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EXPLORING AFGHANISTAN'S AGRICULTURAL EXPORT POTENTIAL; A COMPARATIVE STUDY FROM 2011 TO 2019 WITH EMPHASIS ON KEY TRADE PARTNERS

(Iran, Pakistan, Tajikistan, India, and Türkiye)

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Abstract

The study conducts a comprehensive analysis of Afghanistan's agricultural export potential from 2011 to 2019, aiming to identify and diagnose export advantages, recognize growth opportunities, and present recommendations for enhancing the country's export advantage. The research evaluates Afghanistan's relative advantage in agricultural exports by employing six indicators, including Revealed Comparative Advantage RCA, Revealed Symmetric Comparative Advantage (RSCA), Balance, Micheli Index (MI), Share in Trade Balance (CTB), and Chi Square indicating an increase in the share of agricultural products in total country exports, with fluctuations over the study period. Afghanistan demonstrates a higher relative advantage in various agricultural products, securing leading positions in producing and exporting fruits, nuts, and spices. Despite these advantages, challenges such as non-standard packaging and marketing issues hinder Afghanistan's market position. To address challenges, the study recommends mechanization, strategic investments, quality assurance, and policy improvements to strengthen Afghanistan's position in the global agricultural market.

Keywords: *Comparative Advantage, χ^2 Index, Agricultural Products, Exports, Afghanistan*

Özet

Bu çalışma, 2011-2019 yılları arasında Afganistan'ın tarım ihracat potansiyelini kapsamlı bir şekilde analiz ederek ihracat avantajlarını tanımlamayı, büyüme fırsatlarını belirlemeyi ve ülkenin ihracat avantajını artırmaya yönelik öneriler sunmayı amaçlamaktadır. Araştırma, Afganistan'ın tarım ihracatındaki göreli avantajını Revealed Comparative Advantage (RCA), Revealed Symmetric Comparative Advantage (RSCA), Denge, Micheli İndeksi (MI), Ticaret Dengesi İçindeki Pay (CTB) ve Chi Kare gibi altı gösterge kullanarak değerlendirmektedir. Çalışma dönemi boyunca tarım ürünlerinin ülke ihracatındaki payında dalgalanmalar gözlemlenmiştir. Afganistan, meyve, kuruyemiş ve baharat üretimi ve ihracatında yüksek göreli avantaja sahip olarak öne çıkmaktadır. Bu avantajlara rağmen, standart dışı ambalajlama ve pazarlama sorunları gibi zorluklar Afganistan'ın piyasa konumunu engellemektedir. Zorlukları aşmak için çalışma, mekanizasyon, stratejik yatırımlar, kalite güvence sistemleri ve politika iyileştirmeleri önererek Afganistan'ın küresel tarım pazarındaki konumunu güçlendirmeyi tavsiye etmektedir.

Anahtar Kelimeler: *Göreli Avantaj, χ^2 İndeksi, Tarım Ürünleri, İhracat, Afghanistan*

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1. Introduction

The increasing globalization of the economy has led to a greater emphasis on the concept of competition in all economic discussions. Different scholars explain the real concept of competition in various ways. Most scholars perceive competition as synonymous with productivity, The Global Competitiveness Report (2019) defines competition as "the set of institutions, policies, and factors that define the level of productivity of a country." This definition is broadened by the World Competitiveness Yearbook by IMD, which characterizes competition as "an economy manages its resources and capabilities to increase the well-being of its citizens." Despite the significance of competition, there is a lack of consensus on its measurement. However, given the broad meaning of competition, there is no agreement on its measurement. According to the European Commission (2009), the most reliable indicator of competition in the long term is productivity. Countries may not compete globally in markets, but situations (locations) influence competition at the company level through natural endowments, human capital, market access, institutions, and various other factors. In practice, competition is usually gained by entrepreneurs utilizing resources that have a relative advantage unique to a location. It should be noted that focusing only on company-level productivity may not be sufficient to support competition. According to Krugman (1996), many economists perceive competition as something experienced only at the company level and set aside concepts of national competitiveness. This is particularly true in the export sector, where considerations such as policies like tariffs, quotas, and exchange rates, as well as factors like gateways infrastructure, setting and adapting standards, issuing certifications, and coordinating at the sectoral level in marketing and procurement all play a crucial role in determining the competitiveness of exporting companies. It is noteworthy that, according to Boltho (1996) competition is mostly studied through changes in the global market share. Still, a country may hide its main competitive weakness by manipulating exchange rates, such as devaluing or maintaining a weak currency.

The European Commission (2009) highlights competitiveness as a valid indicator associated with long-term productivity, encompassing various factors such as institutions and policies. Both the Global Competitiveness Report and the World Competitiveness Yearbook emphasize the effective management of resources for a country's overall well-being and productivity. In practical terms, competition is influenced by factors such as natural endowments, human capital, market access, and institutions, which impact corporate competition positively or negatively. Entrepreneurs often exploit relative advantages specific to a location, making competition based on location crucial, especially in sectors like exports. Krugman (1996) proposes that, although competition is not a zero-sum game[3], it holds

[3] A zero-sum game is a situation in which one participant's gain or loss is exactly balanced by the losses or gains of other participants.

substantial importance in the market for traded goods, with relative competition playing a crucial role. Ketels (2010) argues that a company's competitiveness is not solely determined by general production factors but also by factors provided directly by the government. In today's world, competitiveness is widely discussed, with varying interpretations by scholars. Krugman (1996) notes that many economists perceive competition at the corporate level, neglecting concepts of national competitiveness. However, others, like Porter (2008), argue that ignoring competitiveness beyond the national level is a clear failure in economic research and policies. Moving into the realm of exports, considerations such as policies, infrastructural gateways, and standards significantly impact the competitiveness of individual exporting companies. Export competition, reflecting the shift in regional exports relative to changes in global exports, signifies increased competitiveness when regional exports outpace global growth. Kravčáková Vozárová (2013) highlights competition as a market economy component and a characteristic of economic growth, becoming increasingly significant across all sectors, including agriculture. Trade theory, based on the concept of comparative advantage, extends to agricultural competition and is evaluated concerning various elements (Latruffe, 2010).

Competition in the Agricultural Sector parallel to developments in the global economy, the term competition is widely discussed and interpreted differently by different scientists. While some economists see competition as something experienced only at the company level, others dismiss the concept of national competition (Porter, 2008). This is especially true in the field of exports, where policy elements such as customs duties, quotas, and exchange rates, as well as factors like natural resources, human capital, market access, institutions, and others, require entrepreneurs to compete at the company level. Another important component of competition is particularly evident in the agricultural sector. International trade theory shows that a country's competition is based on the concept of comparative advantage. In this context, evaluating competition in agriculture should be done through several factors.

In summary, the research highlights the crucial role of Afghanistan's agricultural sector in the country's economy. This sector plays a vital part, contributing 44% to household income and being the primary income source for 28% of households. Additionally, with 45% of the workforce employed in agriculture, it serves as a major employer (National Statistics & Information Authority, 2018). The study takes a thorough approach, examining the export advantages of 34 selected agricultural products from 2011 to 2019. It goes further by analyzing 29 specific agricultural products and evaluating Afghanistan's competitiveness in 5 major trading partners (Iran, Pakistan, Tajikistan, India, Türkiye). This detailed exploration provides a clear picture of the country's position in both specific products and broader international markets.

The global agricultural sector, integral to providing sustenance, assumes paramount importance in national economies. Despite varied significance across nations, even industrialized countries prioritize agricultural self-sufficiency (Johnston & Mellor 1962)**.** Afghanistan, as a developing nation heavily dependent on agriculture, views it

not only to meet basic needs but also as a catalyst for economic growth. Nevertheless, Afghanistan's agricultural sector faces numerous challenges, including conflict, droughts, a shift to illicit crops, limited opportunities, and insufficient infrastructure. The reliance on traditional farming methods exacerbates these issues, putting Afghanistan at a disadvantage compared to its more mechanized counterparts. The recent attempts to increase the export of agricultural products from Afghanistan need more careful attention. There's a gap in how we evaluate how competitive Afghanistan is in this area, and we're missing a clear plan for developing export items that meet international standards. In response to these challenges, a nuanced exploration of Afghanistan's agricultural sector is imperative. Understanding competitive advantages, identifying latent export items, and formulating strategic imperatives are critical. This scholarly inquiry provides a foundation for informed policy decisions, aiming to elevate Afghanistan's standing in international agricultural exports and foster sustainable sectoral growth. The research aims to identify potential agricultural products for export, analyze Afghanistan's export advantages in the agricultural sector, explore opportunities for export growth, and provide specific recommendations to enhance the country's position in international agricultural markets. The research seeks to answer several questions: which agricultural products does Afghanistan have export advantages in, how well do current policies support the growth of these competitive export products, and what potential opportunities and challenges exist for the production and export of agricultural products in the country. The hypotheses posit that Afghanistan has a comparative advantage in exporting agricultural products and that its trade pattern in these products mirrors the global trade pattern.

2. Literature

In recent years, scholarly research has searched the dynamics of comparative advantages in agricultural exports, examining the strengths and weaknesses of various countries in the global market. This literature review synthesizes findings from several key studies conducted by Ali et al. (2020), Javed et al. (2017), Suresh & Mathur (2016), Natalița Maria (2015), Jaravaza et al. (2013), Ishchukova & Smutka (2013), Lakra et al. (2013), Lee & Weng (2013), Golovko & Valentini (2011), and Larbi & Chymes (2010). These studies explore diverse aspects of comparative advantage, ranging from specific product analyses to the impact of corruption and government policies on export development. Ali et al. (2020) and Iqbal Javed et al. (2017) both employ the Revealed Comparative Advantage (RCA) and Revealed Symmetric Comparative Advantage (RSCA) indicators to assess Pakistan's specialization and competitiveness in agricultural products. Notably, Pakistan demonstrated a robust production advantage in key crops, such as rice and mangoes, signaling its competitiveness in the global market. The findings offer valuable insights for shaping Pakistan's agricultural export strategy, emphasizing the importance of strategic shifts, as seen in the recommendation to explore beef production in response to challenges in mutton exports. Suresh & Mathur (2016) shift the focus to India, analyzing shifts in

agricultural exports and emphasizing the role of Total Factor Productivity (TFP) improvements in enhancing export growth. The study identifies areas of growing advantage for India, such as cotton and selected fruits and vegetables, while highlighting declining trends in pulses, rice, and wheat. This underscores the dynamic nature of comparative advantage in India's agricultural exports post-reforms. Natalița Maria (2015) explores the prospects of advertising Romanian food consumption in Greek markets, emphasizing the need for enhanced promotion of Romanian food products. The study utilizes statistical trade data and consumer preference questionnaires to advocate strategic measures like exhibitions and specialized restaurants, aiming to elevate the consumption of Romanian food products in Greece. Jaravaza et al. (2013) and Ishchukova & Smutka (2013) focus on Egypt and Russia, respectively, employing the Balassa index and Revealed Symmetric Comparative Advantage to identify areas of specialization in agricultural exports. These studies recommend strategic export development plans and critical indicators for improving each country's comparative advantage in the global market. Lakra et al. (2013) investigate the post-reform comparative advantage of India's food exports, highlighting fluctuations in comparative advantage for major food grains. The study underscores the dynamic nature of India's comparative advantage post-reforms, with certain grains maintaining relative advantages while others face challenges in establishing consistent advantages in global exports. Lee & Wengv (2013) explore the impact of corruption on exports, finding that corruption within a country decreases exports. The study highlights how bribery by government representatives can influence exports by providing preferential treatment, affecting price sensitivity and competitiveness. Golovko & Valentini (2011) search the interplay between innovation and exports for small and medium-sized enterprises (SMEs), revealing a positive and mutually reinforcing relationship. The findings suggest that participation in export markets enhances firms' learning capabilities, contributing to improved innovation performance and increased export effectiveness.

Finally, Larbi & Chymes (2014) focus on Tunisia's olive oil industry, emphasizing the critical role of government policies in boosting productivity, enhancing quality, and lowering production costs. The study highlights initiatives such as geographical indication protection and origin labeling, intending to improve Tunisia's global competitiveness and increase export prices for olive oil. In conclusion, the reviewed literature provides a comprehensive understanding of comparative advantages in agricultural exports, offering insights into the strengths, challenges, and strategic considerations of various countries. From Pakistan's specialization in key crops to India's dynamic post-reform scenario, and from Romania's efforts to promote its products in Greece to the impact of corruption on exports, these studies contribute valuable knowledge to the field. Understanding the nuances of comparative advantage in agricultural exports is crucial for policymakers, businesses, and researchers alike, as they navigate the complexities of global trade and work towards enhancing their countries' positions in the international market.

3. Methods of Measuring Comparative Advantage

In international economics, two perspectives exist for measuring relative advantages: the traditional and the contemporary. The traditional approach looks forward, using pre-trade data and theoretical methods to determine a country's comparative advantages. The contemporary approach, backward-looking, calculates comparative advantages using post-trade data and practical methods. Practical methods deviate somewhat from theoretical approaches (Mehrara, 2006). Economists propose various indicators for measuring comparative advantage, including (RCA)[4], (RSCA)[5], (DRC)[6], (MI)[7], Chi Square Index, (CTB)[8], Liesner Index (1958), (PAM))[9], (NPCO)[10], (NPCO)[11], Net Social Profit (NSP), Effective Protection Coefficient (EPC), and others. These practical tools consider a country's capabilities, conditions, and access to data. This study uses some of these methods to determine and measure the comparative advantage of exportable goods.

3.1.Liesner Index

The Liesner index, introduced in 1958, is considered one of the earliest economic tools to use post-trade data for determining comparative advantage. Liesner devised this index to measure relative advantage by examining how an imported product in the European Common Market affected expenditures in the industries of the United Kingdom (UK). The index essentially provides a way to gauge which industries a country has a comparative advantage in, based on the impact of trade on expenditures. According to Amir Teimori, Shemshadi, and Khalilian (2011, p.84),The Liesner index for measuring comparative advantage is presented as follows: $RCA_a^i = \frac{X_a^i}{X_a^e} / \frac{X_a^b}{X_a^e} = \frac{X_a^i}{X_a^b}$

In this context RCA_a^i, the Liesner index (i) indicates the relative comparative advantage of the UK in producing a (a). X_a^i It is derived from the total same product (a) by one of the European partner countries, andX_a^e represents the total value of exports of that product (a) by seven European partner countries. value of exports of that product (a) by the UK, X_a^b The total value of exports of the

By measuring this index, three possible situations can unfold:

1) The presence of a relative advantage for the UK when $RCA_a^i > 1$.
2) The absence of a relative advantage for the UK when the $RCA_a^i = 1$.
3) The absence of any relative superiority for the compared to other countries when $RCA_a^i < 1$.

[4] Revealed Comparative Advantage
[5] Revealed Symmetric Comparative Advantage
[6] Domestic Resource Costs
[7] Mitchell Index
[8] Share in Trade Balance
[9] Policy Accounting Matrix
[10] National Product Characteristics of Origin
[11] Nominal Protection Coefficient on Output

However, the Liesner index has limitations, including the fact that it only compares UK exports with one European country, and it does not incorporate other exported goods into its calculations(Liesner, 1958).

3.2.Balassa Index

In 1965, Balassa, through the modification of the Liesner method, introduced the concept of apparent comparative advantage and addressed the shortcomings of the Liesner method. He presented his index by dividing a country's share in the exports of a specific commodity by the composite exports of goods produced by 11 industrialized countries. According to Amir Teimori, Shemshadi, and Khalilian (2011, p.84),obtained in the following manner: $RCA_a^i = \frac{X_a^i}{X_a^c} / \frac{X_m^i}{X_m^c}$ ….(1) In this context, RCA_a^i serves as an indicator for the apparent comparative advantage of the country (i) in the production of a commodity. $a(X_a^i)$ represents the total value of country (i)'s exports of commodity, while $a(X_a^c)$ signifies the total value of the commodity. (a) exports by the 11 industrialized countries. Additionally, X_a^i denotes the total value of country (i)'s exports for 74 items, and X_m^c denotes the total value of the 11 industrialized countries' exports for the same 74 items. This index reveals three scenarios based on its measurement:

1) The presence of apparent comparative advantage for country (i) in the exported commodity a when $RCA_a^i > 1$
2) The absence of apparent comparative advantage for country (i) in the exported commodity a when $RCA_a^i < 1$
3) The absence or presence of any relative superiority for the country (i) in the exported commodity a when $RCA_a^i = 1$

The Balassa Index evaluates the export performance of a specific commodity relative to the total trade. In this regard, it addresses the weaknesses present in the Liesner index. However, it is important to note that both indicators are limited in their coverage of goods and countries, focusing on developed countries and industrial Balassa making them not entirely free from shortcomings.

3.3.Robert Balance Index

In Ballance et al. (1987), Robert H. Ballance, Helmut Forstner, and Tracy Murray introduced another index in which exports and imports related to a specific commodity were collectively considered in the Relative Advantage Index. According to Amir Teimori, Shemshadi, and Khalilian (2011, p.85), This index indicating the net trade ratio to total trade, is formulated as follows:

$$RCA_a^i = \frac{X_a^i - M_a^i}{X_a^i + M_a^i}$$

In the above formula, (RCA_a^i) represents the comparative advantage is the total value of exports of a commodity, (X_a^i) by country i divided by (a) the total value of imports of the same commodity, (M_a^i) by country (i). This index takes values between +1 and

-1, where positive values signify the presence of a revealed comparative advantage, and negative values indicate the absence of an identified comparative advantage. In another study conducted by Laursen (2015), the revealed comparative advantage is explored as an index of international specialization, and the conclusion is drawn that Revealed Comparative Advantage (RCA) is the best indicator for measuring relative advantage.

3.4.Michaely Index (MI)

The Michaely Index, developed by Michaely (1962-1967) is designed for the examination of export specialization. This index reflects the relative exports of a country. According to Amir Teimori, Shemshadi, and Khalilian (2011, p.86), the RCA index is calculated as follows:

$$\boldsymbol{MI_{ij}} = \frac{X_{ij}}{\sum_i X_{ij}} - \frac{M_{ij}}{\sum_i M_{ij}} \quad or \quad MI_a^i = \frac{X_a^i}{X_t^i} - \frac{M_a^i}{M_t^i}$$

The index mentioned above serves as an alternative to the Balassa index and measures the difference between the export share of commodity *i* in the total exports of country *j* and the import share of commodity iii in the total imports of the same country. The value of this index ranges from -1 to +1. A positive value indicates the presence of a relative comparative advantage for the commodity in question, either in global or regional markets, while a negative value suggests the absence of this advantage. Essentially, the index reflects the net relative exports of a particular sector or commodity, providing insight into the direction and volume of trade between similar industries (Amir Teimori et al., 2011).

3.5.Chi-Square Index (χ^2)

Another index commonly used for specialized analysis in exports is the Chi Square Index, introduced by Archibugi and Pianta in 1992. This index essentially reflects the degree of a country's second-tier share (distribution) of exports compared to the world's export share. The magnitude of this index indicates how much a studied country has specialized or gained an advantage in its export pattern compared to the global export pattern. The closer the value of the mentioned index is to zero, the more it suggests that the trade pattern of the country in question is close to the global pattern. In such a case, the country has found specialization and advantage in that product, demonstrating competitiveness. Conversely, a value greater than zero suggests that the country's trade pattern in the studied commodity has deviated from the global trade pattern, indicating a loss of specialization, competitiveness, or relative advantage. This index is measured by the following relationship (Amir Teimori, Shemshadi, & Khalilian, 2011, p. 86). $\boldsymbol{\chi^2} = [(X_{ij}/\sum_i X_{ij}) - (\sum_j X_{ij} / \sum_i \sum_j X_{ij})]^2 / (\sum_j X_{ij} / \sum_i \sum_j X_{ij})$

Where:

$\boldsymbol{X_{ij}}$ = Export value of commodity ***j*** from country ***i***

$\sum \boldsymbol{i}\, \boldsymbol{X_{ij}}$ = Total exports of commodity ***j*** from all countries

$\sum \boldsymbol{j}\, \boldsymbol{X_{ij}}$ = Total exports of country ***i*** across all commodities

$\sum i \sum j\, \boldsymbol{X_{ij}}$ = Total global exports across all countries and commodities

3.6.Contribution to the Trade Balance (*CTB*)

The Contribution of the Trade Balance (CTB) index was introduced by the French Institute of International Economic Research in 1983. This index measures the role or share of a specific commodity in a country's overall all trade balance. The CTB is calculated using the following relationship (Amir Teimori, Shemshadi, & Khalilian, 2011, p. 87).

$$\boldsymbol{CTB} = \frac{X_{ij} - M_{ij}}{(\sum_i X_{ij} + \sum_i M_{ij})/2} * 100 - \frac{\sum_i X_{ij} - \sum_i M_{ij}}{(\sum_i X_{ij} + \sum_i M_{ij})/2} * \frac{X_{ij} + M_{ij}}{(\sum_i X_{ij} + \sum_i M_{ij})} * 100 \; or \; \boldsymbol{CTB} = \frac{X_a^i - M_a^i}{0.5\,(X_t^i + M_t^i)} * 100 - \frac{X_t^i - M_t^i}{0.5\,(X_t^i + M_t^i)} * \frac{X_a^i + M_a^i}{0.5\,(X_t^i + M_t^i)} * 100$$

The above index is introduced as a substitute for the Balassa Index, effectively illustrating the difference between the export share of a commodity from the total exports of the country (i) and the import share of the same commodity from the total imports of that country. The range of variations for this index is between -1 and +1. Positive values of this index signify the presence of a relative advantage for the specific commodity in global or regional markets, while negative values indicate the absence of this advantage. Essentially, this index represents the net relative exports in a sector or even a specific product, revealing the direction and volume of trade between industries (Laursen et al., 1998). Finally, it is important to note that a country's revealed comparative advantage is not permanent or stable. This advantage can shift over time from one region to another, from one country to another, or within a specific sector, transitioning from one product to another. However, such transitions are gradual, and through effective policy implementation, a country can maintain or strengthen its comparative advantage.

Research Method, this research used a qualitative method to investigate the trade and exports of agricultural products. In the theoretical section, a comprehensive examination of production processes and trade in agricultural products is conducted through a review of credible sources, including books, research articles, online platforms, and documents, considering the findings of researchers, regional country experiences, and societal needs. To describe the trends in trade and major agricultural products, a quantitative descriptive research method is utilized, incorporating statistical methods for data analysis. Furthermore, for measuring and determining the relative advantage of agricultural product exports, specific quantitative indicators and methods developed by economists are employed. These indicators include Revealed Comparative Advantage (RCA), Symmetric Revealed Comparative Advantage (RSCA), Balance Index, Mitchell's Index (MI), Chi-Square Index (χ^2), and CTB Index.

3.7.Theoretical Framework

The theoretical framework of this research is grounded in contemporary perspectives on the theories of comparative and competitive advantage. In this contemporary approach, relative advantages are assessed through figures and post-trade information, utilizing foreign trade statistics, and a retrospective analysis is conducted. This research methodology is meticulous and detailed in examining the trade and exports of agricultural products. The chosen approach ensures a thorough investigation into the subject matter, contributing to a nuanced understanding of the complexities involved in agricultural trade and exports.

3.8.Data collection and Methodology

3.8.1. Data collection

The data required for this research is secondary and has been collected by utilizing figures and official statistics published in various sources, including the National Statistical Office, Food Agriculture Organization (FAO), World Trade Organization (WTO), and other relevant trade-related sources, covering the period from 2011 to 2019To ensure the integrity of the research results, data has been exclusively sourced from three primary outlets: the National Statistical Office, FAO, and WTO.

The 2011–2019 period was selected due to data limitations, particularly for Afghanistan, where inconsistent reporting and gaps in key variables hinder longer time series analysis. This timeframe provides the most consistent and complete dataset available, ensuring robust analysis despite data constraints.

3.8.2. Data Analysis Method

The data collected from the sources has undergone analysis using software tools such as Excel and STATA. Although the utilized data in this research is panel-based, for various reasons, panel models were not employed. Instead, specialized methods specific to the subject investigated, as previously explained, have been applied. Methodology for the Selection of Agricultural Products for this Study During the year 2019, Afghanistan exhibited a commendable global presence by exporting more than 190 diverse commodities to over 65 countries, with 111 of them falling under the category of agricultural products. Within the scope of the present research, a strategic subset comprising 34 agricultural products has been meticulously identified for a comprehensive examination. The selection criteria were primarily based on the proportional contribution of each product to the total export volume of Afghanistan. Specifically, the emphasis was placed on the significance of a given agricultural product in the country's overall export composition, leading to the deliberate selection of these 34 items from the larger pool of 111 (refer to Table 1). It is noteworthy that the subsequent comparative analyses are specifically tailored to encompass the top 5 principal trading partners of Afghanistan. These countries, including Iran, Pakistan, Tajikistan, India, and Türkiye, have been prioritized due to their substantial share in Afghanistan's export landscape. Furthermore, it is imperative to highlight that the calculation of indicators and the execution of comparative analyses are contingent upon the availability of numerical data related to 29 distinct types of agricultural products and the 5 key trading partners. This methodological approach ensures a comprehensive and nuanced exploration of Afghanistan's agricultural export dynamics. A comparative analysis of relative advantages has been conducted across various categories for export purposes. For dried fruits, the analysis covers 10 types; for fresh fruits, 5 types; for vegetables, 4 types; and for legumes, 2 types. In the medicinal plants category, the analysis includes burdock root, cumin, and saffron. The oilseeds category features one type of oilseed, and for seed cotton, a detailed relative advantage analysis has been performed for cotton.

Table 1: Agricultural Products Under Study, Categorized by Product Type, Data Availability, and Feasibility of Comparative Analyses

No	Category	Product	Data Availability for the Country	Data Availability for the World and Studied Countries	Capabilities of Comparative Analyses
1	Dried Fruits	Damson plum	Yes	Yes	Yes
2		Dried fig	Yes	Yes	Yes
3		Almond (with shell)	Yes	Yes	Yes
4		Almonds (without shell)	Yes	Yes	Yes
5		Pistachio	Yes	Yes	Yes
6		Walnut (with shell)	Yes	Yes	Yes
7		Walnut (without shell)	Yes	Yes	Yes
8		Peanuts	Yes	Yes	Yes
9		Raisin	Yes	Yes	Yes
10		Oleaster	Yes	No	No
11		Dried apricot	Yes	Yes	Yes
12		Dried berry	Yes	No	No
13		Pinecone	Yes	No	No
14	Fresh Fruits	Pomegranate	Yes	No	No
15		Grape	Yes	Yes	Yes
16		Watermelon	Yes	Yes	Yes
17		Melon	Yes	Yes	Yes
18		Apricot	Yes	Yes	Yes
19		Apple	Yes	Yes	Yes
20	Vegetables	Onion	Yes	Yes	Yes
21		Cucumber	Yes	Yes	Yes
22		Tomato	Yes	Yes	Yes
23		Potato	Yes	Yes	Yes
24	Legumes	Beans	Yes	Yes	Yes
25		Vetch	Yes	No	No
26		Pea	Yes	Yes	Yes
27	Medicinal Plants	Asafetida	Yes	No	No
28		Caraway	Yes	Yes	Yes
29		Saffron	Yes	Yes	Yes
30		Licorice root	Yes	No	No
31	Oilseeds	Linum	Yes	No	No
32		Sesame Seeds	Yes	Yes	Yes
33	others	Plant Seeds	Yes	No	No
34		Cottonseed	Yes	Yes	Yes

Source: FAO and NSIA

3.9.Analysis of Research Data

The agricultural sector, constituting a substantial majority (82.9%) of the country's exports, has secured the second position in the Gross Domestic Product (GDP) composition, with a share of 25.8% after the service sector. The country's export dynamics from 2011 to 2019 witnessed significant fluctuations, primarily attributed to the volatile nature of the agricultural sector. It can be argued that the direct dependency

of agricultural products on climate variations, coupled with political factors and the dual impact of neighboring countries, along with the absence of systematic plans for agricultural product management, played pivotal roles in these fluctuations.

During this period, the country's exports experienced pronounced fluctuations, displaying an upward trend with an average growth of 8.1%. The export trend indicates a reality wherein the country's exports are expected to increase by an average of over 64 million dollars annually.

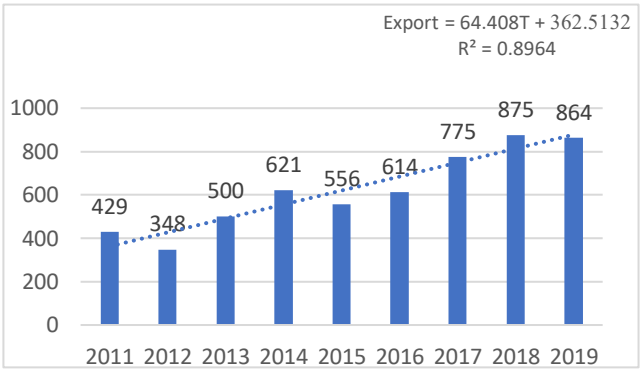

Figure 1: Trend of Country's Exports During the Years2011-2019 (Million Dollars) **Source:** National Statistics and Information Department

The second figure illustrates the trend of the country's foreign trade, showing that during the period from 2011 to 2019, the trends of imports and trade balance have been declining with average fluctuations of 16.2% and 17.8%, respectively. This indicates an increase in domestic production and a move towards self-sufficiency in agricultural products.

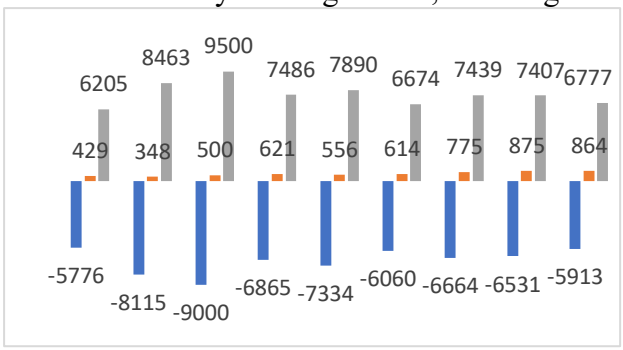

Figure 2: Foreign Trade Trend of the Country During the Years 2011-2019 (Million Dollars).
Source: National Statistical and Information Administration

The third figure indicates that the trend of the trade balance ratio in 2011, compared to 2019, has decreased from 93.1% to 87.3%. The slight decrease in the trade balance ratio over a 9-year period suggests the country's strong dependence on the import of goods such as raw materials, machinery, and the like. This dependence arises for various reasons, indicating that the production and processing of these items have not been feasible within the country.

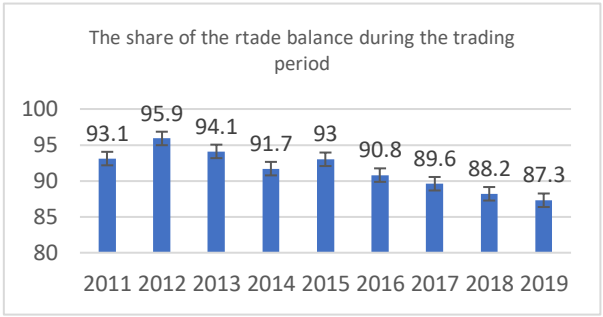

Figure 3: Trade Balance Ratio and the Share of Trade Balance during the Country's Trading Period, During the Years 2011-2019 (Percentage) **Source:** National Statistical and Information Administration

As illustrated in Figure 4, the share of agriculturally studied products in the country's overall exports has demonstrated an upward trajectory, despite fluctuations resulting from climatic variations. Notably, in 2019, this share increased from 56.2% to 80.4% compared to the year 2011.

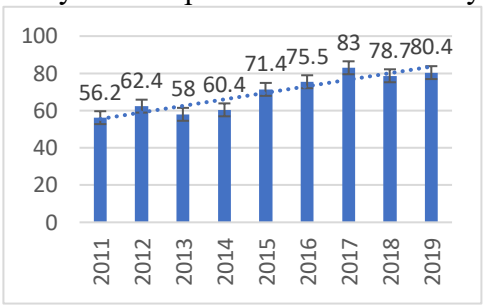

Figure 4: Overall Share of the Agricultural Products under Study in the Country's Exports, During the Years 2011-2019 (Percentage)
Source: National Statistical and Information Administration

In Figure 5, the share of agricultural products under study has been presented, categorized into major groups. The portion observed occupies the first position, indicating dried fruits, followed by medicinal plants and fresh fruits in the second and third positions, respectively.

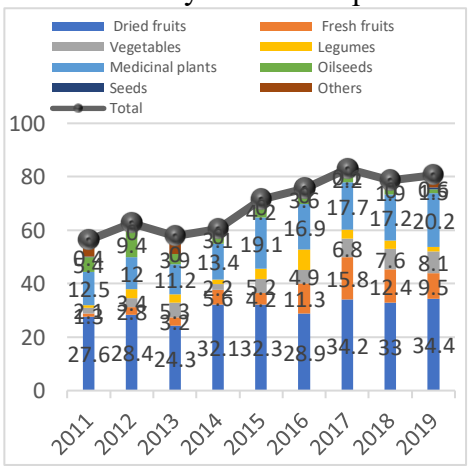

Figure 5: Overall Share of Agricultural Products under Study, Categorized by Type, in Country Exports (Percentage)
Source: National Statistical and Information Administration

Figure 6 depicts an upward trend in the share of the agricultural products studied during the time span from 2011 to 2019. Effective management of these products holds the potential to mitigate the trade balance deficit. Notably, the export share of the examined products witnessed an approximately 12% increase in 2019 compared to 2011, contributing to the reduction of the trade balance deficit. Supporting these products academically can yield multifaceted benefits, including increased income, a diminished trade balance deficit, fostering domestic self-sufficiency, and providing a foundation for import substitution.

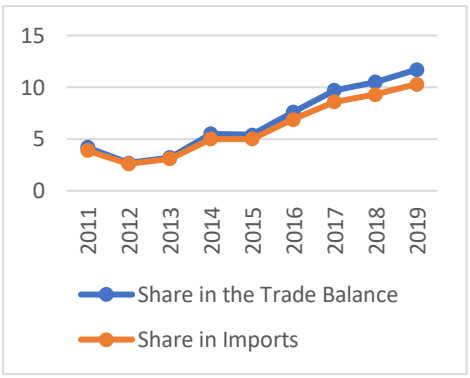

Figure 6: Overall Share of Agricultural Products under Study in Imports and Trade Balance Deficit of the Country (Percentage)
Source: National Statistical and Information Administration

Afghanistan, as previously explained, has exported over 190 types of products to more than 65 countries during the year 2019, with 111 of them being agricultural products. In the current research, 40 of these agricultural products have been selected for study and analysis based on their share in the country's overall exports. The criterion for selection is the higher contribution of a specific agricultural product to the total exports of the country (Table 1). It's important to note that the scale analysis has been conducted only for the 5 major trading partners with which Afghanistan had a higher share of exports.

Table 2: Comparative Advantage (Exports) of Damson (Bukhara) Plum, Breakdown by Studied Countries During the Years 2011 to 2018.

countr	Method	2011	2012	2013	2014	2015	2016	2017	2018
Afghanistan	Balance	1	1	1	1	1	1	1	0.99
	MI	0.0013	0.0009	0.0001	0.0003	0.0038	0.0035	0.0025	0.0065
	CTB	0.0452	0.02	0.0018	0.0127	0.1382	0.1559	0.1249	0.3519
	χ^2	0.06	0.03	0	0	0.37	0.34	0.2	1.5
	HI	783.68	1123.38	15472.32	3260.93	259.79	286.79	394.76	153.24
	RCA	47.79	32.5	2.03	8.88	99	100.45	80.73	233.63
	RSCA	0.96	0.94	0.34	0.8	0.98	0.98	0.98	0.99
Iran	Balance	0.97	0.97	0.92	0.62	-0.63	0.14	0.97	1
	MI	0	0.0001	0.0001	0.0001	-0.0001	0	0.0001	0.0001
	CTB	0.0016	0.0038	0.0022	0.0019	-0.0099	-0.011	0.006	0.0059
	χ^2	0	0	0	0	0	0	0	0
	HI	21151.8	12183.6	17085.5	6724.7	70095.3	7338.2	7770.8	6528.4
	RCA	1.75	2.95	1.83	4.22	0.37	3.87	4.03	5.38
	RSCA	0.27	0.49	0.29	0.62	-0.46	0.59	0.6	0.69
Pakistan	Balance	-0.76	-0.81	-0.91	-	-	-	-	-
	MI	0	0	0	0	0	0	0	0
	CTB	-0.0001	-0.0001	0	0	0	0	0	0
	χ^2	0	0	0	0	0	0	0	0
	HI	2538248.1	1754737.2	12560458.3	-	-	-	-	-
	RCA	0.01	0.02	0	0	0	0	0	0
	RSCA	-0.97	-0.96	-1	-1	-1	-1	-1	-1
Tajikistan	Balance	-	-	-	1	1	1	1	1
	MI	0	0	0	0.0018	0.0014	0.0008	0.0004	0.0002
	CTB	0	0	0	0.148	0.1212	0.0786	0.0445	0.0233
	χ^2	0	0	0	0.09	0.04	0.02	0	0
	HI	-	-	-	564.2	738	1211.6	2427.9	4324.6
	RCA	0	0	0	51.23	34.9	23.84	13.16	8.36
	RSCA	-1	-1	-1	0.96	0.94	0.92	0.86	0.79
India	Balance	0.02	-0.24	0.21	-0.28	-0.97	-1	-0.99	-0.89
	MI	0	0	0	0	0	0	0	0
	CTB	0.0001	0.0001	0.0004	0	-0.0003	-0.0002	-0.0002	-0.0001
	χ^2	0	0	0	0	0	0	0	0
	HI	607623.8	657569.5	214390.9	662124	11164207	264541523	37404585.5	4510202.1
	RCA	0.06	0.06	0.15	0.04	0	0	0	0.01
	RSCA	-0.88	-0.89	-0.74	-0.92	-1	-1	-1	-0.98
Türkiye	Balance	0.99	0.99	0.99	0.99	0.99	0.99	1	1
	MI	0	0	0	0	0	0	0	0
	CTB	0.0001	0.0003	0.0005	0.0012	0.0003	0.0006	0.0008	0.0004
	χ^2	0	0	0	0	0	0	0	0
	HI	179840.4	171778.2	101164.9	66030	83924.1	71622.6	85199.8	100910.2
	RCA	0.21	0.21	0.31	0.44	0.31	0.4	0.37	0.36
	RSCA	-0.66	-0.65	-0.53	-0.39	-0.53	-0.43	-0.46	-0.47

Source: Research Findings

The analysis of the Bukhara Plum export data from the studied countries shows several significant trends, with specific references to the rows and columns of the tables. Afghanistan consistently exhibits a positive trade balance and a robust comparative advantage, evident in high Relative Comparative Advantage (RCA) and Relative Specialization Comparative Advantage (RSCA) values, especially in 2018, where its RCA reached 233.63 and RSCA remained close to 1. This indicates Afghanistan's increasing specialization in Bukhara Plum exports. In contrast, Iran experiences fluctuating trade balances and variable competitiveness, with an RCA that fluctuates between 0.37 and 5.38, demonstrating some advantages but also a lack of consistency. Pakistan faces a persistent trade deficit, and its limited comparative advantage in Bukhara Plum exports is reflected in its negative RSCA values, particularly from 2011 to 2017, where RSCA remained close to -1. Tajikistan, with limited data, shows potential advantages in the latter years, notably in 2014-2018, where the RCA surged to 51.23, indicating an increasing specialization in this commodity. India demonstrates a trade deficit with varying levels of comparative advantage, with an RCA close to zero in most years, suggesting limited export competitiveness in Bukhara Plum. Türkiye shows a comparative advantage in some years, with RCA values fluctuating between 0.21 and 0.44, but its RSCA values remain negative, indicating limited competitiveness in Bukhara Plum exports. Additionally, it is noteworthy that Afghanistan has secured the leading position despite fluctuations in its comparative advantage, particularly in 2018 where its χ^2 value was at a high of 1.5, signaling some deviation from the global trade pattern. This highlights Afghanistan's unique opportunity to capitalize on its comparative advantage in Bukhara Plum exports. With appropriate policies and effective strategy implementation, Afghanistan has the potential to emerge as a major regional and global producer of Bukhara Plum.

Table 3: Comparative Advantage (Exports) of Dried Figs, Breakdown by Studied Countries During the Years 2011 to 2018.

country	Method	2011	2012	2013	2014	2015	2016	2017	2018
Afghanistan	Balance	1	1	1	1	1	1	1	1
	MI	0.0145	0.0294	0.0332	0.0351	0.0387	0.0545	0.1065	0.0774
	CTB	0.5146	0.6596	0.9288	1.4477	1.3959	2.4447	5.2661	4.2146
	χ^2	14.54	51.7	57.31	48.66	62.34	113.11	392.22	232.26
	HI	67.27	32.88	28.78	27.21	24.41	16.9	7.88	11.18
	RCA	1003.82	1760.08	1730.24	1389.03	1610.69	2078.57	3686.23	3003.99
	RSCA	1	1	1	1	1	1	1	1
Iran	Balance	1	0.99	0.99	1	1	1	1	1
	MI	0.0001	0	0	0.0003	0.0001	0.0005	0.0003	0.0003
	CTB	0.0053	0.0021	0.0013	0.0199	0.0049	0.0302	0.0152	0.0127
	χ^2	0	0	0	0	0	0.01	0	0
	HI	6551.4	23299.9	33782.9	2778.1	13747.7	1848.2	3176.1	2870.7
	RCA	9.81	2.53	1.53	13.3	2.99	18.88	10.31	12.62
	RSCA	0.81	0.43	0.21	0.86	0.5	0.9	0.82	0.85
Pakistan	Balance	-	-	-	-	-	-	-	-
	MI	0	0	0	0	0	0	0	0
	CTB	0	0	0	0	0	0	0	0
	χ^2	0	0	0	0	0	0	0	0
	HI	-	-	-	-	-	-	-	-
	RCA	0	0	0	0	0	0	0	0
	RSCA	-1	-1	-1	-1	-1	-1	-1	-1
Tajikistan	Balance	-	-	-	-1	0.6	1	-	-
	MI	0	0	0	0	0	0	0	0
	CTB	0	0	0	0	0.0012	0.0006	0	0
	χ^2	0	0	0	0	0	0	0	0
	HI	-	-	-	-	74247.8	149831.2	-	-
	RCA	0	0	0	0	0.56	0.25	0	0
	RSCA	-1	-1	-1	-1	-0.28	-0.59	-1	-1
India	Balance	-1	-1	-0.99	-1	-1	-1	-0.99	-0.99
	MI	-0.0001	0	-0.0001	-0.0001	-0.0002	-0.0002	-0.0002	-0.0002
	CTB	-0.006	-0.0017	-0.0106	-0.011	-0.0145	-0.0131	-0.016	-0.0105
	χ^2	0	0	0	0	0	0	0	0
	HI	10095691.4	9574137.4	1829645.5	3015159.6	2213798	2448833.8	887371.4	998669.3
	RCA	0.01	0.01	0.03	0.01	0.02	0.02	0.04	0.04
	RSCA	-0.99	-0.99	-0.94	-0.97	-0.96	-0.97	-0.92	-0.93
Türkiye	Balance	0.94	0.95	0.98	0.98	0.97	0.98	0.98	0.97
	MI	0.0011	0.0013	0.0015	0.0017	0.0017	0.0017	0.0018	0.0016
	CTB	0.1251	0.1435	0.1675	0.1879	0.1843	0.1839	0.2015	0.1772
	χ^2	0.09	0.1	0.11	0.11	0.11	0.1	0.11	0.1
	HI	381.6	282.1	224.3	246.7	219.6	243.2	230	259.9
	RCA	77.68	77.24	78.05	66.71	69.43	63.79	62.84	63.32
	RSCA	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97

Source: Research Findings

The analysis of the provided data in Table 3 on the comparative advantage of dried fig exports by countries studied from 2011 to 2018 reveals several key observations. Afghanistan consistently demonstrates a positive balance and a strong comparative advantage, with high Relative Comparative Advantage (RCA) and Relative Specialization Comparative Advantage (RSCA) values. Iran shows stability in balance and competitiveness, although with relatively lower values compared to Afghanistan. Pakistan lacks data, and Tajikistan has exhibited potential advantages in some years. India has a consistently negative balance and varying levels of comparative advantage. Türkiye consistently displays a strong comparative advantage. In summary, Afghanistan, and Türkiye are positioned well in dried fig exports, while other countries exhibit varying degrees of competitiveness and challenges that would require a deeper understanding of contextual factors and methodology for detailed insights.

The analyses conducted in Tables 4 and 9 indicate that the share of almonds in the country's exports is on the rise. Over the examined period, it has increased from 0.67% in 2011 to approximately 1.2% in the year 2019. The statistical information reveals several noteworthy insights. Afghanistan consistently demonstrates a positive balance and a robust comparative advantage, with high Relative Comparative Advantage (RCA) and Relative Specialization Comparative Advantage (RSCA) values. Iran, despite some fluctuations, maintains stability in balance and competitiveness, though with lower values compared to Afghanistan. Pakistan faces challenges with a consistently negative balance and varying levels of comparative advantage. Tajikistan exhibits potential advantages in some years but also faces periods of negative balance. India consistently exhibits a negative balance and varying levels of comparative advantage. Türkiye consistently displays a strong comparative advantage. In summary, Afghanistan and Türkiye show strong positions in almond exports, while other countries exhibit varying degrees of competitiveness and challenges.

Table 4: Comparative Advantage (Exports) of Almonds, Breakdown by Studied Countries During the Years 2011 to 2018.

country	Method	2011	2012	2013	2014	2015	2016	2017	2018
Afghanistan	Balance	1	1	1	1	1	1	1	0.7
	MI	0.0067	0.007	0.0034	0.0122	0.0191	0.0325	0.0158	0.0121
	CTB	0.2364	0.1574	0.0953	0.5022	0.6871	1.4601	0.7803	0.7018
	χ^2	-	-	-	2.23	4.12	11.06	2.84	1.95
	HI	-	-	-	81.67	52.04	30.34	62.89	80.05
	RCA	-	-	-	184.91	218.17	341.94	182.18	159.15
	RSCA	-	-	-	0.99	0.99	0.99	0.99	0.99
Iran	Balance	-	-	-	0.97	-0.65	0.76	1	-0.94
	MI	0	0	0	0	-0.0004	0	0	-0.0004
	CTB	0	0	0	0.0009	-0.0456	0.0001	0.0004	-0.0415
	χ^2	-	-	-	0	0	0	0	0
	HI	-	-	-	61159.5	16549.2	279274.1	135164.1	185608.7
	RCA	-	-	-	0.25	0.69	0.04	0.09	0.07
	RSCA	-	-	-	-0.6	-0.18	-0.93	-0.84	-0.87
Pakistan	Balance	-	-	-	-0.99	-0.99	-0.96	-0.99	-0.97
	MI	0	0	0	-0.0001	-0.0002	-0.0002	-0.0002	-0.0001
	CTB	0	0	0	-0.0052	-0.007	-0.0046	-0.0023	-0.0009
	χ^2	-	-	-	0	0	0	0	0
	HI	-	-	-	1030438.6	613568.1	115099.6	674017.2	371810
	RCA	-	-	-	0.01	0.02	0.09	0.02	0.03
	RSCA	-	-	-	-0.97	-0.96	-0.83	-0.97	-0.93
Tajikistan	Balance	-	-	-	-0.91	-0.88	1	1	-0.3
	MI	0	0	0	-0.0001	-0.0003	0	0	0
	CTB	0	0	0	0.0053	0.0205	0.003	0.0007	0.002
	χ^2	-	-	-	0	0	0	0	0
	HI	-	-	-	54277	9684.2	32106.6	149749.2	48772
	RCA	-	-	-	0.28	1.18	0.33	0.08	0.26
	RSCA	-	-	-	-0.56	0.08	-0.51	-0.86	-0.58
India	Balance	-	-	-	-1	-1	-1	-0.99	-0.99
	MI	0	0	0	-0.0012	-0.0016	-0.0017	-0.0015	-0.0015
	CTB	0	0	0	-0.0927	-0.1215	-0.1356	-0.1107	-0.0994
	χ^2	-	-	-	0	0	0	0	0
	HI	-	-	-	2781586.9	659792.7	240101	116787.6	146478.9
	RCA	-	-	-	0.01	0.02	0.04	0.1	0.09
	RSCA	-	-	-	-0.99	-0.97	-0.92	-0.82	-0.84
Türkiye	Balance	-	-	-	-1	-0.98	-1	-1	-0.99
	MI	0	0	0	-0.0001	-0.0001	-0.0002	-0.0002	-0.0001
	CTB	0	0	0	-0.0092	-0.0065	-0.018	-0.0186	-0.012
	χ^2	-	-	-	0	0	0	0	0
	HI	-	-	-	3329966.9	999776.5	2665027.2	1981760.4	1736834.2
	RCA	-	-	-	0	0.01	0	0.01	0.01
	RSCA	-	-	-	-0.99	-0.98	-0.99	-0.99	-0.99

Source: Research Findings

In Table 5, which outlines the Comparative Advantage (Exports) of Pistachios from 2011 to 2018 across several countries, certain patterns and trends emerge. Afghanistan consistently maintains a positive trade balance, indicating a surplus in pistachio exports. Iran, despite a slight decline in trade balance, sustains a consistently high level of comparative advantage. Conversely, Pakistan struggles with persistent negative balances, signaling a deficit in pistachio trade and a limited comparative advantage. Tajikistan shows fluctuating trade balances, with a notable positive shift in 2018, suggesting a potential emerging advantage in pistachio exports. India consistently reports negative trade balances, minimal comparative advantage, and a lack of specialization in pistachio exports. Türkiye consistently exhibits a positive trade balance, denoting a surplus, and maintains a high comparative advantage. These findings shed light on the nuanced dynamics of pistachio trade, reflecting each country's trade performance and specialization during the specified period, offering valuable insights for further analysis in the context of the paper.

The information presented in Table 6, covering the years 2011 to 2018, offers a comprehensive insight into the export dynamics and comparative advantages of walnuts across the examined nations. Afghanistan consistently maintains a positive trade balance and robust comparative advantage, evidenced by elevated Relative Comparative Advantage (RCA) and Relative Specialization Comparative Advantage (RSCA) values. Iran displays fluctuating yet stable trade balances and competitiveness, whereas Pakistan grapples with persistent negative balances. India faces trade deficits and varying levels of competitiveness. Türkiye consistently demonstrates a strong comparative advantage, while other nations showcase different competitiveness levels and encounter challenges in exporting walnuts. The outcomes suggest that Afghanistan and Türkiye hold prominent positions, with other countries experiencing diverse levels of competitiveness and hurdles in the walnut export market throughout the analyzed period.

The analyses derived from Tables 7 and 9 underscore the dynamic nature of Raisins' contribution to the nation's export landscape, demonstrating a noteworthy oscillation pattern. Over the temporal span from 2011 to 2018, the mean proportion of Raisins in total exports is approximately 11.3%. The outcomes of the relative advantage indices reveal that Afghanistan, Türkiye, Iran, and Tajikistan exhibit a distinctive relative and export-oriented advantage in both the production and exportation of Raisins. Significantly, Afghanistan claims the preeminent position in relative advantage for this commodity, sequentially trailed by Türkiye, Iran, and Tajikistan.

The findings derived from the chi-square ($\chi 2$) index assert that the trade dynamics (export) of Raisins in Türkiye, Iran, and Tajikistan closely adhere to global patterns. This alignment signifies that these nations have honed their specialization, acquired a comparative advantage, and demonstrated competitive prowess in Raisins' production and exportation. Afghanistan, by adeptly instituting judicious policies and efficient management protocols within the realms of processing and marketing, holds the potential to establish a robust foothold both regionally and globally within the Raisins market.

Table 5: Comparative Advantage (Exports) of Pistachios, Breakdown by Studied Countries During the Years 2011 to 2018.

country	Method	2011	2012	2013	2014	2015	2016	2017	2018
Afghanistan	Balance	1	1	1	1	1	1	1	0.98
	MI	0.0369	0.0578	0.0468	0.0624	0.0461	0.0262	0.0372	0.0408
	CTB	1.307	1.2964	1.3101	2.575	1.659	1.174	1.842	2.2287
	χ^2	8.76	22.81	15.63	18.95	12.73	2.83	6.46	9.7
	HI	26.97	17.17	21.19	15.86	21.51	38.07	26.65	24.24
	RCA	239.69	396.67	336.16	305.62	278.39	110.22	175.35	239.78
	RSCA	0.99	0.99	0.99	0.99	0.99	0.98	0.99	0.99
Iran	Balance	1	1	1	1	1	1	1	0.98
	MI	0.0077	0.0054	0.0037	0.0173	0.0119	0.0174	0.0126	0.0031
	CTB	0.2869	0.2704	0.174	1.024	0.814	1.0601	0.6434	0.1188
	χ^2	0.37	0.19	0.09	1.44	0.84	1.25	0.73	0.05
	HI	83.8	145.4	236.4	33.2	57.9	38.1	54.3	286
	RCA	49.78	36.98	26.54	84.88	72.32	73.57	59.65	18.52
	RSCA	0.96	0.95	0.93	0.98	0.97	0.97	0.97	0.9
Pakistan	Balance	-0.98	-0.91	-0.97	-0.94	-0.97	-0.98	-1	-1
	MI	-0.0001	0	0	0	-0.0001	-0.0001	-0.0001	-0.0001
	CTB	-0.0034	-0.0016	-0.0014	-0.0008	-0.0032	-0.003	-0.0012	-0.0013
	χ^2	0	0	0	0	0	0	0	0
	HI	976260.2	341199.2	1256040.5	824360.3	433109.6	463062.8	10784494.3	2129538.4
	RCA	0.01	0.02	0.01	0.01	0.01	0.01	0	0
	RSCA	-0.99	-0.96	-0.99	-0.99	-0.97	-0.98	-1	-0.99
Tajikistan	Balance	-	-	-	-0.96	-1	-0.9	-0.5	0.88
	MI	0	0	0	-0.0017	-0.0001	-0.0005	-0.0001	0.0013
	CTB	0	0	0	0.0896	0.004	0.0163	0.0192	0.1291
	χ^2	0	0	0	0	0	0	0	0.01
	HI	-	-	-	6928.8	-	10453.3	3720.2	780
	RCA	0	0	0	0.71	0	0.4	1.27	7.53
	RSCA	-1	-1	-1	-0.17	-1	-0.43	0.12	0.77
India	Balance	-0.99	-0.98	-1	-0.98	-0.99	-0.99	-1	-0.99
	MI	-0.0001	-0.0001	-0.0002	-0.0002	-0.0003	-0.0003	-0.0003	-0.0003
	CTB	-0.0094	-0.0068	-0.0112	-0.0121	-0.0202	-0.0216	-0.0215	-0.021
	χ^2	0	0	0	0	0	0	0	0
	HI	1506882.7	652259.2	2031158.1	420639.2	326671.7	394180.9	2849834.9	556982.6
	RCA	0	0.01	0	0.01	0.02	0.01	0	0.01
	RSCA	-0.99	-0.98	-0.99	-0.98	-0.96	-0.98	-1	-0.98
Türkiye	Balance	0.98	1	0.91	0.96	0.99	0.99	1	0.96
	MI	0.0002	0.0002	0.0003	0.0001	0.0003	0.0004	0.0003	0.0004
	CTB	0.0194	0.0212	0.0329	0.0133	0.0377	0.0492	0.0308	0.044
	χ^2	0	0	0	0	0	0	0	0
	HI	5731.8	5226.9	3302.4	8313.7	2885.6	2196.5	3577.3	2410.2
	RCA	1.12	1.3	2.14	0.59	2.06	1.88	1.3	2.39
	RSCA	0.06	0.13	0.36	-0.26	0.35	0.31	0.13	0.41

Source: Research Findings

Table 6: Comparative Advantage (Exports) of Walnuts, Breakdown by Studied Countries During the Years 2011 to 2018.

country	Method	2011	2012	2013	2014	2015	2016	2017	2018
Afghanistan	Balance	1	1	1	1	1	1	1	0.5
	MI	0.0006	0.0065	0.0074	0.0055	0.0014	0.0061	0.0007	0.0008
	CTB	0.0211	0.1447	0.2059	0.2264	0.0496	0.2742	0.0325	0.0473
	χ^2	0.01	0.8	0.82	0.47	0.03	0.47	0	0.01
	HI	1678.32	154.58	135.61	181.77	725.68	163.19	1523.72	1238
	RCA	11.56	125.86	114.07	86.82	21.16	78.49	9.22	12.73
	RSCA	0.84	0.98	0.98	0.98	0.91	0.97	0.8	0.85
Iran	Balance	1	1	1	-0.91	-0.88	-1	-0.24	-1
	MI	0	0	0	-0.0007	-0.0005	-0.0006	0	-0.0017
	CTB	0.0001	0.0013	0.0012	-0.0816	-0.0625	-0.0645	-0.0012	-0.1856
	χ^2	0	0	0	0	0	0	0	0
	HI	396256.8	38386.6	40445.8	50216.8	42422.7	3836941.6	244042.3	807900.6
	RCA	0.05	0.51	0.38	0.31	0.36	0	0.06	0.02
	RSCA	-0.91	-0.33	-0.45	-0.52	-0.47	-0.99	-0.89	-0.96
Pakistan	Balance	0.63	0.72	0.74	0.81	-0.06	-0.97	-1	-1
	MI	0	0	0	0	0	0	-0.0001	-0.0002
	CTB	0.0002	0.0007	0.0001	0.0014	0.0003	-0.0006	-0.0009	-0.0028
	χ^2	0	0	0	0	0	0	0	0
	HI	650819.3	164853.3	738832.4	76783.8	250990.9	1273421.2	21568982.9	23424981
	RCA	0.03	0.12	0.02	0.21	0.06	0.01	0	0
	RSCA	-0.94	-0.79	-0.96	-0.66	-0.88	-0.98	-1	-1
Tajikistan	Balance	-	-	-	1	1	-0.46	0.81	0.16
	MI	0	0	0	0.0006	0.0003	0	0.0053	0.0001
	CTB	0	0	0	0.0511	0.0312	0.006	0.5905	0.0117
	χ^2	0	0	0	0	0	0	0.42	0
	HI	-	-	-	1635.7	2873.4	17626.7	180.1	8583.1
	RCA	0	0	0	9.67	5.35	0.73	77.67	1.84
	RSCA	-1	-1	-1	0.81	0.68	-0.16	0.97	0.3
India	Balance	0.39	0.6	0.02	-0.61	-0.97	-0.96	-0.94	-0.99
	MI	0	0	0	0	0	-0.0001	-0.0001	-0.0001
	CTB	0.0002	0.0002	0.0001	-0.0001	-0.0023	-0.0041	-0.0089	-0.0054
	χ^2	0	0	0	0	0	0	0	0
	HI	472230.4	446045.3	694771.1	983554.5	1653770	726551.9	149683.2	1047408
	RCA	0.04	0.04	0.02	0.02	0.01	0.02	0.09	0.02
	RSCA	-0.92	-0.92	-0.96	-0.97	-0.98	-0.97	-0.83	-0.97
Türkiye	Balance	-1	-0.99	-1	-1	-1	-1	-1	-1
	MI	-0.0003	-0.0004	-0.0003	-0.0004	-0.0005	-0.0007	-0.0005	-0.0007
	CTB	-0.0184	-0.0289	-0.0227	-0.0293	-0.0416	-0.0554	-0.0363	-0.0588
	χ^2	0	0	0	0	0	0	0	0
	HI	1006626	444335.1	4249367.9	6937569.7	11613860	4814299.9	1958143.5	5536387.8
	RCA	0.02	0.04	0	0	0	0	0.01	0
	RSCA	-0.96	-0.92	-0.99	-1	-1	-0.99	-0.99	-0.99

Source: Research Findings

Table 7: Relative Comparative Advantage (Export) of Raisins, Differentiated by the Studied Countries, during the Years 2011 to 2018.

country	Method	2011	2012	2013	2014	2015	2016	2017	2018
Afghanistan	Balance	1	1	1	1	1	1	1	1
	MI	0.147	0.1148	0.0745	0.1146	0.1406	0.1132	0.0992	0.1076
	CTB	5.2091	2.575	2.0858	4.7295	5.066	5.08	4.9067	5.86
	χ^2	198.5	129.87	55.69	126.7	200.03	112.04	109.93	132.11
	HI	6.59	8.52	13.16	8.41	6.77	8.5	9.59	8.78
	RCA	1352.8	1133.18	749.83	1107.36	1424.39	991.85	1110.27	1230.13
	RSCA	1	1	1	1	1	1	1	1
Iran	Balance	1	0.99	1	1	0.99	1	1	-1
	MI	0.0021	0.0013	0.0017	0.0027	0.0015	0.0039	0.0016	0
	CTB	0.0773	0.064	0.0822	0.16	0.1006	0.2356	0.0841	-0.005
	χ^2	0.04	0.01	0.03	0.07	0.02	0.12	0.03	0
	HI	418.2	714.5	522.6	321.2	626.1	219.4	548.9	-
	RCA	19	12.78	17.64	26.14	15.14	33.81	18.43	0
	RSCA	0.9	0.85	0.89	0.93	0.88	0.94	0.9	-1
Pakistan	Balance	0.57	-0.2	-0.29	-0.05	-0.95	-0.98	-0.96	-0.98
	MI	0	0	0	0	0	-0.0001	0	0
	CTB	0.0005	0.0003	0.0002	0.0006	-0.0013	-0.0021	-0.0003	-0.0005
	χ^2	0	0	0	0	0	0	0	0
	HI	224615.6	198107.9	228359.4	141307.4	613569.8	636707.6	490190.9	1115462.4
	RCA	0.04	0.05	0.04	0.07	0.02	0.01	0.02	0.01
	RSCA	-0.92	-0.91	-0.92	-0.87	-0.97	-0.97	-0.96	-0.98
Tajikistan	Balance	1	1	1	0.79	1	0.99	1	-0.46
	MI	0.0004	0.0004	0.0003	0.0003	0.0005	0.0004	0.0001	0
	CTB	0.0431	0.0375	0.0303	0.0242	0.0422	0.0366	0.0128	0.0131
	χ^2	0	0	0	0	0	0	0	0
	HI	2449.7	2741.2	3065.3	3501.3	2125.9	2605.3	8435.9	7502.9
	RCA	3.76	3.6	3.28	2.76	4.76	3.36	1.33	1.52
	RSCA	0.58	0.57	0.53	0.47	0.65	0.54	0.14	0.21
India	Balance	0.18	0.59	0.14	-0.31	-0.33	-0.11	-0.39	-0.38
	MI	0	0.0002	0.0001	0	0	0	-0.0001	-0.0001
	CTB	0.0032	0.0184	0.0101	0.0007	0.0011	0.0064	0.0005	0.0025
	χ^2	0	0	0	0	0	0	0	0
	HI	25002	5405.7	7234.4	20139.9	9945.5	5798.3	8662.7	7353
	RCA	0.37	1.77	1.36	0.69	1	1.47	1.26	1.52
	RSCA	-0.46	0.28	0.15	-0.19	0	0.19	0.12	0.21
Türkiye	Balance	0.98	0.98	0.98	0.97	0.96	0.97	0.97	0.99
	MI	0.0037	0.0034	0.003	0.0028	0.0028	0.0028	0.0025	0.0028
	CTB	0.4207	0.382	0.3401	0.3194	0.3133	0.3129	0.2753	0.3026
	χ^2	0.12	0.11	0.09	0.07	0.08	0.07	0.06	0.08
	HI	198.6	211.7	243.6	264.3	259.6	268.9	299.2	257.3
	RCA	34.56	33.69	30.57	27.69	28.78	25.01	27.77	31.65
	RSCA	0.94	0.94	0.94	0.93	0.93	0.92	0.93	0.94

Source: Research Findings

Table 8: Relative Advantage (Exports) of Dried Apricots, Breakdown by Studied Countries During the Years 2011 to 2018.

country	Method	2011	2012	2013	2014	2015	2016	2017	2018
Afghanistan	Balance	1	1	1	1	1	1	1	1
	MI	0.0193	0.0297	0.0322	0.0301	0.0155	0.0176	0.0335	0.0262
	CTB	0.6839	0.6655	0.902	1.2437	0.5577	0.7877	1.6566	1.4258
	χ^2	15.05	42.46	48.38	36.75	9.53	12.87	53.67	35.89
	HI	50.89	32.8	29.82	31.85	63.26	55.38	27.77	35.85
	RCA	782.34	1432.95	1504.36	1221.16	617.41	735.11	1605.01	1373.68
	RSCA	1	1	1	1	1	1	1	1
Iran	Balance	0.64	0.66	0.25	1	0.2	1	1	0.22
	MI	0	0	0	0	0	0	0	0
	CTB	-0.0002	0.0001	-0.0003	0.0012	-0.0003	0.0009	0.0006	-0.0005
	χ^2	0	0	0	0	0	0	0	0
	HI	63537.9	105210.1	251901.4	47116.9	143836.9	68134.9	88945.5	233707.6
	RCA	0.64	0.46	0.19	0.86	0.28	0.61	0.54	0.22
	RSCA	-0.22	-0.37	-0.69	-0.08	-0.57	-0.24	-0.3	-0.63
Pakistan	Balance	0.99	0.83	0.98	-	-	-	-	-
	MI	0	0	0.0001	0	0	0	0	0
	CTB	0.0054	0.0044	0.0073	0	0	0	0	0
	χ^2	0	0	0	0	0	0	0	0
	HI	20800.9	24726	15378.2	-	-	-	-	-
	RCA	1.94	1.95	3.03	0	0	0	0	0
	RSCA	0.32	0.32	0.5	-1	-1	-1	-1	-1
Tajikistan	Balance	-	-	-	1	0.92	1	1	1
	MI	0	0	0	0.0154	0.0079	0.0062	0.0031	0.0026
	CTB	0	0	0	1.2887	0.7169	0.593	0.3362	0.267
	χ^2	0	0	0	9.57	2.52	1.61	0.46	0.36
	HI	-	-	-	62.9	123.3	158.5	318.5	374.7
	RCA	0	0	0	623.82	317.98	260.4	148.97	139.04
	RSCA	-1	-1	-1	1	0.99	0.99	0.99	0.99
India	Balance	-1	-0.99	-0.99	-0.99	-1	-0.99	-0.99	-0.98
	MI	0	0	0	0	0	0	-0.0001	-0.0001
	CTB	-0.0011	-0.0005	-0.0021	-0.0021	-0.0026	-0.0018	-0.0039	-0.0036
	χ^2	0	0	0	0	0	0	0	0
	HI	21635401.7	22832149	4197197.8	7333266.7	12178945	4723273.7	2034844.5	1495797.3
	RCA	0	0	0.01	0.01	0	0.01	0.02	0.04
	RSCA	-1	-1	-0.98	-0.99	-0.99	-0.98	-0.95	-0.93
Türkiye	Balance	0.97	0.98	0.99	0.98	0.97	0.97	0.98	0.97
	MI	0.0027	0.0019	0.0019	0.0021	0.002	0.0019	0.0016	0.0014
	CTB	0.2991	0.2176	0.2183	0.2306	0.2213	0.2119	0.1803	0.1557
	χ^2	0.28	0.18	0.17	0.17	0.16	0.15	0.12	0.1
	HI	75.5	116.4	116.3	128.7	135.1	127.2	171.9	221.7
	RCA	108.49	93.96	90.88	83.78	79.96	81.05	77.77	75.07
	RSCA	0.98	0.98	0.98	0.98	0.98	0.98	0.97	0.97

Source: Research Findings

The analysis of Tables 8 and 9 indicates that the share of dried apricots in Afghanistan's exports has experienced fluctuations, averaging around 2.5%. The results of the (RCA) and (RSCA) indices reveal that Afghanistan, Tajikistan, and Türkiye have a relative and export-oriented advantage in the production and export of dried apricots. It is noteworthy that Afghanistan holds the highest relative advantage for this product, followed by Tajikistan and Türkiye. The Chi-square ($\chi 2$) index demonstrates that the trade pattern of dried apricots in Türkiye, and Tajikistan closely aligns with global patterns, indicating these countries' specialization and competitive strength in the production and export of dried apricots.

We applied the test to 34 products. For some, we present detailed results, while for others, only summaries are provided due to space constraints. The analysis shows several key insights into the export performance and comparative advantages of various agricultural products among the countries studied. For almonds (without shell), Afghanistan and Türkiye have shown increasing export shares, with an average growth rate of 3.2% over the review period. Afghanistan leads in comparative advantage, followed by Türkiye. The Chi-square (χ^2) index shows that Türkiye's trade pattern closely aligns with the global trend, reflecting its strong position in almond production and export.

Fluctuations have been noted in the export shares of peanuts, grapes, watermelons, melons, apricots, apples, cucumbers, tomatoes, onions, potatoes, beans, peas, caraway, sesame, and cotton. Afghanistan, Türkiye, and Iran exhibit varying degrees of comparative and export advantages in these areas, with Afghanistan often leading. The Chi-square (χ^2) index indicates that Türkiye and India's trade patterns are closely aligned with global trends, while Afghanistan's patterns are evolving to match global standards, suggesting potential for improved international competitiveness with effective management and supportive policies.

Table 9: Relative Share of Agricultural Exports in the Total Exports of the Country During the Years 2011 to 2019.

No	Product	Category	2011	2012	2013	2014	2015	2016	2017	2018	2019
1	Damson plum	Dried fruits	0.13	0.09	0.01	0.03	0.38	0.35	0.25	0.65	0.2
2	Dried fig		1.45	2.94	3.32	3.51	3.87	5.45	10.65	7.74	9.91
3	Almonds (with shell)		0.67	0.7	0.34	1.22	1.91	3.25	1.58	1.24	1.11
4	Almonds (without shell)		4.37	2.66	2.6	4.01	3.89	1.87	2.67	2.58	4.08
5	Pistachios		3.69	5.78	4.68	6.24	4.61	2.62	3.72	4.08	3.39
6	Walnut (with shell)		0.06	0.65	0.74	0.55	0.14	0.61	0.07	0.08	0.19
7	Walnut (without shell)		0.25	0.82	1.66	0.39	0.41	0.14	1.11	0.47	0.75
8	Peanuts		0	0.08	0.23	0.41	0.37	0.04	0.41	0.13	0.04
9	Raisin		14.7	11.48	7.45	11.46	14.06	11.32	9.92	10.76	10.18
10	Oleaster		0.12	0	0.01	0.45	0.49	0.84	0.1	0	0.02
11	Dried apricot		1.93	2.97	3.22	3.01	1.55	1.76	3.35	2.62	1.79
12	Dried berry		0.16	0.05	0.02	0.59	0.11	0.31	0.1	1.38	0.68
13	Pinecone		0.1	0.22	0.06	0.23	0.49	0.34	0.26	1.25	2.1
14	Pomegranates	Fresh fruits	0.19	0.44	0.45	1.29	1.01	0.76	1.17	1.8	1.71
15	Grape		0.44	1.18	0.77	1.68	1.15	6.49	11.5	7.28	4.89
16	Watermelon		0	0.03	0.01	0.12	0.11	0.23	0.18	0.03	0.08
17	Melon		0.15	0.06	0.01	0.49	0.82	0.18	0.09	0.16	0.3
18	Apricot		0.32	0.45	0.72	0.91	0.57	0.76	1	1.84	1.33
19	Apple		0.16	0.58	1.25	1.08	0.56	2.84	1.82	1.25	1.18
20	Cucumber	Vegetables	0	0	0	0	0.09	0.13	0.99	1.32	1.19
21	Tomato		0	0.39	0.09	0.25	0.72	3.56	4.24	5.39	2.8
22	Onion		0.22	1.51	1.51	1.08	4.09	1.09	1.43	0.69	4.02
23	Potato		1.88	1.48	3.74	0.85	0.27	0.08	0.15	0.23	0.09
24	Bean	Grain	0.01	0	0.01	0.02	0	5.14	0.3	0.25	0.11
25	Vetch		0.87	3.37	3.32	1.68	3.97	2.52	3	1.33	0.36
26	Pea		0	0	0	0	0	0	0	1.41	0.99
27	Caraway	Medical herbs	0.79	0.9	1.73	1.84	4.14	4.28	3.53	2.47	3.4
28	Asafetida		5.38	6.12	3.85	7.74	8.93	3.39	11.76	11.36	13.21
29	Saffron		0.52	0.51	0.48	0.55	0.49	0.62	0.84	2.43	3.06
30	Licorice root		5.77	4.36	4.98	2.87	5.21	8.49	1.36	0.65	0.09
31	Linum	Oil seeds	0	0	0	0	0	0	0.06	0.02	0.07
32	Sesame seed		5.39	9.39	3.86	3.06	4.25	3.55	2.12	1.9	1.38
33	Plant Seeds	Other	1.17	2.19	1.8	1.19	0.98	1.74	1.29	1.6	1.79
34	Wool and Cotton		4.88	0.91	4.89	1.13	1.39	0.58	1.53	1.92	2.74
Overall Share in the Country's Total Exports			**55.77**	**62.31**	**57.81**	**59.93**	**71.03**	**75.33**	**82.55**	**78.31**	**79.23**

Source: National Statistics and Information Authority

4. Conclusion

This study provides a thorough evaluation of Afghanistan's agricultural export potential between 2011 and 2019, offering insights into the nation's comparative advantages, growth opportunities, and strategies for enhancement. The analysis reveals that Afghanistan holds a significant relative advantage in the export of several agricultural products, including fruits, nuts, and spices, as evidenced by high values in the Revealed Comparative Advantage (RCA) and Revealed Symmetric Comparative Advantage (RSCA) indicators. This advantage is particularly pronounced in commodities such as Bukhara plums, dried figs, almonds, pistachios, and walnuts, where Afghanistan has demonstrated strong competitive positioning in the global market.

Despite these advantages, Afghanistan's agricultural export sector faces several challenges that hinder its market potential. Issues such as non-standard packaging, marketing deficiencies, and infrastructural limitations impact the country's ability to fully capitalize on its comparative advantages. The findings underscore the necessity for strategic interventions to address these obstacles.

To enhance Afghanistan's export performance, the study recommends several key actions. Mechanization and technological improvements are crucial to modernizing agricultural practices and increasing productivity. Strategic investments in quality assurance and compliance with international standards will bolster the competitiveness of Afghan products. Additionally, targeted policy reforms are needed to support the agricultural sector, streamline export processes, and improve market access.

By implementing these recommendations, Afghanistan can strengthen its position in the global agricultural market and leverage its comparative advantages more effectively. This research lays the groundwork for informed policy-making and strategic planning, aiming to elevate Afghanistan's agricultural export sector and foster sustainable economic growth.

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