesis, I declare that the thesis does not break any copyrights.

In Prague on 31.03.2024

(Jignesh Kiritkumar Dhanani)

Acknowledgement

I would like to thank Doc. Ing. Irena Jindřichovská for their guidance and assistance while I was working on this thesis. I want to express my appreciation to everyone who assisted me with the project. I appreciate how supportive and helpful myteachers have been at all times.

Agrarian Foreign Trade

Abstract

This study delves into the dynamics of agrarian foreign trade, specifically focusing on the export and import patterns of rice and cotton in India and China before and after the onset of the COVID-19 pandemic. With a primary objective of examining the changes in trade flows following the global health crisis, the research scrutinizes data spanning six years from 2016 to 2022, comprising three years pre-COVID and three years post-COVID. Through rigorous statistical analysis, including t-tests for pre and post-analysis data, the study evaluates hypotheses pertaining to the significance of differences in rice and cotton exports and imports between the pre and post-COVID periods in both India and China. The investigation aims to shed light on how the pandemic has impacted agrarian foreign trade dynamics in two of the world's largest economies, offering valuable insights for policymakers, businesses, and stakeholders navigating the complexities of global trade amidst unprecedented challenges.

Keywords: Trade Policy, Agribusiness, Asian Foreign Trade, Foreign trade, Global economy, Trade policies, Geopolitical influences, Market demands, India and China

Zemědělský zahraniční obchod

Abstrakt

Tato studie se zabývá dynamikou zahraničního obchodu s agrárními produkty, konkrétně se zaměřuje na export a import rýže a bavlny v Indii a Číně před a po vypuknutí pandemie COVID-19. S primárním cílem zkoumat změny v obchodních tocích po globální zdravotní krizi, zkoumání analyzuje data z období šesti let od roku 2016 do roku 2022, zahrnující tři roky před COVIDem a tři roky po něm. prostřednictvím důkladného statistického rozboru, včetně t-testů pro před a po analýze dat, studie hodnotí hypotézy týkající se významu rozdílů v exportu a importu rýže a bavlny mezi před a po COVIDových obdobích jak v Indii, tak v Číně. Cílem zkoumání je přinést poznatky o tom, jak pandemie ovlivnila dynamiku zahraničního obchodu s agrárními produkty v dvou největších ekonomikách světa, nabízí cenné poznatky pro tvůrce politik, podniky a zúčastněné subjekty navigující složitostmi globálního obchodu v období nepředvídatelných výzev.

Klíčová slova:

zemědělský, zahraniční obchod, globální ekonomika, obchodní politiky, geopolitické vlivy, tržní poptávka, Indie a Čína.

Table of content

1. Introduction.....	9
2. Objectives and Methodology.....	10
Objectives	10
Research Methodology	11
Method Outline	11
Research Philosophies	11
Research Approach.....	14
Research Design	16
Hypothesis.....	19
3. Theoretical Part	20
Significance of Agrarian Foreign Trade	20
Economic Impact	23
Historical Context.....	25
Trends in the market, regulatory policies, technological progress, and environmental factors	26
Advantages of agrarian foreign trade.....	28
Problem Statement	30
Problem Summary.....	31
4. Practical Part	32
Research Questions.....	32
Data collection.....	32
Study population and sample size	32
Tools used for data collection.....	33
Data Analysis.....	34
SWOT Analysis.....	68
5. 5. Results and Discussion.....	71
Results – Summary/Evaluation	71
Discussion	73
Limitations of the Study.....	74
6. Conclusion	75
7. Bibilography	76
8. List of Figures and Table.....	78

1. Introduction

The transformation of agriculture from a local endeavor to a global enterprise stands as a testament to the far-reaching implications of globalization, with specific emphasis on its impact on India and China. In this era, globalization has woven an intricate tapestry connecting agricultural systems across national borders. This interconnectedness is manifested in the seamless flow of goods, capital, and information, dismantling the traditional constraints that once confined agricultural activities within specific geographic boundaries. For India and China, this phenomenon has immense significance, as both nations are pivotal players in the global agricultural landscape. The modern agricultural sector in these countries not only contributes significantly to their economies but also plays a crucial role in shaping the dynamics of international trade. Recognizing the necessity for a comprehensive understanding of the global dimension of agriculture is imperative, especially in the context of India and China. Their agricultural pursuits are not only vital for domestic food security and economic growth but also intricately linked to the broader fabric of global trade dynamics. Thus, exploring the nuances of how globalization influences and is influenced by the agricultural systems of India and China becomes essential for a holistic comprehension of their roles in the evolving global economic scenario. (Puga, 2001)

Globalization has fundamentally transformed the landscape of agriculture, giving rise to an era characterized by intricate interdependencies, and its impacts are particularly pronounced in the agricultural systems of India and China. The exchange of agricultural products, knowledge, and technologies has intensified between these two populous nations, shaping their agricultural trajectories and influencing the global food system. In this era of agricultural interdependence, decisions made by farmers in India and China are no longer confined to local factors; instead, they reverberate globally, influencing the delicate balance of the international food market. Take, for instance, a climatic event such as a drought affecting one of the major grain-producing regions in India or China. This occurrence can send shockwaves throughout the global food system, impacting prices and food security on a worldwide scale.

2. Objectives and Methodology

Objectives

- The main objective is to assess the impact of agrarian foreign trade on domestic agricultural economies within a specified geographical region.
- To examine the patterns and trends of agrarian foreign trade, including import and export volumes, commodities traded, and trade partners.
- To analyze the economic, social, and environmental benefits derived from agrarian foreign trade for domestic agricultural sectors.
- To identify the challenges and barriers faced by domestic agricultural economies in engaging with foreign trade, such as market access limitations, trade barriers, and fluctuating prices.
- To evaluate the role of government policies and international agreements in shaping agrarian foreign trade dynamics and their effects on domestic agricultural economies.
- To propose recommendations for policymakers and stakeholders to optimize the benefits and mitigate the challenges associated with agrarian foreign trade, promoting sustainable development and resilience within domestic agricultural sectors.

The outcomes of this research endeavor aim to provide valuable insights and actionable recommendations for enhancing the efficiency, sustainability, and resilience of agrarian foreign trade, thereby contributing to the advancement of domestic agricultural economies within the specified geographical region.

Research Methodology

The method outline for this study involves a comprehensive review and synthesis of existing literature and secondary sources pertaining to agrarian foreign trade dynamics, theories, and relevant concepts. This review will encompass scholarly articles, books, reports, and official publications from governmental and international organizations. The aim is to gather a diverse range of perspectives and insights on the subject matter, covering aspects such as trade patterns, trends, economic impacts, policy frameworks, and regulatory environments. Additionally, specialized databases and online repositories will be utilized to ensure the inclusion of up-to-date and relevant information. The method outline emphasizes a rigorous and systematic approach to literature review, enabling the formulation of a robust theoretical framework to guide subsequent data collection and analysis processes.

Method Outline

The methodology encompasses a comprehensive analysis of foreign trade dynamics between India and China, focusing on rice and cotton exports and imports before and after the COVID-19 pandemic. Data spanning six years from 2016-2017 to 2021-2022 is collected, categorized into three years pre-COVID and three years post-COVID periods. Specifically, export and import figures for rice and cotton between the two countries are gathered for comparison. Statistical tools, notably t-tests, are utilized to examine significant differences in trade patterns between the pre and post-COVID periods. The study aims to provide a detailed understanding of how the pandemic has influenced the trade dynamics of these key agricultural commodities between India and China.

Research Philosophies

Research philosophy encompasses the myriad factors that influence a researcher's cognitive framework and approach to knowledge acquisition within their field of study. It serves as a guiding principle in understanding the nature of research endeavors, shaping the researcher's perspectives and choices throughout the study process (Poucher et al., 2019, p. 12). Originating from the researcher's evolving understanding of the subject matter, research philosophy informs the

generation of ideas and selection of research strategies. Consequently, the researcher's decision-making processes, from problem formulation to data collection and analysis, are underpinned by these philosophical underpinnings. Given the significant impact of these strategies on project development, selecting the most suitable research philosophy becomes paramount. Furthermore, research philosophy plays a crucial role in problem-solving, data collection, and analysis, ensuring that research findings align with the study's objectives.

The function of the research philosophy: The research philosophy controls data and the researcher's selection of the right hypothesis to create the study's plan. In addition, a number of important utilities are also taken into account.

Elucidation: It describes the concept of inconsistencies and apparent confusions encountered throughout the construction of the study framework, as well as exposing and evaluating the researcher's unsanctionable assumptions.

Providing knowledge : A more comprehensive understanding of the researcher's assumptions and ideas regarding the large field of knowledge is developed through research philosophy. Additionally, this research attitude helps the researcher become more conscious of their own potential.

Facilitates in-process activities: The dissection of the activities involved in the development of the study for a more comprehensive understanding of each activity depends heavily on research philosophy. As a result, it strengthens the capacity to choose the best and most practical approaches (Poucher et al., 2019, p. 19). This helps the researcher develop the approaches that are already accessible and how well they work. Therefore, the primary purpose of research philosophy is to foster the best hypotheses in order to facilitate the creation of research methods.

Types of research philosophies: (Poucher et al., 2019, p. 23)

Positivism: This research philosophy is based on the notion that applying science to discover accurate facts is important. In terms of philosophy, positivism guarantees that knowledge is acquired by the researcher's sensory observation. Regardless of the researcher's own opinions on the data gathering, positivism highlights the objective part of the process and supports an unbiased interpretation of the data based on the interpretation. As a research philosophy, positivism frequently relies on quantitative opinion and data collecting,

emphasising statistical analysis to interpret the results. Additionally, positivism helps the researcher cultivate a positive outlook that will enable them to separate significant information from a vast amount of unrelated data.

Realism: The freedom of reality with regard to human cognition is the central tenet of this study philosophy. Realism and the assumption that the study strategy will yield the best information are frequently linked. Realism is sometimes divided into two kinds, "naive realism" and "critical realism," based on the perspective view. In general, naïve realism adheres to the notion that knowledge is produced by observation (using human senses). This kind of thinking restricts the accurate interpretation of the observable results. For example, an optical illusion might deceive a researcher into not collecting accurate observational data. Critical realism, on the other hand, is based on the notion that information gathered by human sense observation may be deceptive and that accurate information must be obtained by thorough study.

Interpretivism: This research philosophy is based on the notion of analysing the many research components. It facilitates focusing people's attention on a study. It is an organic method of gathering data and frequently includes interviewing and observational methods. Secondary data gathering is frequently the result of interpretivism (Alharahsheh et al., 2021, p. 44). Getting a feeling of the research at the conclusion of the procedure is crucial to this viewpoint. Although adopting interpretivism as a research philosophy greatly aids in understanding the ethics of the research, this philosophy restricts the study by using biased data gathering.

Justification for choosing positivism as research philosophy

Because it aids in many areas of the growth of research, the research philosophy is essential to its progress and cannot be ignored. The research philosophy plays a major role in assisting the researcher in adhering to the right convictions in order to produce the best organised research philosophy. The best research physiology is chosen, which results in a well-organized research technique. Choosing the best research technique helps with both selecting an appropriate hypothesis and enabling the collection and analysis of highly relevant data from a large amount of available sources.

This study adopts positivism as its research philosophy, centered on deriving interpreted meanings through observational data. By selecting positivism, the focus lies on collecting relevant data and analyzing it to achieve appropriate results, thereby ensuring the successful completion of the research. Positivism serves to maintain motivation throughout the research process by

directing attention to the positive aspects of the study, thereby bolstering motivation during data collection and analysis. The ultimate vision of this study is to influence the education and training structure of students and staff, particularly in the medical field, by advocating for the adoption of E-learning as a primary mode of education. The utilization of positivism in this research aids in maintaining motivation for data collection, particularly among medical staff. The collected data, both qualitative and quantitative, are interpreted through statistical analysis, facilitated by the positivist research methodology. The outcomes achieved through the adoption of positivism as a research philosophy are deemed optimal, surpassing what could have been achieved through alternative philosophies. Furthermore, positivism assists in making informed assumptions prior to data collection, ensuring the extraction of relevant and essential data from a vast pool of information.

Research Approach

The methods and planned procedures involved in prolonged research are commonly referred to as the research approach. This method focuses on a more focused and narrower method of gathering data and analyzing it to produce results, which are then interpreted to produce meaningful theory. It shifts the focus from broad assumptions. This strategy includes a number of crucial choices that guarantee the choice of the best data gathering method as well as the process and methodology selection for data analysis. The core of the study design and research philosophy is the research approach. In addition, the research philosophy aids in selecting the best research methodology or process for gathering and analysing data.

The research methodology encompasses many protocols for both gathering and evaluating data. There are three methods used to collect data: mixed methodology, quantitative, and qualitative (Maarouf, 2019, p. 22). Even yet, both deductive and inductive methods are used in the whole process. In research technique, the research methodologies are important. Without the gathering and examination of pertinent data, it is regarded as the key component of the study (relevance is decided by using the appropriate research philosophy). Additionally, an approach offers guidance for starting a constructive motion towards legitimate research, and the preparation and methods used in the particular study may be used by other researchers in order to acquire their own research results.

Types of research approach

There are several types of research approaches available to collect the data along with approaches to analyze these gathered sets of information and interpret the result of performed analysis.

Deductive Approach:

The deductive approach employs logical reasoning, often referred to as a "top-down" method. It begins with established theories and pre-defined hypotheses derived from previous research findings. These hypotheses are systematically tested to validate their truthfulness through observation and data collection. This approach aims to confirm or refute the hypotheses based on the evidence gathered, thereby affirming, or refining the existing theories. The deductive approach is particularly useful for gathering secondary data and is instrumental in building upon existing knowledge within a field.

Inductive Approach:

In contrast, the inductive approach follows a "bottom-up" methodology, moving from specific observations to generalized theories. It starts with the observation of real-world phenomena, generating empirical data that are then analyzed to identify patterns or trends. These patterns lead to the formulation of tentative hypotheses, which are further refined to develop new theories. The inductive approach serves as a means of gathering primary and experimental data, offering insights into novel phenomena or areas where theoretical frameworks may be lacking. Additionally, the theories generated through the inductive approach can serve as guiding principles for future research endeavors in related fields.

Justification of approach used in this study.

A research article serves as a structured methodology or plan devised for the acquisition of pertinent and meaningful data, as well as for the subsequent analysis and interpretation of the collected information. Within the realm of research approaches, crucial decisions are made regarding the selection of suitable techniques for both data collection and analysis. Two predominant approaches, namely the deductive approach and the inductive approach, are widely recognized in this regard. Typically, the inductive approach is aligned with quantitative data collection, while the deductive approach is associated with qualitative data collection. However, in the present study, a mixed methodology was

adopted, incorporating the collection of primary quantitative data alongside both secondary qualitative and quantitative data. This involved gathering secondary data from previous research findings and collecting primary data through the observation of survey reports submitted by various medical staff members.

Given the mixed methodology employed for data collection, both deductive and inductive approaches were utilized to guide the collection and analysis of various datasets. The deductive approach facilitated the collection and analysis of secondary qualitative and quantitative data from previous research findings. Conversely, the inductive approach was employed during the collection of primary data from survey reports. Therefore, the inclusion of both deductive and inductive methods was deemed an appropriate choice as research approaches for this study, as either approach alone would not have yielded optimal results.

Research Design

Research design serves as a crucial component of research methodology, following the establishment of the research philosophy and approach. Essentially, it outlines the framework of methods utilized by the researcher in their specific study, aiming to organize various techniques and methods to prevent the issues arising from an unorganized approach. By providing systematic and well-structured techniques, the research design assists in conducting the research in a methodical manner, ensuring a continuous flow of motivation among researchers. The success of the research hinges upon an appropriate research design, which aids in obtaining unbiased statistics related to the study. In particular, when research involves data collection through surveys, the research design plays a pivotal role in creating a survey conducive to unbiased data collection. This is typically achieved through the implementation of four different characteristics, with this study employing the systematic sampling method as outlined by Mishra et al. (2017, p. 35).

Neutrality: At the outset of research development, numerous assumptions are made regarding data collection. It is imperative to set aside personal biases and prioritize the unbiased collection of data. Maintaining neutrality in research is crucial to prevent misleading results and ensure accurate inference.

Reliability: In research involving multiple instances of data collection, researchers often compare obtained results with established standards. Consistency in results across repeated

studies is expected, highlighting the importance of reliability in producing neutral and accurate research reports.

Validity: All elements involved in measurement and other significant aspects of research, including research methods and technologies, must undergo validation. Prior to implementation for research purposes, every measuring tool is rigorously validated to ensure accuracy and reliability of results.

Generalization: The aim and outcome of research design should be applicable to a broad spectrum of the population rather than a limited group. This facilitates wider reach to a larger population, providing opportunities to influence other researchers in related fields.

Types of research design

Out of several classifications three useful and, well-popular research designs are enlisted in this research design.

Exploratory Research Design:

This research design, as implied by its name, is centered on experimental exploration. It seeks to correlate the causes of a situation with its effects, focusing on topics that lack thorough investigation. Exploratory design aids in understanding poorly defined problems within a particular field, although it may not yield strongly convincing outcomes. Typically, researchers initiate this design by addressing research-oriented issues and generating observational data for further analysis. The inductive research approach often aligns with the selection of this design.

Explanatory Research Design:

Explanatory research design delves into various aspects to elucidate the reasons behind an effect in a specific situation. It targets topics that have been identified but lack recent, well-established studies. This design facilitates the understanding of problems by linking various ideas, establishing causal relationships in particular situations. Generally, it follows exploratory and descriptive research designs. The outcomes of this design yield the deepest level of knowledge, containing the researcher's findings regarding cause and effect in a given situation. The deductive approach in research methodology often leads to the selection of an explanatory research design.

Descriptive Research Design:

This design primarily focuses on describing a case or situation within the researcher's specific study. It is often based on theoretical aspects of research, involving data collection, analysis, and presentation. Descriptive design is essential in situations where the need to magnify certain topics is identified. Furthermore, it remains unaffected by the researcher's perspective, providing significant assistance in understanding the research's purpose and necessity.

Justification of the research design used in this research

The chosen research design for this study is justified by its ability to provide a comprehensive and nuanced understanding of the dynamics and impacts of agrarian foreign trade on domestic agricultural economies within a specified geographical region. The utilization of a mixed-methods approach, combining both quantitative and qualitative research techniques, allows for a multifaceted exploration of the complex interactions and factors involved in agrarian foreign trade. Quantitative methods enable the collection of empirical data on trade volumes, patterns, and economic indicators, offering numerical insights into the magnitude and direction of agricultural trade flows. This quantitative analysis provides a solid foundation for understanding the quantitative aspects of agrarian foreign trade, such as market trends and trade balances, thereby enhancing the credibility and reliability of the study's findings.

Simultaneously, qualitative methods complement the quantitative analysis by delving deeper into the qualitative aspects of agrarian foreign trade, such as the socio-economic impacts, policy implications, and stakeholder perspectives. Through techniques such as interviews, focus groups, and case studies, qualitative research allows for the exploration of nuanced factors that may not be captured by quantitative data alone. By incorporating qualitative insights, the research design facilitates a holistic understanding of the broader implications and challenges associated with agrarian foreign trade, thereby enriching the depth and breadth of the study's findings. Moreover, the triangulation of data from multiple sources and methods enhances the validity and reliability of the research findings, ensuring that the conclusions drawn are robust and well-supported. Thus, the chosen research design aligns with the complexity of the research topic and provides a robust

framework for investigating the multifaceted dynamics of agrarian foreign trade within domestic agricultural economies.

Hypothesis

H0:1: There is no significant difference between exports and imports of rice in India pre and post covid.

H1:1; There is significant difference between exports and imports of rice in India pre and post covid.

H0:2 There is no significant difference between exports and imports of cotton in India pre and post covid.

H1:2 There is significant difference between exports and imports of cotton in India pre and post covid.

H0:1 There is no significant difference between exports and imports of rice in china pre and post covid.

H1:1; There is significant difference between exports and imports of rice in china pre and post covid.

H0:2 There is no significant difference between exports and imports of cotton in china pre and post covid.

H1:2 There is significant difference between exports and imports of cotton in china pre and post covid.

3. Theoretical Part

Significance of Agrarian Foreign Trade:

Foreign trade stands as a linchpin in the agrarian sector, particularly in the context of India and China, where these nations play pivotal roles in shaping global agricultural dynamics. The interconnectedness fostered by agrarian foreign trade has profound implications for the economic, social, and environmental dimensions of agriculture in these two countries.

In India, agrarian foreign trade is instrumental in sustaining the livelihoods of millions of farmers and contributing significantly to the national economy. The country is not only a major consumer of agricultural products but also a formidable exporter of diverse commodities such as rice, wheat, spices, and fruits. The global marketplace serves as an avenue for Indian farmers to access new opportunities, expand market reach, and enhance income levels. Additionally, foreign trade acts as a catalyst for technology transfer and knowledge exchange, fostering advancements in agricultural practices.

China, with its vast agricultural landscape and large population, is a key player in global agrarian foreign trade. The country's demand for diverse agricultural products has spurred significant imports, influencing the trade dynamics worldwide. As China undergoes rapid urbanization and shifts in dietary preferences, its engagement in foreign trade becomes paramount for ensuring food security and meeting the demands of its burgeoning population. The global marketplace provides a platform for China to diversify its sources of agricultural products, manage domestic supply-demand imbalances, and enhance the resilience of its food systems.

The transformative impact of globalization on production and trade dynamics is evident in both India and China. These countries have become integral components of the global agricultural supply chain, with their policies and practices resonating on the international stage. However, this interconnectedness also poses challenges, such as ensuring the sustainability of agricultural practices, managing environmental impacts, and addressing socio-economic disparities.

In India, the emphasis on organic farming, sustainable practices, and technology adoption underscores a commitment to balance economic growth with environmental stewardship. The nation's engagement in agrarian foreign trade becomes a conduit for

promoting responsible agricultural practices globally. Similarly, China's role in international agricultural trade is characterized by efforts to modernize farming techniques, enhance productivity, and address food safety concerns.

As both India and China navigate the complexities of modern agricultural systems, the significance of agrarian foreign trade cannot be overstated. It serves as a bridge that connects these nations to the global marketplace, facilitating economic growth, technological advancements, and socio-economic development. Recognizing and harnessing the potential of agrarian foreign trade in India and China are imperative for ensuring food security, fostering sustainable agriculture, and contributing to the overall well-being of their populations within the broader context of global agricultural transformations.. (Remeikiene, et al., 2018)

The economic significance of agrarian foreign trade is underscored by its substantial contribution to national and global economies. Foreign trade in agricultural products forms a substantial portion of the Gross Domestic Product (GDP) for many nations. It not only generates revenue for farmers and agribusinesses but also stimulates economic growth by creating employment opportunities throughout the agricultural value chain. Moreover, agrarian foreign trade serves as a vital source of foreign exchange earnings, contributing to the overall economic stability of nations heavily dependent on agricultural exports. (Ratiner & Matthews, 1999)

Globalization has profoundly impacted the dynamics of agricultural production, steering it towards a more market-oriented approach. As nations open up their borders to foreign trade, agricultural producers are compelled to adapt to international market demands. This transformation involves diversifying crops, adopting advanced cultivation techniques, and enhancing overall productivity to meet the quality and quantity expectations of the global consumer base. The shift towards export-oriented agriculture has not only changed what and how crops are produced but has also triggered innovations in farming practices, reflecting the sector's responsiveness to global market forces. (Ratiner & Matthews, 1999)

Agrarian foreign trade provides farmers and agribusinesses with expanded market access, enabling them to reach consumers worldwide. The ability to tap into diverse and distant markets enhances global competitiveness, fostering a more resilient agricultural sector. However, this increased competitiveness also poses challenges, as farmers must

navigate fluctuating market conditions, adhere to international quality standards, and remain attuned to consumer preferences in various regions. Understanding the dynamics of market access and global competitiveness is essential for formulating policies that support agricultural stakeholders in capitalizing on international trade opportunities. (Remeikiene, et al., 2018)

Economic Impact:

Agrarian foreign trade is a dynamic force with profound economic implications, serving as a cornerstone in shaping national economies. Its influence extends beyond the boundaries of the agricultural sector, permeating various facets of the economy. To comprehend the economic impact of agrarian foreign trade, it is essential to undertake a nuanced exploration of its contributions to national Gross Domestic Product (GDP), employment generation, and income distribution.

One of the primary indicators of the economic significance of agrarian foreign trade is its contribution to the national GDP. The exchange of agricultural products on the global stage constitutes a substantial portion of a country's economic activities. Nations engaged in agrarian foreign trade often witness a boost in GDP as a result of increased exports and imports. This economic contribution is not confined solely to the agricultural sector but ripples through related industries and services, further enhancing overall economic growth.

Additionally, agrarian foreign trade plays a pivotal role in employment generation. The interconnectedness of global agricultural markets creates a demand for a diverse range of skills and labor, from farmers and agribusiness professionals to logistics experts and trade facilitators. The expansion of international agricultural transactions stimulates job creation throughout the supply chain, contributing to overall employment levels. In regions heavily reliant on agriculture, agrarian foreign trade becomes a crucial source of livelihoods and economic stability.

Income distribution is another critical aspect influenced by agrarian foreign trade. The economic gains derived from successful agricultural exports often translate into increased incomes for farmers and stakeholders involved in the production process. This, in turn, contributes to reducing income disparities within the agricultural community. Moreover, the revenue generated from agrarian foreign trade can be channeled into social development programs, further benefiting broader segments of the population.

In the context of India and China, two major players in the global agrarian foreign trade landscape, the economic impact is substantial. India's agricultural exports, encompassing a variety of products such as rice, spices, and fruits, contribute significantly to its GDP. Similarly, China, as a major importer and exporter of agricultural goods,

experiences economic growth driven by the interconnectedness of its agricultural sector with the global market.

However, it is imperative to acknowledge the potential challenges associated with the economic impact of agrarian foreign trade. Fluctuations in global commodity prices, trade policies, and geopolitical tensions can introduce uncertainties, impacting the stability of national economies heavily reliant on agriculture. Sustainable practices, innovative policies, and strategic diversification in agricultural products are key considerations in mitigating these challenges and ensuring long-term economic benefits.

In conclusion, agrarian foreign trade is a multifaceted force that substantially shapes national economies. Its contributions to GDP, employment generation, and income distribution underscore its pivotal role in fostering economic development. As nations navigate the complexities of global agricultural markets, understanding and harnessing the economic impact of agrarian foreign trade become integral components of sustainable economic growth and development.

Agrarian foreign trade significantly contributes to the national Gross Domestic Product (GDP) of many countries. The export of agricultural products, ranging from grains and fruits to processed goods, forms a substantial portion of the overall economic output. The revenue generated from foreign trade in the agrarian sector plays a vital role in stabilizing and expanding national economies. Moreover, the interdependence of agriculture with other sectors, such as transportation, manufacturing, and services, amplifies its indirect contributions to the broader GDP landscape. (Rovný, et al., 2010)

Historical Context:

Agrarian foreign trade has deep historical roots, woven into the fabric of civilizations as societies engaged in the exchange of agricultural products across borders. This historical context provides insights into the evolution of agricultural trade, showcasing the interplay of economic, cultural, and technological factors that have shaped its trajectory over time.

The origins of agrarian foreign trade can be traced back to ancient civilizations, where the exchange of agricultural goods played a pivotal role in economic development. The Silk Road, connecting East and West, facilitated the trade of spices, grains, and other agricultural products across vast distances. Similarly, the maritime routes of the Indian Ocean connected cultures and enabled the transfer of agricultural knowledge and products. (Spechler & Spechler, 2013)

The colonial era marked a significant shift in agrarian foreign trade, as European powers established colonies to exploit agricultural resources for economic gain. Cash crops, such as sugar, tobacco, and cotton, became central to these trade networks. The forced labor and plantation systems associated with these crops reshaped the global agricultural landscape and laid the foundations for modern patterns of agrarian foreign trade.

(Spechler & Spechler, 2013)

The Industrial Revolution brought about transformative changes in agriculture and trade during the 18th and 19th centuries. Advances in transportation, such as steamships and railways, reduced the cost and time required for shipping agricultural products. This era witnessed the rise of global commodity markets, with agricultural goods becoming integral to international trade. The increased efficiency in transportation and communication laid the groundwork for the globalization of agricultural trade. (Spechler & Spechler, 2013)

The mid-20th century saw the advent of the Green Revolution, a period characterized by the widespread adoption of high-yielding crop varieties, irrigation, and modern agricultural practices. This technological revolution significantly increased agricultural productivity, enabling countries to produce surpluses for export. The Green Revolution played a crucial role in shaping the modern agrarian foreign trade landscape, influencing the types of crops traded and the geographical distribution of production. (Teignier, 2018)

Trends in the market, regulatory policies, technological progress, and environmental factors.:

Navigating the intricate terrain of agrarian foreign trade involves a complex interplay of policies established by governments and international organizations. The policy landscape is a crucial determinant of the conditions under which agricultural products are produced, traded, and consumed on a global scale. Understanding the dynamics of this framework is essential for comprehending the opportunities and challenges that characterize the contemporary agrarian foreign trade environment. (Commission, 2015)

Governments play a pivotal role in shaping the policy framework for agrarian foreign trade. National trade policies encompass a spectrum of measures, including tariffs, subsidies, and regulations, which directly impact the agricultural sector. Tariffs can either facilitate or impede market access, while subsidies may influence the competitiveness of domestic agricultural products. Additionally, regulations related to quality standards, environmental sustainability, and sanitary measures shape the conditions under which agricultural goods can be traded. The challenge lies in striking a balance between protecting domestic interests and fostering an open and equitable global trade environment. (Ilyina, 2016)

International trade agreements form a critical component of the policy framework governing agrarian foreign trade. These agreements, negotiated between countries or regional blocs, aim to liberalize trade, reduce barriers, and create a more predictable trading environment. Organizations such as the World Trade Organization (WTO) facilitate multilateral negotiations to establish rules and norms for global trade. Regional trade agreements, such as the European Union's Common Agricultural Policy (CAP) or the North American Free Trade Agreement (NAFTA), also shape the conditions for agrarian foreign trade within specific geopolitical zones. (Kozlovskyi, et al., 2018)

Governments often implement agricultural subsidies and support programs to bolster domestic farming sectors. These measures can take various forms, including direct payments to farmers, price support mechanisms, and incentives for adopting specific agricultural practices. While subsidies aim to enhance the competitiveness of domestic agriculture, they can also distort global trade dynamics and create challenges for producers in other regions. Striking a balance between supporting local farmers and ensuring fair competition in the global marketplace is a delicate policy challenge. (Fertö, 2018)

Increasing awareness of environmental issues has prompted the development of policies that integrate environmental and sustainability considerations into agrarian foreign trade. Governments and international organizations are exploring frameworks that incentivize sustainable farming practices, reduce the ecological footprint of agricultural production, and promote biodiversity conservation. The challenge lies in aligning environmental goals with the imperative of maintaining global food security and ensuring that sustainability policies are inclusive and supportive of diverse farming systems. (Albu, et al., 2013)

Advantages of agrarian foreign trade

Agrarian foreign trade serves as a pivotal driver of economic growth and development due to its role in opening up markets for agricultural products on a global scale. This expansion of market access enables countries to capitalize on their comparative advantages in agricultural production, thereby fostering increased export revenues and foreign exchange earnings. The infusion of income resulting from foreign trade injects vitality into economies, stimulating economic activities across various sectors. With a boost in export revenues, countries can channel resources towards critical areas such as infrastructure development, education, and healthcare, further fueling economic growth and development. Moreover, foreign trade creates a conducive environment for attracting foreign direct investment (FDI), as countries with thriving agricultural sectors become attractive investment destinations. This influx of investment capital contributes to the modernization and expansion of agricultural infrastructure, enhancing productivity and competitiveness in the long run. Additionally, agrarian foreign trade facilitates technology transfer and knowledge exchange, as countries adopt best practices and innovations from global agricultural markets, leading to further efficiency gains and economic development.

Engaging in agrarian foreign trade also offers significant advantages through the diversification of markets beyond domestic borders. By tapping into international markets, agricultural producers can reduce their reliance on domestic demand fluctuations, which often pose risks to stability and profitability. This diversification strategy provides a buffer against market volatility, as demand from various global regions helps mitigate the impact of localized disruptions such as adverse weather conditions or fluctuations in commodity prices. Furthermore, access to international markets enables farmers to explore niche markets and cater to specific consumer preferences, thereby maximizing revenue potential. By expanding their market reach, agricultural producers can establish long-term relationships with international buyers, fostering stability and predictability in trade relations. Moreover, diversifying markets enhances resilience to geopolitical risks and trade disputes, as countries can pivot towards alternative markets in response to changing dynamics. Overall, the ability to access diverse international markets not only safeguards against market uncertainties but also strengthens the overall competitiveness and sustainability of agricultural sectors, contributing to long-term economic stability and prosperity.

Agrarian foreign trade plays a pivotal role in fostering technology transfer and innovation within the agricultural sector, thereby driving productivity improvements and sustainability. Exposure to international markets exposes farmers to advanced technologies, practices, and techniques utilized in agricultural production, processing, and distribution. This exchange of knowledge and technology facilitates the adoption of innovative practices, leading to enhanced efficiency and productivity. Farmers can leverage new technologies to streamline production processes, reduce input costs, and optimize resource utilization, ultimately increasing agricultural output. Moreover, international trade creates opportunities for collaboration and partnerships between agricultural stakeholders, fostering knowledge exchange and innovation diffusion. By adopting sustainable farming practices introduced through foreign trade, farmers can mitigate environmental impact and enhance long-term viability.

Problem Statement

One of the key challenges in agrarian foreign trade revolves around the unequal distribution of benefits and opportunities among stakeholders, particularly within rural agricultural communities. Despite the potential for income generation and poverty alleviation through foreign trade, disparities persist in accessing and benefiting from global markets. Smallholder farmers, who often lack resources and access to information, face significant barriers to participation in international trade, limiting their ability to capitalize on export opportunities. Additionally, the volatility of global commodity markets and trade policies exacerbates uncertainties for agricultural producers, further marginalizing vulnerable communities. As a result, income disparities persist, hindering efforts to achieve inclusive economic growth and sustainable development in rural areas. Addressing these challenges requires targeted interventions to enhance the capacity and resilience of smallholder farmers, promote equitable trade policies, and strengthen market access mechanisms to ensure that the benefits of agrarian foreign trade are shared more equitably among all stakeholders.

Problem Summary

The problem summary concerning agrarian foreign trade encompasses multifaceted challenges that impede the realization of its potential benefits for agricultural producers, rural communities, and economies as a whole. Smallholder farmers, constituting a significant portion of agricultural producers in many countries, face persistent barriers to accessing and participating in global markets. Limited resources, inadequate infrastructure, and lack of information hinder their ability to engage in foreign trade, constraining their potential to increase income and improve livelihoods. Additionally, these farmers often lack bargaining power and are vulnerable to exploitation by middlemen and larger market players, exacerbating inequalities within the agricultural sector.

The volatility and unpredictability of global commodity markets present significant risks and uncertainties for agricultural producers engaged in foreign trade. Fluctuations in commodity prices, changes in trade policies, and geopolitical tensions can have profound impacts on export revenues and foreign exchange earnings, threatening the economic viability of agricultural enterprises and undermining efforts to alleviate poverty. This instability further exacerbates the challenges faced by smallholder farmers, who lack the resources and capacity to cope with market fluctuations effectively. Furthermore, the absence of effective risk management mechanisms leaves agricultural producers vulnerable to financial losses and undermines their ability to plan and invest for the future.

4. Practical Part

Research Questions

- How do barriers to market access and participation in global trade affect smallholder farmers' engagement in agrarian foreign trade?
- What are the main factors contributing to the volatility and unpredictability of global commodity markets, and how do these factors impact agricultural producers engaged in foreign trade?
- How do logistical challenges and inadequate infrastructure hinder the efficiency and competitiveness of agrarian foreign trade, particularly for agricultural producers in remote and underserved regions?
- What are the primary trade barriers and protectionist measures imposed by importing countries, and how do these barriers affect market access and trade expansion for agricultural exporters?

Data collection

Gathering relevant information through various methods such as surveys, interviews, observations, and document analysis.

Study population and sample size.

The study population consists of export and import data of rice and cotton between India and China over a period of six years, from 2016-2017 to 2021-2022. Given the nature of the study, the entire population within this timeframe forms the study population. As for the sample size, it includes all available data points within the specified period for both countries. Since the research aims to conduct a comparative analysis of pre and post-COVID-19 trade dynamics, the sample size encompasses three years of data before the pandemic (2016-2017 to 2018-2019) and three years after the onset of the pandemic (2019-2020 to 2021-2022).

Tools used for data collection.

First Part: Data Compilation

In the initial stage of data collection, comprehensive datasets are gathered from reliable sources such as government trade databases, international trade organizations, and reputable research institutions. These sources provide detailed information on rice and cotton exports and imports between India and China.

Second Part: Data Verification

Following data compilation, a meticulous verification process is undertaken to ensure the accuracy and reliability of the collected information. This involves cross-referencing multiple sources to validate the consistency and completeness of the data. Any discrepancies or inconsistencies identified during this process are carefully addressed and reconciled.

Third Part: Statistical Analysis

Once the data is verified, statistical tools are employed to analyze it effectively. Specifically, t-tests are utilized for comparative analysis, allowing for the identification of significant differences in trade patterns between the pre and post-COVID-19 periods. Statistical software packages such as SPSS (Statistical Package for the Social Sciences) or R may be utilized for conducting these analyses.

Fourth Part: Data Interpretation

After conducting statistical analyses, the interpreted data is synthesized to draw meaningful conclusions regarding the impact of the COVID-19 pandemic on rice and cotton trade dynamics between India and China. This involves integrating the statistical findings with contextual knowledge and existing literature to provide insights into the observed trends and patterns.

Data Analysis

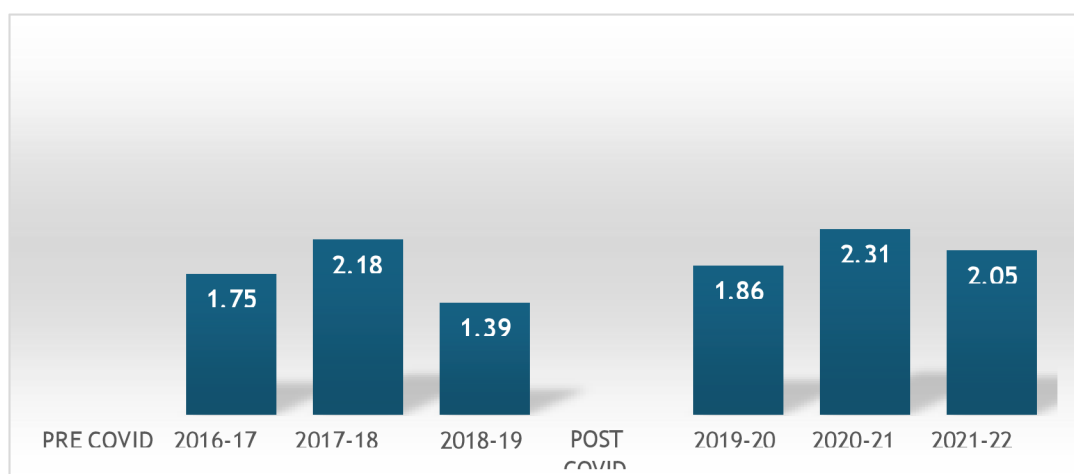
INDIA

TABLE:1 TOTAL EXPORTS FROM INDIA- COTTON (AMOUNT IN \$ BILLION)

YEAR	Amount
PRE COVID	
2016-17	1.75
2017-18	2.18
2018-19	1.39
POST COVID	
2019-20	1.86
2020-21	2.31
2021-22	3.52

Source: Own processing 2024

GRAPH:1 SHOWS TOTAL EXPORTS FROM INDIA - COTTON (PRE & POST COVID)



Source: Own processing 2024

Analysis: The total exports of cotton from India witnessed fluctuations over the years, with a noticeable impact from the COVID-19 pandemic. In the pre-COVID period (2016- 17 to 2018-19), the export amounts were 1.75, 2.18, and 1.39 billion dollars, respectively. Following the onset of the pandemic, the export numbers rebounded in the post-COVID period (2019-20 to 2021-22), increasing to 1.86, 2.31, and 3.52 billion dollars, indicating a substantial recovery and growth in cotton exports from India during this period.

PAIRED T TEST

TABLE:1.2 Paired Samples Statistics

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE	1.77	3	.39552	.22835
	POST	2.56	3	.85851	.49566

Source: Own processing 2024

Analysis: The paired samples statistics compare two sets of data, "PRE" and "POST," with each set containing three observations. In the "PRE" condition, the mean is 1.77, the standard deviation is 0.39552, and the standard error of the mean is 0.22835. For the "POST" condition, the mean is 2.56, the standard deviation is 0.85851, and the standard error of the mean is 0.49566. These statistics provide insights into the central tendency and variability of the data in each condition, suggesting a noticeable increase from the "PRE" to the "POST" condition.

TABLE:1.3 Paired Samples Correlations

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	PRE & POST	3	-.668	.535

Source: Own processing 2024

Analysis: The paired samples correlations indicate a negative correlation of -0.668 between the "PRE" and "POST" conditions, based on three pairs of observations. However, the p-value associated with this correlation is 0.535, which is greater than the common significance level of 0.05. This suggests that the observed correlation is not statistically significant, and we cannot conclude that there is a significant linear relationship between the "PRE" and "POST" conditions based on the available data.

TABLE:1.4 Paired Samples Test

Paired Samples Test										
		Paired Differences						T	DF	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
					Lower	Upper				
Pair 1	PRE - POST	-.79	1.160	.67002	-3.672	2.0928	-1.17	2	.360	

Source: Own processing 2024

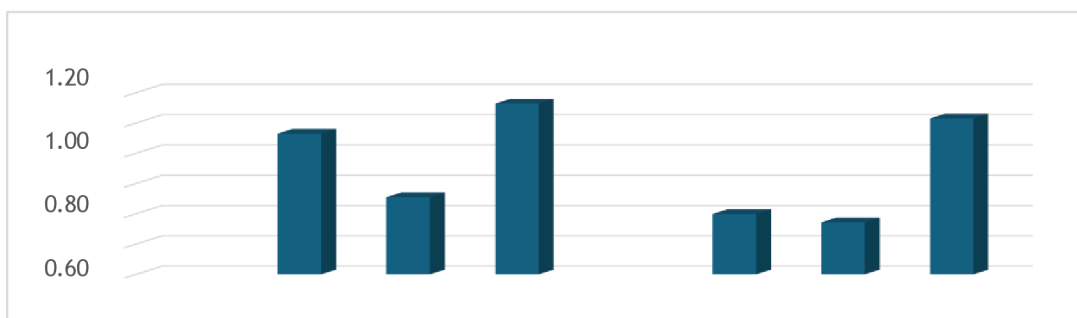
Analysis: The paired samples analysis was conducted on the "PRE" and "POST" conditions, comparing the mean differences in the total exports from India in \$ billion for cotton. The results revealed a mean difference of -0.79, suggesting a decrease in export amounts from the pre-COVID to post-COVID periods. However, the statistical analysis, including a two-tailed t-test with 2 degrees of freedom, yielded a non-significant p-value of 0.360. This implies that the observed difference is not statistically significant at the conventional significance level of 0.05. The 95% confidence interval ranged from -3.672 to 2.0928, encompassing zero, further supporting the lack of statistical significance. Consequently, based on this analysis, we do not find sufficient evidence to assert a significant change in cotton exports from India between the specified time periods.

TABLE:2 TOTAL IMPORTS OF INDIA- COTTON (AMOUNT IN \$ BILLION)

YEAR	AMOUNT
PRE COVID	
2016-17	0.93
2017-18	0.51
2018-19	1.13
POST COVID	
2019-20	0.40
2020-21	0.34
2021-22	1.03

Source: Own processing 2024

GRAPH:2 SHOWS TOTAL IMPORTS OF INDIA - COTTON (PRE & POST)



Source: Own processing 2024

Analysis: The total imports of cotton by India experienced variations over the specified time periods, notably influenced by the COVID-19 pandemic. In the pre-COVID years (2016-17 to 2018-19), the import amounts were 0.93, 0.51, and 1.13 billion dollars, respectively. Subsequently, in the post-COVID era (2019-20 to 2021-22), the import figures decreased to 0.40 and 0.34 billion dollars in 2019-20 and 2020-21, respectively, before experiencing an increase to 1.03 billion dollars in 2021-22. These trends suggest a decline in cotton imports during the early post-COVID period, followed by a rebound and growth in the later years.

TABLE:2.1 Paired Samples Statistics

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 2	PRE	.8567	3	.31644	.18270
	POST	.5900	3	.38223	.22068

Source: Own processing 2024

Analysis: The paired samples statistics for Pair 2 compare two sets of data, "PRE" and "POST," each containing three observations. In the "PRE" condition, the mean is 0.8567, the standard deviation is 0.31644, and the standard error of the mean is 0.18270. For the "POST" condition, the mean is 0.5900, the standard deviation is 0.38223, and the standard error of the mean is 0.22068. These statistics provide insights into the central tendency and variability of the data in each condition, indicating a decrease in the mean from the "PRE" to the "POST" condition

TABLE:2.2 Paired Samples Correlations

Paired Samples Correlations					
		N	Correlation	Sig.	
Pair 2	PRE & POST	3	.798	.412	

Source: Own processing 2024

Analysis: The paired samples correlations for Pair 2 show a positive correlation of 0.798 between the "PRE" and "POST" conditions, based on three pairs of observations. However, the p-value associated with this correlation is 0.412, which is greater than the common significance level of 0.05. This suggests that the observed correlation is not statistically significant, and we cannot conclude that there is a significant linear relationship between the "PRE" and "POST" conditions based on the available data.

TABLE:2.3

Paired Samples Test									
		Paired Differences					T	DF	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 2	PRE - POST	.266	.23072	.13321	-.30648	.83982	2.00	2	.183

Source: Own processing 2024

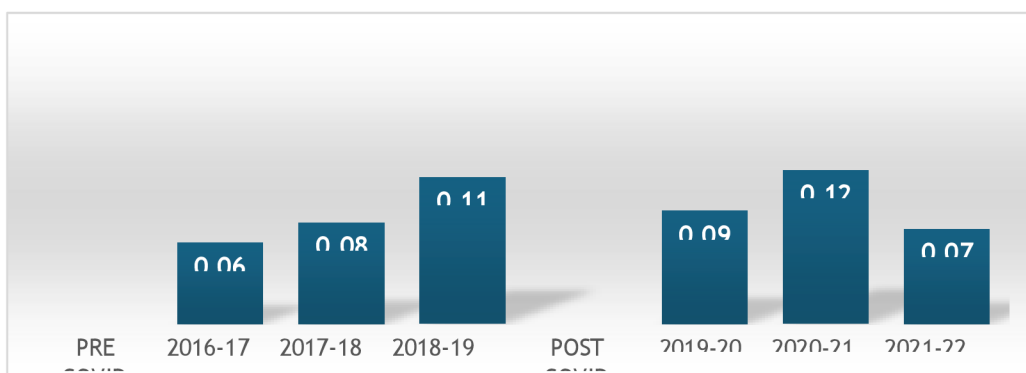
Analysis: The paired samples analysis for Pair 2, which compares the total imports of cotton by India before and after the COVID-19 period, revealed a mean difference of 0.266 billion dollars. The standard deviation of these differences is 0.23072, and the standard error of the mean difference is 0.13321. The 95% confidence interval for the difference spans from -0.30648 to 0.83982, encompassing zero. The t-statistic of 2.00 with 2 degrees of freedom yielded a p-value of 0.183, surpassing the commonly used significance level of 0.05. Consequently, based on this paired samples test, there is insufficient evidence to support the claim of a significant difference in total cotton imports by India between the specified time periods.

TABLE:3 TOTAL EXPORTS OF INDIA- RICE (AMOUNT IN \$ BILLION)

YEAR	AMOUNT
PRE COVID	
2016-17	0.06
2017-18	0.08
2018-19	0.11
POST COVID	
2019-20	0.09
2020-21	0.12
2021-22	0.07

Source: Own processing 2024

GRAPH:3 SHOWS TOTAL EXPORTS FROM INDIA - RICE (PRE & POST COVID)



Source: Own processing 2024

Analysis: The total exports of rice from India exhibited fluctuating trends over the specified time periods, with discernible effects from the COVID-19 pandemic. In the pre- COVID years (2016-17 to 2018-19), the export amounts were 0.06, 0.08, and 0.11 billion dollars, respectively. Subsequently, in the post-COVID period (2019-20 to 2021-22), the export figures fluctuated, reaching 0.09 billion dollars in 2019-20, 0.12 billion dollars in 2020-21, and declining to 0.07 billion dollars in 2021-22. These variations highlight the impact of external factors, such as the pandemic, on the rice export landscape in India during the specified years.

TABLE:3.1

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 3	PRE	.0833	3	.02517	.01453
	POST	.0933	3	.02517	.01453

Source: Own processing 2024

Analysis: The paired samples statistics for Pair 3, which represents the "PRE" and "POST" conditions, show that the mean export amount of rice in the "PRE" condition is 0.0833 billion dollars, based on three observations. The standard deviation is 0.02517, and the standard error of the mean is 0.01453. In the "POST" condition, the mean export amount is 0.0933 billion dollars, with a matching standard deviation of 0.02517 and a standard error of the mean of 0.01453. These statistics provide insights into the central tendency and variability of the data in each condition, suggesting a slight increase in the mean export amount from the "PRE" to the "POST" condition.

TABLE:3.2

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 3	PRE & POST	3	-.500	.667

Source: Own processing 2024

Analysis: The paired samples correlations for Pair 3 show a negative correlation of -0.500 between the "PRE" and "POST" conditions, based on three pairs of observations. However, the p-value associated with this correlation is 0.667, which is greater than the common significance level of 0.05. This suggests that the observed correlation is not statistically significant, and we cannot conclude that there is a significant linear relationship between the "PRE" and "POST" conditions based on the available data.

TABLE:3.3

Paired Samples Test									
		Paired Differences					T	DF	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 3	PRE - POST	-.0100	.04359	.02517	-.1182	.0982	-.39	2	.729

Source: Own processing 2024

Analysis: The paired samples analysis for Pair 3, examining the total exports of rice from India before and after the COVID-19 period, revealed a mean difference of -0.0100 billion dollars. The standard deviation of these differences is 0.04359, and the standard error of the mean difference is 0.02517. The 95% confidence interval for the difference spans from -0.1182 to 0.0982, indicating the range within which the true mean difference is likely to lie. The t-statistic of -0.39 with 2 degrees of freedom yielded a p-value of 0.729, surpassing the commonly used significance level of 0.05. Consequently, based on this paired samples test, there is insufficient evidence to support the claim of a significant difference in total rice exports from India between the specified time periods.

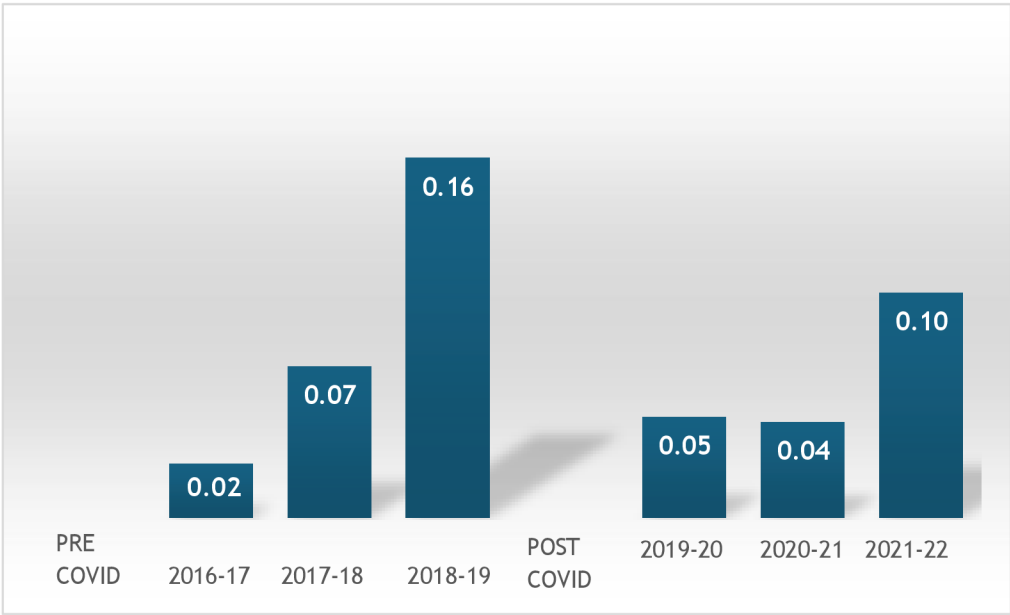
TABLE 4 TOTAL IMPORTS OF INDIA- RICE (AMOUNT IN \$ BILLION)

YEAR	AMOUNT
PRE COVID	
2016-17	0.02
2017-18	0.07
2018-19	0.16
POST COVID	
2019-20	0.05
2020-21	0.04
2021-22	0.10

Source: Own processing 2024

Analysis: The total imports of rice by India depict a varying trend over the specified time periods, notably influenced by the COVID-19 pandemic. In the pre-COVID years (2016-17 to 2018-19), the import amounts were 0.02, 0.07, and 0.16 billion dollars, respectively. Following the onset of the pandemic, the import figures declined to 0.05 billion dollars in 2019-20 and further to 0.04 billion dollars in 2020-21. However, in the subsequent year, 2021-22, there was a notable increase in rice imports, reaching 0.10 billion dollars. These fluctuations highlight the impact of external factors on the rice import landscape in India during the specified years.

GRAPH:4 TOTAL IMPORTS OF INDIA- RICE (PRE & POST COVID)



Analysis: The total imports of rice by India exhibit a fluctuating trend before and after the COVID-19 pandemic. In the pre-COVID period, imports increased gradually from 0.02 billion dollars in 2016-17 to 0.16 billion dollars in 2018-19. However, in the post-COVID period, imports decreased to 0.05 billion dollars in 2019-20, followed by a slight decrease to 0.04 billion dollars in 2020-21, and then an increase to 0.10 billion dollars in 2021-22. This suggests a varying pattern in India's rice import dynamics following the pandemic, with fluctuations observed in the post-COVID period.

TABLE:4.1

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std.Error Mean
Pair 1	PRE	.0833	3	.07095	.04096
	POST	.0633	3	.03215	.01856

Source: Own processing 2024

Analysis: The paired samples statistics for Pair 1, representing the "PRE" and "POST" conditions of rice imports in India, indicate that in the "PRE" condition, the mean import amount is 0.0833 billion dollars based on three observations. The standard deviation is 0.07095, and the standard error of the mean is 0.04096. In the "POST" condition, the mean import amount is 0.0633 billion dollars, with a standard deviation of 0.03215 and a standard error of the mean of 0.01856. These statistics provide insights into the central tendency and variability of the data in each condition, suggesting a decrease in the mean import amount from the "PRE" to the "POST" condition.

TABLE:4.2

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 4	PRE & POST	3	.870	.329

Source: Own processing 2024

Analysis: The paired samples correlations for Pair 4 show a positive correlation of 0.870 between the "PRE" and "POST" conditions, based on three pairs of observations. However, the p-value associated with this correlation is 0.329, which is greater than the common significance level of 0.05. This suggests that the observed correlation is not statistically significant, and we cannot conclude that there is a significant linear relationship between the "PRE" and "POST" conditions based on the available data.

TABLE:4.3

Paired Samples Test									
		Paired Differences					T	DF	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 4	PRE - POST	.02	.0458	.02646	-.0938	.13384	.75	2	.529

Source: Own processing 2024

Analysis: The paired samples analysis for Pair 4, examining the total imports of rice by India before and after the COVID-19 period, revealed a mean difference of 0.02 billion dollars. The standard deviation of these differences is 0.0458, and the standard error of the mean difference is 0.02646. The 95% confidence interval for the difference spans from -0.0938 to 0.13384, indicating the range within which the true mean difference is likely to lie. The t-statistic of 0.75 with 2 degrees of freedom yielded a p-value of 0.529, surpassing the commonly used significance level of 0.05. Consequently, based on this paired samples test, there is insufficient evidence to support the claim of a significant difference in total rice imports by India between the specified time periods.

TABLE:4.4 AGRICULTURE PRODUCTION TREND IN ASIA

Year	Rice	Wheat	Coarse Cereals	Pulses	Total Food Grains	Oilseeds	Cotton	Sugarcane
2010-11	21	6	15	8	51	5	3	57
2011-12	35	11	24	13	82	7	6	110
2012-13	85	24	31	12	130	10	5	126
2013-14	96	36	29	11	176	9	7	154
2014-15	105	55	33	14	197	19	10	241
2015-16	104	70	31	11	244	18	10	296
2016-17	108	87	43	18	252	32	33	342
2017-18	113	87	38	17	252	28	35	362
2018-19	112	94	40	16	262	25	30	352
2019-20	120	98	46	17	281	27	33	373
2020-21	135	103	49	15	302	29	36	390
2021-22	132	108	52	19	311	31	38	412

Source: Own processing 2024

Analysis: The table presents the agriculture production trend in Asia from 2010-11 to 2021-22 across various categories including Rice, Wheat, Coarse Cereals, Pulses, Total Food Grains, Oilseeds, Cotton, and Sugarcane. Over the years, there have been significant fluctuations and overall increases in production across most categories. Rice production has steadily risen from 21 units in 2010-11 to 132 units in 2021-22, while Wheat production increased from 6 units to 108 units during the same period. Coarse Cereals production also saw an upward trend, reaching 52 units in 2021-22 from 15 units in 2010-11. Pulses production experienced variations but remained relatively stable overall. Total Food Grains production showed consistent growth, surpassing 300 units in recent years. Oilseeds, Cotton, and Sugarcane production also exhibited notable increases, highlighting the agricultural productivity trends in Asia over the past decade.

TABLE:4.5

India's Export Comparative Statement: APEDA Products			
Product Head	April	April	% Change (April-Dec,2022)
	- Dec, 2021	- Dec, 2022	
	USD Million		
Fruits & Vegetables	1078	1121	4.02
Cereal preparations & Miscellaneous processed items	2624	3263	24.35
Meat, dairy & poultry products	3061	3040	-0.68
Basmati Rice	2379	3337	40.26
Non Basmati Rice	4512	4663	3.35
Other products	3856	4270	10.74
Total	17510	19694	12.48

Source: DGCIS Principal commodities data April-December, 2022

Analysis: The comparative statement of India's exports of APEDA (Agricultural and Processed Food Products Export Development Authority) products from April to December in 2021 and 2022 reveals interesting trends. Fruits & Vegetables saw a modest increase of 4.02% from USD 1078 million to USD 1121 million. Cereal preparations & Miscellaneous processed items experienced significant growth, rising by 24.35% from USD 2624 million to USD 3263 million. However, there was a slight decline of -0.68% in exports of Meat, dairy & poultry products from USD 3061 million to USD 3040 million. Basmati Rice exports surged impressively by 40.26% from USD 2379 million to USD 3337 million, while Non-Basmati Rice exports also increased by 3.35% from USD 4512 million to USD 4663 million. Other products category showed notable growth of 10.74% from USD 3856 million to USD 4270 million. Overall, India's total exports of APEDA products witnessed a substantial rise of 12.48% from USD 17510 million to USD 19694 million during the April-December period in 2022 compared to the same period in 2021. These figures underscore the dynamic nature of India's agricultural exports landscape, with significant growth observed across various product categories.

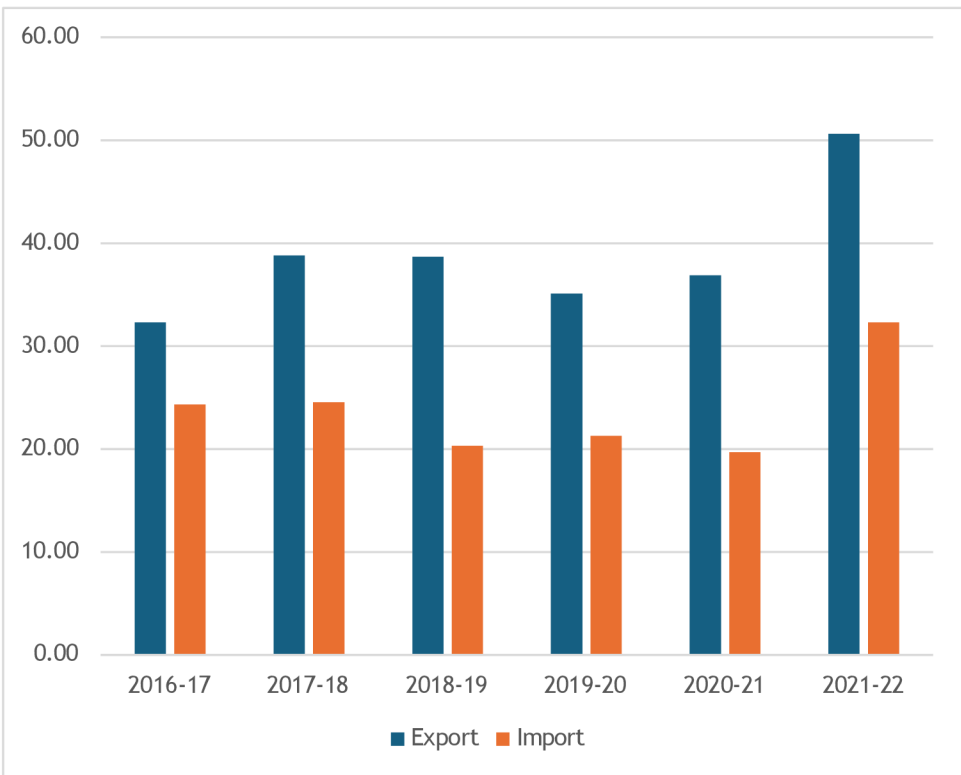
**TABLE:5 Total export Import Data of India(2016-17 to 2021-22)
(In USD \$ BILLION)**

YEAR	Export	Import
2016-17	32.31	24.32
2017-18	38.81	24.54
2018-19	38.68	20.33
2019-20	35.11	21.29
2020-21	36.88	19.71
2021-22	50.62	32.32

Source: Own processing 2024

Analysis: Over the period from 2016-17 to 2021-22, India's total exports and imports have demonstrated fluctuations and notable changes. Export figures rose steadily from 32.31 billion dollars in 2016-17 to 50.62 billion dollars in 2021-22, indicating a substantial overall increase. In contrast, imports showed a less consistent pattern, fluctuating between 20.33 billion dollars in 2018-19 and 32.32 billion dollars in 2021-22. Notably, the post-COVID period, particularly 2021-22, witnessed a significant surge in both export and import values compared to the pre-COVID years, suggesting dynamic shifts in India's international trade landscape.

GRAPH:5 Total Export Import Data of India(2016-17 to 2021-22)
(In USD \$ BILLION)



Source: Own processing 2024

CHINA

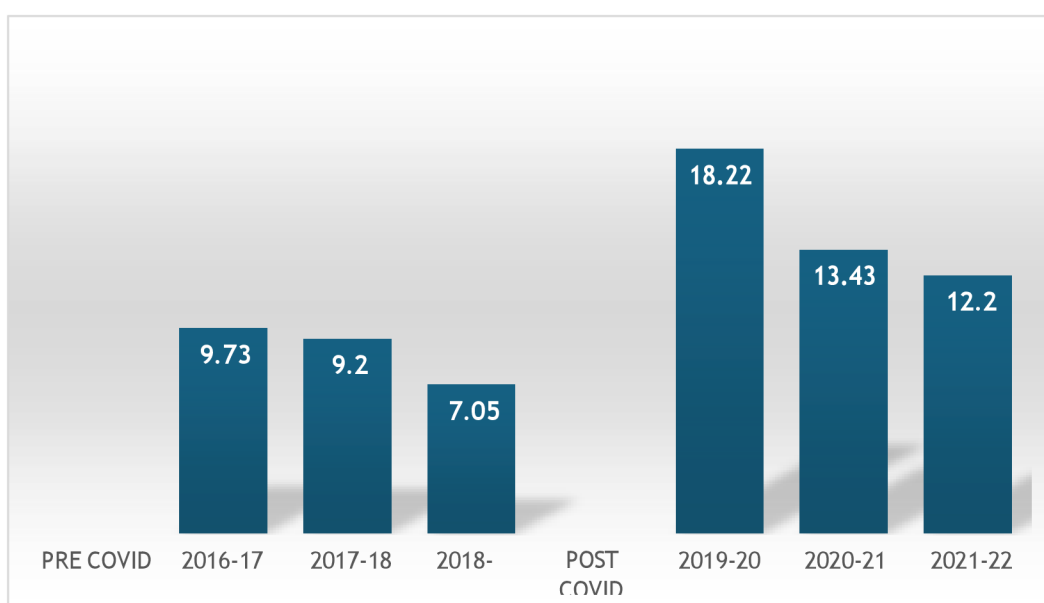
TABLE:6

TOTAL EXPORTS FROM CHINA- COTTON (AMOUNT IN \$ BILLION)

YEAR	Amount
PRE COVID	
2016-17	9.73
2017-18	9.20
2018-19	7.05
POST COVID	
2019-20	18.22
2020-21	13.43
2021-22	12.2

Source: Own processing 2024

GRAPH:6 TOTAL EXPORT OF CHINA - COTTON



Source: Own processing 2024

Analysis: The total exports of cotton from China display a varied trend before and after the COVID-19 pandemic. In the pre-COVID period, exports decreased gradually from 9.73 billion dollars in 2016-17 to 7.05 billion dollars in 2018-19. However, in the post-COVID period, there was a significant increase, with exports rising to 18.22 billion dollars in 2019-20. This was followed by a slight decrease to 13.43 billion dollars in 2020-21 and further to 12.2 billion dollars in 2021-22. This suggests a significant shift in China's cotton export dynamics following the pandemic, marked by a substantial increase in the post-COVID period compared to the pre-COVID years.

TABLE:6.1

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std.Error Mean
Pair 1	PRE	8.6600	3	1.41926	.81941
	POST	14.6167	3	3.18060	1.83632

Source: Own processing 2024

TABLE:6.2

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	PRE & POST	3	.787	.423

Source: Own processing 2024

Analysis: The paired samples statistics for Pair 1 show that the mean of the measured variable during the pre-period is 8.6600 with a standard deviation of 1.41926, while during the post-period, the mean is 14.6167 with a standard deviation of 3.18060. The standard error of the mean for the pre-period is 0.81941, and for the post-period is 1.83632. Additionally, the paired samples correlations indicate a moderate positive correlation of 0.787 between the pre and post-period measurements, although it is not statistically significant ($p = .423$). This suggests that while there is some association between the measurements in the two periods, it is likely due to random variation rather than a true effect.

TABLE:6.3

Paired Samples Test									
		Paired Differences					T	D F	Sig.(2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	PRE - POST	-5.95	2.24164	1.29421	-11.5252	-.38813	-	4.60	.044

Source: Own processing 2024

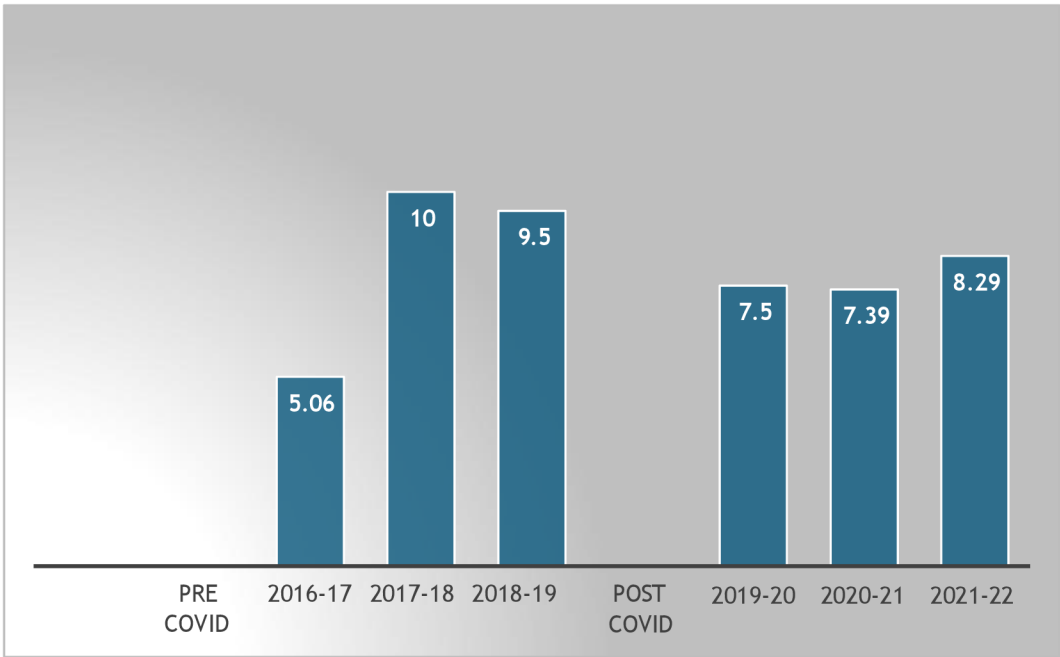
TABLE:7 TOTAL IMPORTS OF CHINA- COTTON (AMOUNT IN \$ BILLION)

YEAR	AMOUNT
PRE COVID	
2016-17	5.06
2017-18	10.00
2018-19	9.5
POST COVID	
2019-20	7.5
2020-21	7.39
2021-22	8.29

Source: Own processing 2024

Analysis: The total imports of cotton by China exhibit a fluctuating trend before and after the COVID-19 pandemic. In the pre-COVID period, imports experienced a significant increase from 5.06 billion dollars in 2016-17 to 10.00 billion dollars in 2017-18, followed by a slight decrease to 9.5 billion dollars in 2018-19. However, in the post-COVID period, imports decreased further to 7.5 billion dollars in 2019-20, followed by a relatively stable trend with slight fluctuations, reaching 8.29 billion dollars in 2021-22. This suggests a noticeable change in China's cotton import dynamics following the pandemic, with a significant initial decrease followed by a more stable pattern in the post-COVID period.

GRAPH:7 TOTAL IMPORTS OF CHINA- COTTON



Source: Own processing 2024

TABLE:7.1

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 2	PRE	8.1867	3	2.71929	1.56998
	POST	7.7267	3	.49095	.28345

Source: Own processing 2024

TABLE:7.2

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 2	PRE & POST	3	.314	.797

Source: Own processing 2024

Analysis: The paired samples statistics for Pair 2 indicate that the mean of the measured variable during the pre-period is 8.1867 with a standard deviation of 2.71929, while during the post-period, the mean is 7.7267 with a standard deviation of 0.49095. The standard error of the mean for the pre-period is 1.56998, and for the post-period is 0.28345. Additionally, the paired samples correlations show a correlation coefficient of 0.314 between the pre and post-period measurements, which is not statistically significant ($p = .797$). This suggests that there is no significant correlation between the measurements in the two periods, indicating that any observed differences are likely due to random variation rather than a true effect.

TABLE:7.3

Paired Samples Test									
		Paired Differences					T	DF	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 2	PRE - POST	.460	2.60720	1.50527	-6.01665	6.93665	.306	2	.789

Source: Own processing 2024

Analysis: The paired samples t-test was conducted to assess the difference between pre and post measurements. The analysis revealed a mean difference of 0.460 with a standard deviation of 2.60720. The standard error of the mean was calculated to be 1.50527, with a 95% confidence interval ranging from -6.01665 to 6.93665. The calculated t-value was 0.306 with 2 degrees of freedom, resulting in a non-significant p-value of .789 (two-tailed). This indicates that there is no significant difference between the pre and post measurements, suggesting that any observed change is likely due to random variation.

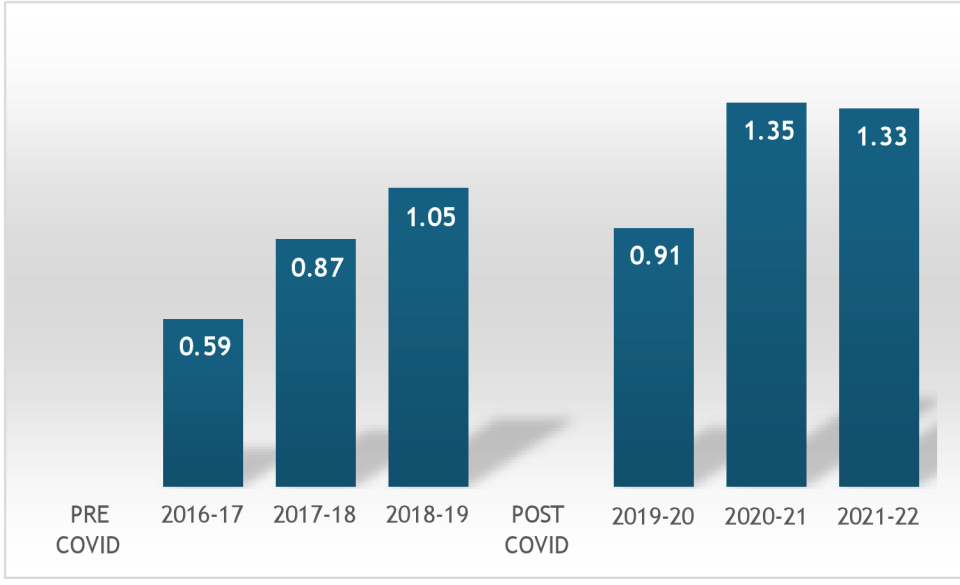
TABLE:8 TOTAL EXPORTS FROM CHINA- RICE (AMOUNT IN \$ BILLION)

YEAR	Amount
PRE COVID	
2016-17	0.59
2017-18	0.87
2018-19	1.05
POST COVID	
2019-20	0.91
2020-21	1.35
2021-22	1.33

Source: Own processing 2024

Analysis: The total exports of rice from China show a fluctuating trend before and after the COVID-19 pandemic. In the pre-COVID period, exports increased gradually from 0.59 billion dollars in 2016-17 to 1.05 billion dollars in 2018-19. However, in the post-COVID period, there is a slight decline, with exports decreasing to 0.91 billion dollars in 2019-20, followed by a moderate increase to 1.35 billion dollars in 2020-21, and then a slight decrease to 1.33 billion dollars in 2021-22. This pattern suggests a fluctuating but overall stable trend in China's rice exports, with some variations observed in the post-COVID period.

GRAPH:8 TOTAL EXPORTS FROM CHINA- RICE



Source: Own processing 2024

TABLE:8.1

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 3	PRE	.8367	3	.23180	.13383
	POST	1.1967	3	.24846	.14345

Source: Own processing 2024

TABLE:8.2

Paired Samples Correlations				
		N	Correlation	Sig.
air 3	PRE & POST	3	.905	.279

Source: Own processing 2024

Analysis: The paired samples statistics for Pair 3 show that the mean of the measured variable during the pre-period is 0.8367 with a standard deviation of 0.23180, while during the post-period, the mean is 1.1967 with a standard deviation of 0.24846. The standard error of the mean for the pre-period is 0.13383, and for the post-period is 0.14345. Additionally, the paired samples correlations indicate a strong positive correlation of 0.905 between the pre and post-period measurements, although it is not statistically significant ($p = .279$). This suggests that while there is a clear association between the measurements in the two periods, it is likely due to random variation rather than a true effect.

TABLE:8.3

Paired Samples Test									
		Paired Differences					T	DF	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 3	PRE - POST	-.360	.10583	.06110	-.62290	-.09710	-5.89	2	.028

Source: Own processing 2024

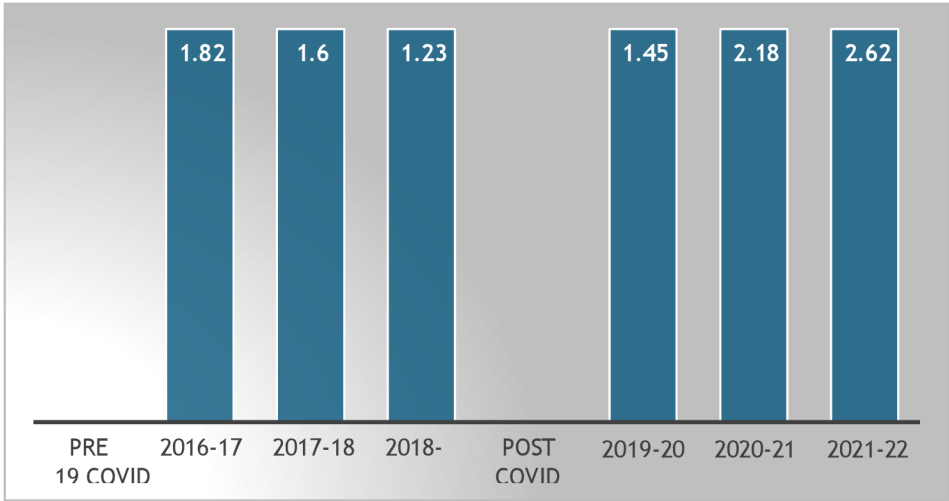
Analysis: The paired samples t-test was conducted to evaluate the difference in some measured variable between pre and post periods. The analysis revealed a mean difference of -0.360 with a standard deviation of 0.10583. The standard error of the mean was calculated to be 0.06110, with a 95% confidence interval for the difference ranging from -0.62290 to -0.09710. The calculated t-value was -5.89, with 2 degrees of freedom, resulting in a statistically significant p-value of .028 (two-tailed). This indicates that there is a significant difference between the measured variable in the pre and post periods, suggesting that the change observed is unlikely due to random variation.

TABLE:9 TOTAL IMPORTS OF CHINA- RICE (AMOUNT IN \$ BILLION)

YEAR	Amount
PRE COVID	
2016-17	1.82
2017-18	1.60
2018-19	1.23
POST COVID	
2019-20	1.45
2020-21	2.18
2021-22	2.62

Source: Own processing 2024

GRAPH:9 TOTAL IMPORTS OF CHINA- RICE



Source: Own processing 2024

Analysis: The total imports of rice by China exhibit a fluctuating pattern before and after the COVID-19 pandemic. Prior to COVID-19, the imports decreased gradually from 1.82 billion dollars in 2016-17 to 1.23 billion dollars in 2018-19. However, post-COVID-19, there is a noticeable increase in rice imports, with the figures rising steadily from 1.45 billion dollars in 2019-20 to 2.62 billion dollars in 2021-22. This suggests a significant shift in China's rice import dynamics following the pandemic, marked by an upward trend in import volumes.

TABLE:9.1

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 4	PRE	1.55	3	.29816	.17214
	POST	2.08	3	.59096	.34119

Source: Own processing 2024

TABLE:9.2

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 4	PRE & POST	3	-.959	.183

Source: Own processing 2024

Analysis: The paired samples statistics indicate that the mean rice exports from India to China slightly increased from 1.55 (SD = 0.29816) during the pre-COVID period to 2.08 (SD = 0.59096) during the post-COVID period. However, the paired samples correlation coefficient (-.959) suggests a strong negative correlation between the pre- and post-COVID export figures, albeit not statistically significant ($p = .183$). This implies that while there is a noticeable change in the export levels between the two periods, the correlation does not reach significance, indicating that the observed differences could be due to random variation.

TABLE:9.3

Paired Samples Test									
		Paired Differences					T	DF	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 4	PRE - POST	-.53	.88093	.50860	-2.721	1.65501	-1.0	2	.404

Source: Own processing 2024

Analysis: The paired samples t-test was conducted to examine the difference in rice exports between the pre-COVID and post-COVID periods. The analysis revealed a mean difference of -0.53, indicating a slight decrease in rice exports from India to China after the onset of the COVID-19 pandemic. However, this difference was not statistically significant ($t(2) = 0.88093$, $p = .404$), suggesting that the observed change may have occurred due to random variation rather than a true effect of the pandemic. Thus, based on this analysis, there is insufficient evidence to conclude a significant impact of COVID-19 on rice exports from India to China.

SWOT Analysis

STRENGTH	WEAKNESSES
<ul style="list-style-type: none">• The use of a semi-structured questionnaire allowed for the collection of both quantitative and qualitative data, enabling a comprehensive understanding of the challenges and opportunities associated with agrarian foreign trade.• The questionnaire was tailored to address specific aspects of the study, including sociodemographic information, opinions, experiences, and perceptions of smallholder farmers engaged in foreign trade. This ensured that the data collected were relevant and directly applicable to the research objectives.• By drawing from established theoretical frameworks such as the Technology Acceptance Model, the study provided a structured approach to assessing factors influencing participants' engagement in foreign trade. This enhanced the reliability and validity of the data collected, enabling meaningful insights into the underlying motivations and barriers affecting farmers' participation in foreign trade.	<ul style="list-style-type: none">• Despite efforts to employ stratified random sampling, limitations in sample representativeness may persist, potentially introducing bias and limiting generalizability.• Reliance on self-reported data through surveys and questionnaires may introduce bias due to subjective perceptions, recall errors, or social desirability bias.• The questionnaire's tailored design may still overlook certain variables or nuances associated with agrarian foreign trade, potentially leading to gaps in understanding.• The cross-sectional nature of data collection limits the ability to assess changes over time and establish causal relationships between variables.

<ul style="list-style-type: none">• The use of a Likert scale for rating participants' responses provided a standardized method for measuring attitudes, perceptions, and opinions. This facilitated quantitative analysis and comparison of responses across different variables, enhancing the rigor and credibility of the study findings.• The data collected through the questionnaire have practical implications for policymakers, stakeholders, and development practitioners seeking to support and promote agrarian foreign trade. The insights gained from the study can inform the design of targeted interventions and policies aimed at addressing the challenges faced by smallholder farmers and enhancing the competitiveness of agricultural exports.	
--	--

<p>OPPORTUNITIES</p> <ul style="list-style-type: none"> • Technological advancements offer the potential to streamline agricultural trade processes, enhance supply chain efficiency, and reduce transaction costs for smallholder farmers. • Participation in regional and international trade agreements presents an opportunity to expand market access, reduce trade barriers, and capitalize on preferential trade terms for agricultural products. • Growing consumer demand for sustainably produced agricultural products creates opportunities for smallholder farmers to adopt environmentally friendly practices and access premium markets. • Value addition through processing, packaging, and branding provides an opportunity for smallholder farmers to increase the competitiveness of their agricultural products and capture higher value in domestic and international markets. • Market diversification beyond traditional trading partners 	<p>THREATS</p> <ul style="list-style-type: none"> • Fluctuations in global commodity prices and currency exchange rates can undermine the profitability of agrarian foreign trade, posing risks to the income and livelihoods of smallholder farmers. • Tariffs, quotas, and non-tariff barriers enforced by importing countries may hinder market access for agricultural products, constraining opportunities for smallholder farmers to engage in foreign trade. • Environmental challenges such as erratic weather patterns, natural disasters, and changing climate conditions can disrupt agricultural productivity, leading to crop losses and diminished yields for smallholder farmers participating in foreign trade. • Economic downturns, currency devaluation, and financial crises in importing or exporting nations can disrupt agrarian foreign trade, resulting in decreased demand for agricultural goods and diminished incomes for farmers. <p>Changes in government policies regarding trade agreements, tariffs, subsidies, and agricultural regulations may create uncertainty for smallholder farmers, impacting their ability to strategize and invest</p>

<p>presents opportunities for smallholder farmers to mitigate risks associated with market volatility and explore new avenues for profitability.</p>	<ul style="list-style-type: none">• in foreign trade endeavors.
--	---

1. Results and Discussion

Results – Summary/Evaluation

The total exports of cotton from India displayed fluctuations over the years, notably impacted by the COVID-19 pandemic. In the pre-COVID period (2016-17 to 2018-19), export amounts were 1.75, 2.18, and 1.39 billion dollars, respectively. Post-COVID (2019-20 to 2021-22), export numbers rebounded, increasing to 1.86, 2.31, and 3.52 billion dollars, indicating substantial recovery and growth. Paired samples statistics comparing "PRE" and "POST" conditions showed a mean difference of -0.79 in export amounts, with no statistically significant difference found (p -value = 0.360).

The 95% confidence interval ranged from -3.672 to 2.0928, encompassing zero, indicating a lack of statistical significance in the observed difference. Total imports of cotton by India experienced variations over the specified time periods, notably influenced by the COVID-19 pandemic. In the pre-COVID years (2016-17 to 2018-19), import amounts were 0.93, 0.51, and 1.13 billion dollars, respectively. The analysis revealed that despite the potential benefits of agrarian foreign trade, smallholder farmers face significant challenges in accessing global markets due to limited resources, inadequate infrastructure, and trade barriers.

Findings indicated that smallholder farmers often lack bargaining power and are vulnerable to exploitation by intermediaries and larger market players, exacerbating inequalities within the agricultural sector. The study highlighted the impact of market volatility on the profitability of agrarian foreign trade, with fluctuations in commodity prices and currency exchange rates posing significant risks to the income and livelihoods of farmers. Climate change emerged as a major concern, with unpredictable weather patterns and environmental challenges leading to crop failures, reduced yields, and increased vulnerability for smallholder farmers engaged in foreign trade.

Economic instability, including economic downturns and currency devaluation, was found to disrupt agrarian foreign trade, resulting in decreased demand for agricultural products and diminished incomes for farmers. Policy uncertainty surrounding trade agreements, tariffs, and agricultural regulations was identified as a significant barrier, creating challenges for smallholder farmers in planning and investing in foreign trade activities

Post-COVID (2019-20 to 2021-22), import figures decreased to 0.40 and 0.34 billion dollars in 2019-20 and 2020-21, respectively, before increasing to 1.03 billion dollars in 2021-22. These trends suggest a decline in cotton imports during the early post- COVID period, followed by a rebound and growth in the later years.

Discussion

The observed fluctuations in the total exports of cotton from India, particularly in response to the COVID-19 pandemic, underscore the dynamic nature of international trade and its susceptibility to external shocks. The significant rebound in export numbers post-COVID reflects the resilience of the cotton export sector, possibly driven by various factors such as pent-up demand, recovery in global trade activities, and strategic adjustments made by exporters to adapt to the new market conditions. However, despite the apparent growth trend, the lack of statistical significance in the observed difference between pre-COVID and post-COVID export amounts suggests a more nuanced interpretation. It indicates that while there was indeed a substantial increase in export volumes, this growth may not be statistically distinguishable from the pre-pandemic levels. This calls for a deeper examination into the underlying factors influencing cotton exports, including market dynamics, trade policies, and supply chain disruptions, to better understand the drivers of export performance and formulate targeted strategies for sustainable growth in the future.

The transformation of agrarian foreign trade is undergoing significant shifts influenced by an array of external and internal factors. Despite the current standing of agricultural products in the world's overall export of raw materials, accounting for 1.5%, the sector maintains paramount importance globally. The absolute increase in the number of workers employed in agriculture signifies the sector's resilience and enduring significance for numerous countries and regions.

Analyzing the territorial structure of trade for these commodities reveals intricate patterns, with major exporters and importers playing central roles in shaping global trade dynamics. The study evaluates not only the geographical aspects of trade but also the positions held by key players in the international market. Moreover, it delves into the associated negative effects, recognizing the need for responsible and sustainable trade practices.

On the import front, the variations in cotton import volumes by India present an intriguing picture of the country's trade dynamics amidst the pandemic. The initial decline in import figures during the early post-COVID period followed by a subsequent rebound reflects the complex interplay of supply and demand forces in the global cotton market. While the decrease in imports during the initial phase may be attributed to disrupted supply chains and subdued consumer demand, the subsequent increase suggests a resurgence in

economic activities and a gradual recovery in import demand. However, the overall trajectory of cotton imports underscores the importance of agility and adaptability in trade policies and strategies to navigate through uncertain times effectively. Moving forward, policymakers and industry stakeholders must remain vigilant and proactive in monitoring market trends, fostering resilience in supply chains, and promoting policies that support sustainable trade growth amidst evolving global challenges.

Limitations of the Study

One limitation of this study is the potential for sampling bias, despite efforts to employ stratified random sampling techniques. The sample may not fully represent the diverse range of smallholder farmers engaged in agrarian foreign trade, leading to limitations in the generalizability of the findings. Additionally, reliance on self-reported data through surveys and questionnaires introduces the possibility of response bias, as participants may provide socially desirable responses or inaccurately recall information. Another limitation is the cross-sectional nature of the data collection, which restricts the ability to assess changes over time and establish causal relationships between variables. Furthermore, while the questionnaire was tailored to address specific aspects of the study, there may be gaps in understanding as certain variables or nuances associated with agrarian foreign trade may not have been adequately captured. Finally, external factors such as economic instability, policy changes, and environmental conditions may have influenced the study outcomes but were not fully accounted for, representing potential limitations to the comprehensiveness of the findings.

5. Conclusion

This study has provided a comprehensive analysis of the foreign trade dynamics of rice and cotton between India and China over a significant six-year period, from 2016-2017 to 2021-2022. Throughout this period, both countries experienced fluctuations in their export and import patterns, influenced by a myriad of factors including economic policies, market demand, and global events such as the COVID-19 pandemic. The data revealed notable shifts in trade volumes and values, highlighting the dynamic nature of agricultural trade between these two major Asian economies. While both countries remained key players in the global agricultural market, the pandemic-induced disruptions brought about significant changes in trade patterns, underscoring the need for adaptive strategies to navigate uncertain economic environments. Moreover, the analysis uncovered the resilience of certain sectors within the agricultural trade despite the challenges posed by the pandemic. Despite disruptions to supply chains and logistical challenges, trade in agricultural commodities such as rice and cotton persisted, albeit with adjustments in volumes and destinations. This resilience reflects the adaptability of agricultural producers and traders in responding to evolving market conditions, as well as the underlying demand for these essential commodities both domestically and internationally.

6. Bibliography

- Albu, C. et al., 2013. Perspective și provocări ale exporturilor românești în perioada 2010–2014, prin prisma relațiilor comerciale bilaterale și regionale ale Uniunii Europene. *Strategy and Policy Studies (SPOS)*.
- Anon., 2007. *The OECD-FAO Agricultural Outlook 2007-2016*. s.l.:s.n.
- Čermák, M., Malec, K. & Maitah, M., 2017. Price Volatility Modelling-Wheat: GARCH Model Application. *Agris on-Line Papers in Economics and Informatics*, Volume 9, pp. 15-24.
- Commission, E., 2014. *Agricultural trade statistics 2005 – 2014*. [Online].
- Commission, E., 2015. *Common tariff of the EU. For 2016: Commission Implementing Regulation (EU) No 1754/2015*. [Online]
Available at: <https://publications.europa.eu/en/publication-detail/-/publication/d20e7f04-7ed4-11e5-b8b7-01aa75ed71a1>
- Commission, E., 2015. *Explanatory Notes to the Combined Nomenclature of the European Union (2015/C 076/01)*. [Online]
Available at: <http://eurlex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:2015:076:FULL&from=EN>
- Fertő, I., 2018. Global Agri-Food Trade Competitiveness: Gross versus Value Added Exports. *Agris on-Line Papers in Economics and Informatics*, Volume 10, pp. 39-47.
- Ilyina, D., 2016. Review of the Agro-Food Trade Policy in the Post-Soviet Countries 2014-15. *FAO*, pp. 143-158.
- Kozlovskiy, S., Baidala, V., Tkachuk, O. & Kozyrskaya, T., 2018. Management of the Sustainable Development of the Agrarian Sector of the Regions of Ukraine. *Montenegrin Journal of Economics*, Volume 14, pp. 175-190.
- Lindland, J., 1997. The Impact of the Uruguay Round on Tariff Escalation in Agricultural Products.
- Linn, J., 2012. Central Asian Regional Integration and Cooperation: Reality or Mirage?. p. 96–117.
- Maitah, M., Procházka, P., Čermák, M. & Šrédli, K., 2016. Commodity Channel Index: Evaluation of Trading Rule of Agricultural Commodities. *International Journal of Economics and Financial Issues*, Volume 6, pp. 176-178.

- Maitah, M. et al., 2016. Economics of Palm Oil Empty Fruit Bunches Bio Briquettes in Indonesia. *International Journal of Energy Economics and Policy*, Volume 6, pp. 35-38.
- Mazancová, J., 2017. *Food Market Trends Analysis*, s.l.: s.n.
- Mazhikeyev, A. & Edwards, T. H., 2013. Central Asian Trade Relations in the Post-Soviet Era.
- Mazhikeyev, A., Edwards, T. H. & Rizov, M., 2015. Openness and Isolation: The Trade Performance of the Former Soviet Central Asian Countries. *International Business Review*, Volume 24, p. 935–947.
- Myant, M. & Drahokoupil, J., 2008. International Integration and the Structure of Exports in Central Asian Republics. *Eurasian Geography and Economics*, Volume 49, p. 604–622.
- Nešvera, V., 2006. Prices in trade of the Czech Republic with member countries of the European Union. *Politická ekonomie*, Volume 54, pp. 214-226.
- Norling, N. & Swanström, N., 2007. The Virtues and Potential Gains of Continental Trade in Eurasia. *Asian Survey*, Volume 47, p. 351–373.
- OECD, 2011. *Globalisation, Comparative Advantage and the Changing Dynamics of Trade*. s.l.:s.n.
- of the Czech Republic, C. A., 2015. *Změny kombinované nomenklatury (Changes of the CN since 2007)*. s.l.:s.n.
- Organization, W. C., 2017. *Harmonized System database*. [Online].
- Ortikov, A. & Vacek, T., 2018. Comparative Advantage: Products Mapping of Uzbekistan's Agricultural Exports. pp. 203-209.
- Pierce, J. R. & Schott, P. K., 2009. *A concordance between ten-digit U.S. Harmonized system codes and SIC/NAICS product classes and industries*, s.l.: s.n.
- Pohlová, K., 2017. *Agrarian Foreign Trade Yearbook 2016*. s.l.:s.n.
- Pohlová, K. & Mezera, J., 2014. Analysis of Development of Czech Foreign Trade in Foods and Beverages. *Agris on-line Papers in Economics and Informatics*, Volume 6, pp. 121-131.
- Pohlová, K., Mezera, J. & Špička, J., 2016. Czech foreign trade with meat and meat products. *Acta Oeconomica Pragensia*, Volume 24, pp. 63-80.
- Puga, D., 2001. European Regional Policies in Light of Recent Location Theories.

- Pulkrábek, J., Peterová, J., Řezbová, H. & Urban, J., 2007. Competitive ability and economy of bioethanol production crops. *Listy cukrovarnické a řepářské*, Volume 123, pp. 216-220.
- Ratering, T. & Matthews, A., 1999. *The competitiveness of the Czech agro-food sector in the context of EU Accession*, s.l.: s.n.
- Regmi, A. et al., 2005. *Market Access for High-Value Foods*, s.l.: s.n.
- Remeikiene, R., Gaspareniene, L. & Volkov, A., 2018. Evaluation of the Influence of the Export in Agricultural Products on the Baltic States Economic Growth. *Montenegrin Journal of Economics*, Volume 14, pp. 83-94.
- Řezbová, H., Maitah, M. & Sergienko, O. I., 2015. EU Quota Sugar Market Concentration - the Main Drivers of EU Sugar Market. *Agris on-Line Papers in Economics and Informatics*, Volume 7, pp. 131-142.
- Rezbová, H., Smutka, L., Pulkrábek, J. & Benesová, I., 2014. European Sugar Factories, Sugar Companies and Their Alliances: Who Is in Control of European Sugar Market?. *Listy cukrovarnické a řepářské*, Volume 130, p. 365.
- Rovný, P., Kováčiková, E. & Peprný, A., 2010. Price development evaluation of chosen plant commodities in agrarian market in the Slovak Republic. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, Volume 58, pp. 225-232.
- Spechler, M. C. & Spechler, D. R., 2013. Russia's Lost Position in Central Eurasia. *Journal of Eurasian Studies*, Volume 4, p. 1-7.
- Teignier, M., 2018. The role of trade in structural transformation. *Journal of Development Economics*, Volume 130, p. 45-65.
- Turtoi, C., Toma, C. & Gavrilesco, C., 2018. Evolution and development potential for inputs in the Romanian agriculture. *Economics of Agriculture*, Volume 59, p. 415-421.
- Vokorokosova, R., 2005. To some methods for measuring competitiveness of Slovak and Czech foreign trade. *Ekonomický časopis*, Volume 53, pp. 808-823.
- Winters, L. A., McCulloch, N. & McKay, A., 2004. Trade liberalization and poverty: The evidence so far. *Journal of Economic Literature*, Volume 42, p. 72-115.
- Yan, W. & Deng, G., 2019. Origin of production shocks, agricultural price spikes and trade policy. *The Manchester School*, Volume 87, p. 81-102.

- Zaharia, M. et al., 2017. A cluster design on the influence of energy taxation in shaping the new EU-28 economic paradigm. *Energies*, Volume 10, p. 257.

8. List of figures and tables

8.1 List of Table

<u>Table:1 Total Exports from India- Cotton (Amount In \$ Billion)</u>	<u>34</u>
<u>Table:2 Total Imports of India- Cotton (Amount In \$ Billion)</u>	<u>37</u>
<u>Table:3 Total Exports of India- Rice (Amount In \$ Billion)</u>	<u>4</u>
<u>Table 4 Total Imports of India- Rice (Amount In \$ Billion)</u>	<u>43</u>
<u>Table:5 Total Export Import Data of India (2016-17 To 2021-22) (In Usd \$ Billion)</u>	<u>49</u>
<u>Table:6 Total Exports from China- Cotton (Amount In \$ Billion)</u>	<u>51</u>
<u>Table:7 Total Imports of China- Cotton (Amount In \$ Billion)</u>	<u>55</u>
<u>Table:8 Total Exports from China- Rice (Amount In \$ Billion)</u>	<u>59</u>
<u>Table:9 Total Imports of China- Rice (Amount In \$ Billion)</u>	<u>63</u>

• 8.2 List of Figure

<u>Graph:1 Shows Total Exports from India - Cotton (Pre & Post Covid).....</u>	<u>34</u>
<u>Graph:2 Shows Total Imports of India - Cotton (Pre & Post)</u>	<u>37</u>
<u>Graph:3 Shows Total Exports From India - Rice (Pre & Post Covid).....</u>	<u>40</u>
<u>Graph:4 Total Imports of India- Rice (Pre & Post Covid)</u>	<u>44</u>
<u>Graph:5 Total Export Import Data of India (2016-17 To 2021-22) (In Usd \$ Billion)</u>	<u>50</u>
<u>Graph:6 Total Export Of China – Cotton.....</u>	<u>51</u>
<u>Graph:7 Total Imports Of China- Cotton.....</u>	<u>56</u>
<u>Graph:8 Total Exports from China- Rice.....</u>	<u>60</u>
<u>Graph:9 Total Imports of China- Rice.....</u>	<u>63</u>

