

**CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE
FACULTY OF ECONOMICS AND MANAGEMENT**



**The Export Potential of Uzbekistan in the International Market of Agricultural and Foodstuff
Products**

PhD dissertation

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Prague 2024

Acknowledgements

I express my heartfelt gratitude to my supervisor doc. Ing. Inna Čábelková, Ph.D., and to my prior supervisor prof. Ing. Luboš Smutka, Ph.D., for constant support throughout my doctoral studies and research activities. Their dedication, support and depth of experience have been critical throughout my research journey and the writing of this dissertation. Their mentorship was invaluable, and I am truly grateful to have been under their guidance during my doctoral career.

In addition, I would like to express my deep gratitude to the members of the Faculty of Economics and Management of the Czech University of Life Sciences for their help and support. Their collective wisdom and support contributed greatly to my academic and personal growth.

I also want to express my deep gratitude to my wife and children, whose love, understanding and patience gave me the strength and peace of mind needed to persevere on this difficult academic path. Their constant support and the sacrifices they made have had an immeasurable impact on my studies.

Abstract

This dissertation presents an investigation of Uzbekistan's international trade in agricultural commodities and food products from these angles: comparative advantages in traded agricultural products, effect of economic performance and transportation, the impacts of institutional regulatory environment including trade barriers. The main goal of the thesis is identification of changes in agricultural trade character (product mapping approach scheme in international trade).

The changes in product structure are indicated and individual changes are explained. The comparative advantages of different groups of countries are analyzed. (CIS countries, European Union, other European countries, developing countries and Asian countries). The competitiveness and commodity structure of territorial and agricultural trade are considered from the point of view of recent years (1995-2019). Agricultural trade goods composition is scrutinized using the established Harmonized System (HS 01 – HS 24). The fundamental data source for the examination is UN COMTRADE. Analyzes are carried out using the following methods: “Product mapping approach”, Revealed Symmetric Comparative Advantage, respectively Lafay Index and also the Trade balance index. In addition to the previously stated techniques, several other statistical attributes are utilized: HHI index, Gravity model, chain index, basic index, import/export coverage ratio, geomean etc.

The findings indicate that Uzbekistan's agricultural product exports are notably competitive, particularly concerning Asian and CIS countries. However, the comparative advantages relative to other regions (notably developing countries, European countries, North and Latin America) are constrained.

On of the largest obstacle to international trade proved to be governmental regulations. Besides the explicate trade barriers such as custom duties, Uzbek firms engaged in international trade disproportionately more suffer from implicit barriers of trade such as various certifications, environmental regulations, health and occupational regulations etc.

The results from econometric gravity model suggests the positive associations between economic performance in terms of GDP of Uzbekistan and international trade (both exports and imports). The significant positive association of geographical distance (between Uzbekistan and the trading country) and export and the lack of this association to import might highlight the disproportionately large reliance of the country on the export to the neighboring countries and significant exclusion from the global trade organizations such as WTO.

Table of Contents

1. Introduction.....	10
2. Objectives.....	12
3. Methodology.....	14
3.1. The methodological approach to analyze the comparative advantages of Uzbek agricultural exports. Product mapping scheme and indices of comparative advantages	15
3.2. The metodological approach to analyse the impacts of geographical distance and economic power of the trading coutries on bilateral international trade flows. The econometric Gravity model.....	19
3.3. The methodological approach to analyze the extent that the state regulatory environment impact international trade flows from the perspective of firm managers and owners. The Ordinal regression analysis..	20
4. Theoretical part.....	22
4.1. Globalization and trade liberalization in agriculture	22
4.2. Determination Influencing international agricultural trade Dynamics.....	27
4.2.1. Elements Influencing Global Agricultural Consumption	29
4.2.2. Factors affecting world agricultural supply	30
4.2.3. Primary Influences on Global Agricultural Market Prices	32
4.2.4. Trade protectionism in agriculture	38
4.2.4.1. Goals and outcomes of agricultural trade barriers.....	39
4.3. Gains of global trade	44
4.3.1. The arguments of absolute and comparative advantages	44
4.3.2. Economies of scale and the case for diversification.....	45
4.4. The impediments to international trade.....	46
4.4.1. Justifications for Trade Restriction	50
4.5. International Organizations and Trade Agreements.....	52
4.5.1. World Trade Organization and General Agreement on Tariffs and Trade.....	54
4.5.2. International trade in agricultural products: theoretical framework and global trends.....	55
4.6. International trade in agricultural products in Uzbekistan	57
4.6.1. Market Overview of the Republic of Uzbekistan.....	59
4.6.2. Key economic indicators of Uzbekistan.....	60
4.6.3. Agricultural sector and food manufacturing of Uzbekistan	62
4.6.4. Market Challenges of Republic of Uzbekistan.....	64
4.6.5. Trade Standards of Republic Uzbekistan	65
4.6.6. Foreign Exchange Controls of Republic of Uzbekistan	66
4.6.7. Import Tariffs and requirements of Uzbekistan	66
4.6.8. Trade Agreements of Uzbekistan	67
4.6.9. Uzbekistan within global organizations and trading blocs	69

5. Empirical part.....	76
5.1. The competitiveness analysis of Uzbek agrarian trade.	76
5.1.1. Changes in the character and competitiveness of Uzbekistan’s agrarian Foreign Trade 2000-2015	77
5.1.2. Comparative advantage: product mapping of Uzbekistan’s agricultural exports 1995-2015	83
5.1.2.1. Distribution of comparative advantages in relation to different groups of countries 1995-2015.....	88
5.1.3. Competitiveness of Uzbek agrarian foreign trade - Different regional trade blocks and the most significant trade partners. 2000-2018.....	92
5.1.3.1. Distribution of comparative advantages in relation to different groups of countries: 2000-2018.....	102
5.1.4. The development of comparative advantages of Uzbek agricultural export between 2010-2019.....	105
5.1.5. Uzbek agrarian exports’ concentration 1995-2018	113
5.2. The impact of state regulations on international trade in Uzbekistan from the perspective of firm owners and managers.....	121
5.2.1. Hypotheses	122
5.2.2. Data and sample	122
5.2.3. Indicators	123
5.2.4. The model.....	140
5.2.5. Results	141
5.2.6. Discussion	150
5.3. The factors affecting international trade flows of Uzbekistan - geographical distance and economic power of trading countries.....	151
5.3.1. Hypotheses	151
5.3.2. The data	152
5.3.3. The Gravity model.....	153
5.3.4. Results	153
6. Summary of findings and discussion.....	157
6.1. Uzbek Agricultural Trade: A 23-Year Analysis.....	157
6.2. Analyzing competitiveness in Uzbek agricultural trade: a global perspective.....	157
6.3. The macroeconomic Dynamics of International Trade in Uzbekistan	159
6.4. The value of this study, policy suggestions.....	160
7. Conclusion.....	162
8. Limitations and suggestions for further research.....	164
9. References.....	166

List of abbreviations

AoA - Agreement on Agriculture

BSECO - The Black Sea Economic Cooperation Organization

CIS - Commonwealth of Independent States

CRB - Commodity Research Bureau

CWE - Carcass-Weight Equivalent

EC - European Commission

EU - European Union

FAO - Food and Agriculture Organization of the United Nations

FAPRI - Food and Agricultural Policy Research Institute

GATT - General Agreement on Tariffs and Trade

GDP - Gross Domestic Product

HA - Hectares

HIIT - Horizontal intra-industry trade

HS - Harmonised System

ICARDA - International Center for Agricultural Research in the Dry Areas

IIT - Intra-industry trade

MT - Metric Tone

MY - Marketing Year (July to June, except for corn which follows an October to September calendar)

NAFTA - North American Free Trade Agreement

OECD - Organization for Economic Cooperation and Development

SCO - Shanghai Cooperation Organization

SCRUS - The State Committee of The Republic of Uzbekistan On Statistics

TRQ - Tariff-rate quota

TY - Trade Year (July to June for wheat and October to September for coarse grains)

UN - United Nations

UNECE - United Nations Economic Commission for Europe

URAA - Uruguay Round Agreement on Agriculture

USA - United States of America

VIIT - vertical intra-industry trade

WTO - World Trade Organization

The list of Figures

- Figure 1. Factors influencing the international trade studied the empirical part of this thesis.
- Figure 2 Factors influencing the international trade studied in this thesis. The methodological approaches used
- Figure 3 Modified product mapping scheme
- Figure 4 Product mapping scheme
- Figure 5 The Growth of World Trade
- Figure 6 World agricultural prices (Food Price Indices)
- Figure 7 Effects of a Tariff
- Figure 8 Effects of an Export Subsidy
- Figure 9 Effects of Quota
- Figure 10 Import value base period quantity - Agricultural Products (Total)
- Figure 11 Export value base quantity – Agricultural Products (Total)
- Figure 12 Exports of Uzbekistan (2021)
- Figure 13 Specialization (export value, 2021)
- Figure 14 Nominal GDP (billion USD)
- Figure 15 Real GDP (US\$): Uzbekistan
- Figure 16 Real GDP Per Capita (US\$): Uzbekistan
- Figure 17 Uzbek agrarian exports' comparative advantages distribution – traditional and modified “Product mapping approach”
- Figure 18 Uzbek agrarian exports' comparative advantages distribution – traditional and modified “Product mapping approach”
- Figure 19 Uzbek agrarian exports' comparative advantages distribution – traditional and modified “Product mapping approach”
- Figure 20 Uzbek agrarian exports' comparative advantages distribution – traditional and modified “Product mapping approach”
- Figure 21 Uzbek agrarian exports' comparative advantages distribution – traditional and modified “Product mapping approach”
- Figure 22 The list of Harmonized commodity aggregations in the analysis (HS)
- Figure 23 Uzbek agrarian exports' comparative advantages distribution – traditional and modified “Product mapping approach”
- Figure 24 Share of firm owned by the same family versus the number of employees
- Figure 25 Share of firm owned by the same family versus total exports
- Figure 26 Share of firm owned by the same family versus % of Material Inputs And Supplies of Foreign origin In Last Fiscal Year
- Figure 27 Share of firm owned by the same family versus the year the firm began operations

The list of Tables

- Table 1 Merchandise imports of Uzbekistan by product group – annual (Million US dollar)
- Table 2 Merchandise exports of Uzbekistan by product group – annual (Million US dollar)
- Table 3 Key economic indicators of Republic of Uzbekistan
- Table 4 Food Manufacturing in Uzbekistan and its total volume in the economy (USD thousand)
- Table 5 Comparative advantage of Uzbek agricultural commodities. Summary.
- Table 6 Uzbek agrarian exports' concentration - by regional groups in 1995 (HHI index)
- Table 7 Uzbek agrarian exports' concentration - by regional groups in 2015 (HHI index)
- Table 8 Uzbek agrarian exports' concentration - by CIS countries in 2000 (HHI index)
- Table 9 Uzbek agrarian exports' concentration - by regional groups in 2015 (HHI index)
- Table 10 Uzbek agricultural export by geographic regions (in USD)
- Table 11 Territorial structure of the Uzbek agricultural export (%)
- Table 12 Uzbek agricultural imports by geographic regions (in USD)
- Table 13 Territorial structure of the Uzbek agricultural import (%)
- Table 14 Uzbek agrarian foreign trade value development between 1995 and 2015 (in USD)
- Table 15 Uzbek agrarian foreign trade value development by CIS countries between 2000 and 2015 in USD
- Table 16 The list of Harmonized commodity aggregations in the analysis (HS)
- Table 17 Uzbek agrarian trade commodity structure in 1995 in USD
- Table 18 Uzbek agrarian trade commodity structure in 2015 in USD
- Table 19 Uzbek agrarian trade value commodity structure - modified product mapping approach (1995)
- Table 20 Table 10.1.2.1.-2 Uzbek agrarian trade commodity structure (the share of individual export and import items in individual analysed groups) – modified product mapping approach (1995)
- Table 21 Uzbek agrarian trade value commodity structure - modified product mapping approach (2015)
- Table 22 Uzbek agrarian trade commodity structure (the share of individual export and import items in individual analysed groups) – modified product mapping approach (2015)
- Table 23 Uzbek agrarian trade value commodity structure - modified product mapping approach by CIS countries (2015)
- Table 24 Uzbek agrarian trade value commodity structure - modified product mapping approach by CIS countries (2000)
- Table 25 Uzbek agrarian exports' concentration - by regional groups (HHI index)
- Table 26 Uzbek agrarian exports' concentration - by CIS countries (HHI index)
- Table 27 Uzbek agrarian foreign trade value development between 2000 and 2018 in USD
- Table 28 Uzbek agrarian foreign trade value development by CIS countries between 2000 and 2018 in USD
- Table 29 The list of Harmonized commodity aggregations in the analysis (HS)
- Table 30 Uzbek agrarian trade commodity structure in 2000 (traditional product mapping) in USD
- Table 31 Uzbek agrarian trade commodity structure by CIS countries in 2000 (traditional product mapping approach) in USD
- Table 32 Uzbek agrarian trade commodity structure in 2018 (traditional product mapping approach) in USD
- Table 33 Uzbek agrarian trade commodity structure by CIS countries in 2018 (traditional product mapping approach) in USD
- Table 34 Uzbek agrarian trade value commodity structure - modified product mapping approach (2000)
- Table 35 Uzbek agrarian trade value commodity structure - modified product mapping approach by CIS countries (2000)
- Table 36 Uzbek agrarian trade value commodity structure - modified product mapping approach (2018)
- Table 37 Uzbek agrarian trade value commodity structure - modified product mapping approach by CIS countries (2018)
- Table 38 Uzbek agrarian exports' concentration - by regional groups (HHI index)

Table 39 Uzbek agrarian foreign trade value development between 2010 and 2019 in USD

Table 40 Uzbek agrarian trade commodity structure in 2010 (traditional product mapping approach) in USD

Table 41 Uzbek agrarian trade commodity structure by CIS countries in 2010 (traditional product mapping approach) in USD

Table 42 Uzbek agrarian trade commodity structure in 2019 (traditional product mapping approach) in USD

Table 43 Uzbek agrarian trade commodity structure by CIS countries in 2019

Table 44 Uzbek agrarian trade value commodity structure – modified product mapping approach (2019)

Table 45 Uzbek agrarian trade value commodity structure – modified product mapping approach (2010)

Table 46 Uzbek agrarian exports' concentration - by regional groups (HHI index)

Table 47 Uzbek agrarian foreign trade value development between 1995 and 2018 in USD

Table 48 The list of Harmonized commodity aggregations in the analysis (HS)

Table 49 Uzbek agrarian trade commodity structure in 1995 (traditional product mapping approach) in USD

Table 50 Uzbek agrarian trade commodity structure by CIS countries in 1995 (traditional product mapping approach) in USD

Table 51 Uzbek agrarian trade commodity structure in 2018 (traditional product mapping approach) in USD

Table 52 Uzbek agrarian trade commodity structure by CIS countries in 2018

Table 53 Uzbek agrarian trade value commodity structure – modified product mapping approach (2018)

Table 54 Uzbek agrarian trade value commodity structure – modified product mapping approach (1995)

Table 55 How much of An obstacle: Transport?

Table 56 How much of An obstacle: Customs and Trade Regulations?

Table 57 How much of an obstacle: Tax rates

Table 58 How much of an obstacle: Tax administrations

Table 59 How much of an obstacle: Business licensing and permits

Table 60 How much of an obstacle: Political instability

Table 61 How much of an obstacle: Corruption

Table 62 How much of an obstacle: Occupational safety regulations

Table 63 How much of an obstacle: Health and hygiene regulations

Table 64 How much of an obstacle: Environmental regulations

Table 65 How much of an obstacle: Courts

Table 66 Indicators of international trade. Descriptive statistics

Table 67 % share of the firm owned by the same family. Descriptive statistics

Table 68 Share of firms owned by foreign individuals or organisations and owned by the local government. The descriptive statistics

Table 69 Females in the ownership structure

Table 70 Females as top managers

Table 71 The firm size and age. Descriptive statistics

Table 72 The existence of the web page of the establishment. The distribution of the respondents

Table 73 The regions the establishments are located in. The distribution of the respondents

Table 74 Industry sector of the establishment

Table 75 Correlations between all the ordinal and continuous indicators included in ordinal regression (formula 2)

Table 76 How Much of An Obstacle: Trade Barriers. The results of ordinal regression analysis (0 – no obstacle, 4 – very severe obstacle)

Table 77 How Much of An Obstacle: Taxation and Licensing (0 – no obstacle, 4 – very severe obstacle). The results of ordinal regression analysis

Table 78 How Much of An Obstacle: Political Environment (0 – no obstacle, 4 – very severe obstacle). The results of ordinal regression analysis

Table 79 How Much of An Obstacle: Health, safety and environmental regulations (0 – no obstacle, 4 – very severe obstacle). The results of ordinal regression analysis

Table 80 The summary of the results for the association between the engagement in international trade and government regulations as obstacles for business operations (ordinal regression model, formula 8).

Table 81 Data descriptive statistics

Table 82 Results of GLS random effect estimation of the gravity model for export from Uzbekistan to 22 countries (formula 8)

Table 83 Results of GLS random effect estimation of the gravity model for import of Uzbekistan (formula 8)

Table 84 Results of GLS random effect estimation of the gravity model for international trade of Uzbekistan (formula 8). Summary. The β coefficients and standard errors.

1. Introduction

Agriculture stands as a predominant and extensive economic sector within the nation of Uzbekistan. The proportion of the workforce in the agricultural sector constitutes 33% of the populace. The yearly expansion rate of the agricultural sector is 1.7%, and it represents 18% of the GDP. (World Bank, 2022). Agriculture furnishes jobs for roughly 15 million individuals, a sizable number of whom are employed on a part-time basis. (World Bank, 2022). Between the years 2000 – 2018, the valuation of agricultural trade turnover escalated from approximately 520 million USD to 2.8 billion USD. (Ortikov, et. al., 2018, 2019; Ortikov and Smutka, 2021). This dissertation scrutinizes Uzbek international trade in agricultural commodities from the subsequent viewpoints: effect of economic performance and transportation, international competitiveness and the trade balance of the country, comparative advantages in traded agricultural products, the impacts of institutional regulatory environment including trade barrier. The primary objective of the thesis is identification of changes in agricultural trade character (product mapping approach scheme in international trade). The intention of the thesis is to determine changes in the character of agricultural trade (product mapping approach scheme in international trade). Changes in the product structure are pinpointed, and specific changes are elucidated. The comparative advantages are examined based to different groups of countries (CIS countries without Asian countries, EU28 without other European countries, Asian countries without CIS countries, other European countries without EU and CIS countries, and developing countries). Agricultural trade competitiveness and shifts in regional and goods structure have been assessed over the past 19 years (2000–2018). Uzbek agricultural exports display competitiveness in relation to Asian and CIS countries, and are restricted in comparison to other regions.

Uzbekistan ranks as a principal cultivator of fruits and vegetables among the CIS member states. Following the signing of a protocol instituting a free trade area between the Republic of Uzbekistan and the CIS in 2013, the trade turnover of Uzbekistan's agricultural goods saw a notable surge. The primary aim of the Protocol is Uzbekistan's endeavor to standardize trade regimes concerning the CIS and to enhance ongoing collaboration within the customs union of the erstwhile Soviet nations. (Smutka et al., 2015a) The regional composition of Uzbek agricultural and foodstuff exports during the span from 2000 to 2018 predominantly targeted Asian and CIS countries. In the year 2000 alone, the portion of agricultural exports and imports to CIS member states attained 83.3% and 33.6%, respectively. During the same period, the proportion of other Asian nations in agricultural food

exports and imports amounted to approximately 7.4% and 13% respectively. Subsequently (in 2018), the share of CIS countries declined in preference to other Asian countries. As the CIS countries contribution to exports and imports decreased to 66% and 69% respectively, the portion attributed to other Asian countries rose to 32% and 14% respectively. Russia, Kazakhstan, and Belarus maintain their leading positions. Conversely, the proportion of exports to Russia is on the decline, while Kazakhstan has emerged as an exceptionally significant trading ally for Uzbek agricultural exports in recent years (Ilyina, 2016). The share of the Russian Federation in Uzbek agricultural exports amounted to roughly 87.3% in 2000 and decreased to 25.4% by 2018. The proportion of Kazakhstan in Uzbek agricultural exports escalated from approximately 1.06% in 2000 to 55.8% in 2018.

The thesis is structured as follows. After the introductory parts that deal with Objectives and Methodology the thesis is divided to theoretical and empirical parts. The theoretical part discusses the role of international trade in globalization processes, factors affecting the international trade, gains from international trade, restrictions for international trade, trade agreements and international trade in agricultural and foodstuff products in Uzbekistan. The empirical part of the thesis provides the competitiveness analysis of agrarian international trade in Uzbekistan, the impact of state regulations on international trade in Uzbekistan from the perspective of firm owners and managers, the factors affecting international trade of Uzbekistan from the macroeconomic perspective with the use of gravity model.

2. Objectives

The thesis is focused on identification of the most important external and internal variables/agents affecting Uzbek agriculture and agrarian trade performance. One of the main objectives of this thesis is to identify the potential of export agricultural and foodstuff products in international trade and determining the export competitiveness of agricultural and foodstuff products. The special attention in this case is devoted to horticultural products - the keystones of Uzbek agriculture. An additional vital component of this dissertation is to pinpoint Uzbekistan's standing in the worldwide agricultural and food product marketplace, with a focus on particular regions and nations.

The primary goals of this study are outlined below:

- To examine the significance of agriculture, particularly the trade of agricultural goods (including both exports and imports), in economic progress and its importance for Uzbekistan;
- To ascertain the perspectives of the typical agricultural exporter regarding obstacles to the growth of agricultural exports in Uzbekistan, and to determine potential solutions to these challenges;
- To pinpoint the elements influencing the nation's agricultural commerce;
- To determine the key nations (trade allies) that are fundamental to Uzbekistan's agrarian export operations. The goal is to delineate the primary elements that impact the country's trade competitiveness.

The thesis is divided to theoretical and empirical parts. The aim of theoretical part is to lay a theoretical foundation in

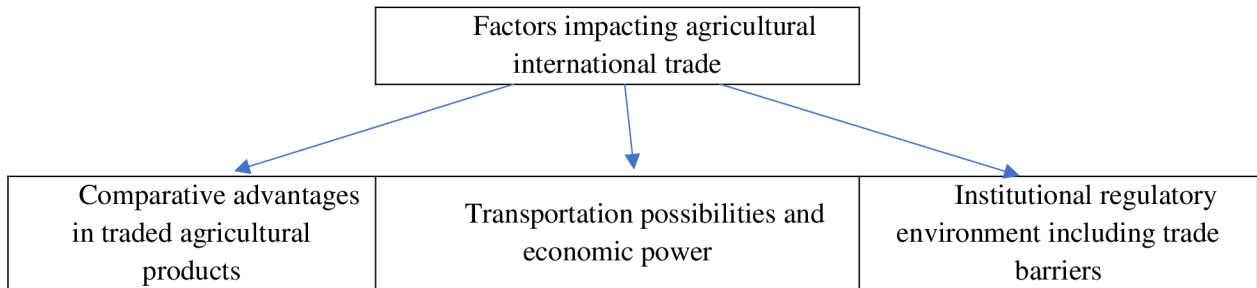
1. The role of international trade in globalization processes,
2. Factors affecting the international trade,
3. Gains from international trade,
4. Restrictions for international trade,
5. The role of trade agreements
6. The specifics of international trade in agricultural and foodstuff products in Uzbekistan.

The empirical part analyses

1. The comparative advantages of agrarian international trade in Uzbekistan,
2. The impact of state regulations on international trade in Uzbekistan from the perspective of firm owners and managers,

3. The factors affecting international trade of Uzbekistan from the macroeconomic perspective such as geographical distance and GDPs of the trading countries (see Figure 1).

Figure 1. Factors influencing the international trade studied the empirical part of this thesis.



3. Methodology

The theoretical part of the thesis highlights four main factors affecting bilateral international trade flows: comparative advantages in agrarian production (supply side), the purchasing power of consumers (demand side), transportation possibilities, and regulatory environment including trade barriers. The empirical part of the theses studies these four factors in three methodologically distinct frameworks (see Figure 2).

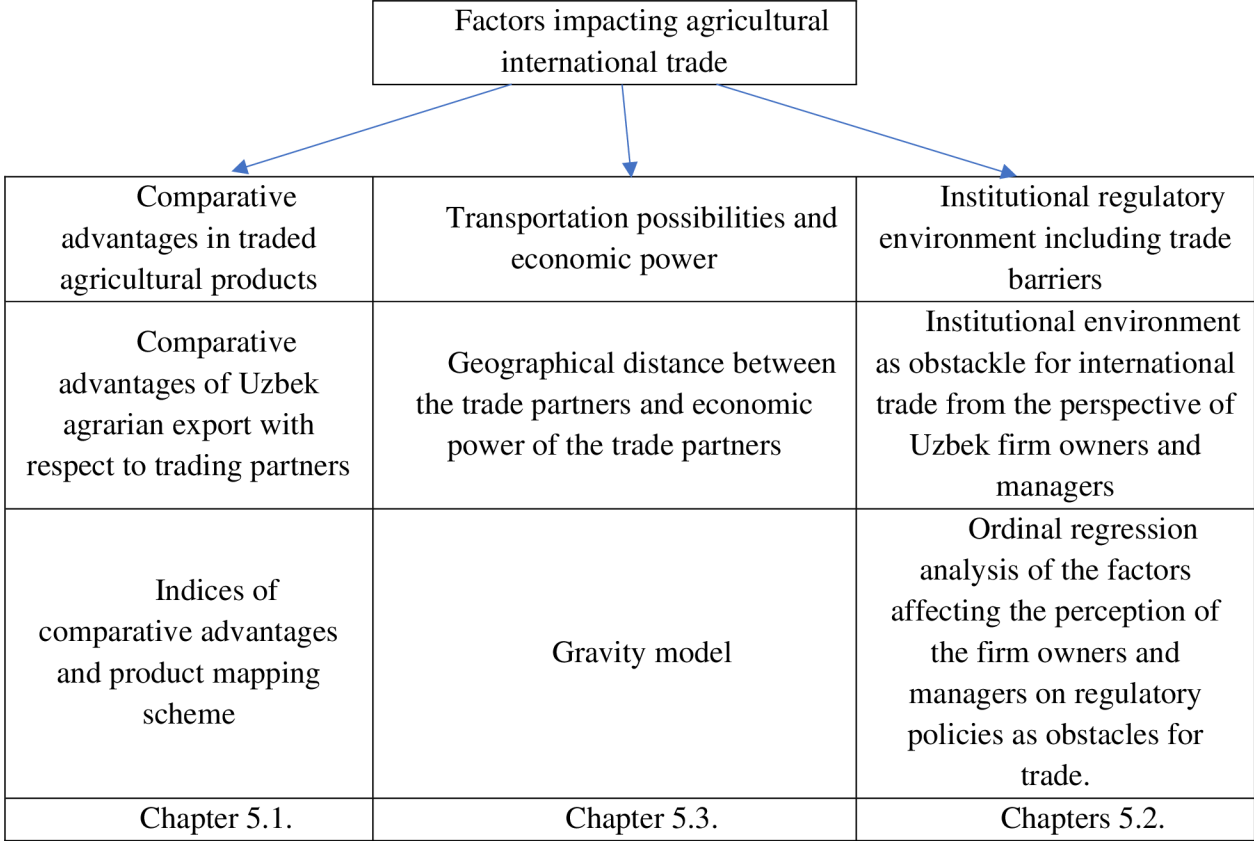
The first maps the comparative advantage of the agricultural trade in Uzbekistan. The methodology used in this part of the thesis works with the product mapping schemes and calculates the comparative advantages vial Laffay index and Trade balance index (TBI), The Index of Revealed Symmetric Comparative Advantage (RSCA) by Dalum et al. (1998) and Laursen (1998) and Using the Herfindahl-Hirschman index is a common indicator of market concentration and is used to determine market competitiveness. The HHI is calculated by squaring the market share of each country competing in the market and then adding the results. It can range from zero to 10,000. A market with an HHI of less than 1,500 is considered a competitive market, an HHI of 1,500 to 2,500 is a moderately concentrated market, and an HHI of 2,500 or more is a highly concentrated market (HHI index), (Ortikov, et al., 2019; Ortikov and Smutka, 2021; Ortikov, A., Smutka, L. and Kontsevaya S. 2022).

The second part deals with macroeconomic determinants of international trade, namely the factors associated with ability to produce and purchase the products measured by the GDP, the possibility to transport the product measured by the geographical distance between trade partners, and the monetary component of the transaction measured by inflation. Here the thesis employs gravity model approach, where I estimate gravity model for the international trade data.

The third methodological part of the thesis deals with the barriers for trade incorporated by the state. This part studies the opinions of the owners and managers of the firms in Uzbekistan about the government regulations of Business environment in general and international trade in particular. Here the thesis employs the ordinal regression on the data of the perceptions for the barriers from the firm owners and managers.

The methodologies of the three empirical parts and the chapters of this thesis corresponding to these parts are presented in Figure 2.

Figure 2 Factors influencing the international trade studied in this thesis. The methodological approaches used



3.1. The methodological approach to analyze the comparative advantages of Uzbek agricultural exports. Product mapping scheme and indices of comparative advantages

This part of the methodology follows: Ortikov, A. (2017), : Ortikov, A., and Vacek, T. (2018), Ortikov, A., and Vacek, T. (2018), Ortikov, A., Smutka, L., and Benešová, I. (2019), Ortikov, A. and Smutka, L. (2021).

The "product mapping" permits the appraisal of leading exported commodities from two unique angles, that is, global competitiveness and national trade equilibrium (Widodo, 2008, 2009).

This method combines the above indicators and is based on a similar approach previously investigated by Maitah et al. (2016), Bielik et al. (2013), Řežbová et al. (2014), Svatoš et al. (2010), Borak et al. (2018), Braha et al. (2019), Ferto (2017, 2018), Jambor et al. (2017), Wajda-Lichy & Kawa (2018), Bilan et al. (2018) and Kozlovskiy et al. (2018). Lafay index analysis (Lafay, 1992) is used to provide insight into bilateral trade relations between countries and regions.

Agricultural commodities are classified in this chapter according to the Harmonized System, which organizes agricultural trade into 24 aggregations. For detailed information, see resources such as the UN Comtrade methodology. All values are in USD and reflect current prices. The two basic variables for comparative advantage analysis are the domestic trade balance and international competitiveness, as Widodo (2009) points out. Figure 1 depicts the matrix developed by Ishchuk and Smutka (2013, 2014) and Svatos et al. (2010), categorizing the entire set of exported products into four groups based on two key indicators: Revealed Symmetric Comparative Advantage (RSCA) and Trade Balance Index (TBI), as discussed by Smutka et al. (2015a, 2015b).

Figure 3 Modified product mapping scheme

Lafay index	Group B: Comparative Advantage Net-importer (LFI > 0 and TBI < 0)	Group A: Comparative Advantage Net-exporter (LFI > 0 and TBI > 0)
	Group D: Comparative disadvantage Net-importer (LFI < 0 and TBI < 0)	Group C: Comparative disadvantage Net-exporter (LFI < 0 and TBI > 0)
Uzbek Agrarian Foreign Trade Commodity Structure	Trade Balance Index	

Source: own modification and processing (2018)

Trade Balance Index (TBI) by Lafay (1992) is the indicator of export-import activities. The RSCA index is a simple decreasing monotonic transformation of Revealed Comparative Advantage (RCA) or Balassa index (Balassa, 1991). In practice, Balassa index is a commonly accepted method for analyzing trade data (Bielik et al., 2013; Dalum et al., 1998; Maitah et al., 2016; Rezbova et al., 2014; Cieřlik et al., 2018). This index tries to identify whether a country has a “revealed” comparative advantage rather than to determine the underlying sources of comparative advantage.

$$RCA = (X_{ij}/X_{it})/(X_{nj}/X_{nt}) = (X_{ij}/X_{nj})/(X_{it}/X_{nt}) \quad (1)$$

where x represents exports, i is a country, j is a commodity and n are a set of countries, t is a set of commodities.

Figure 4 Product mapping scheme

RSCA>0	<p>Group B: Comparative Advantage Net-importer (RSCA > 0 and TBI <0)</p>	<p>Group A: Comparative Advantage Net-exporter (RSCA > 0 and TBI >0)</p>
RSCA<0	<p>Group D: Comparative disadvantage Net-importer (RSCA < 0 and TBI <0)</p>	<p>Group C: Comparative disadvantage Net-exporter (RSCA < 0 and TBI >0)</p>
	TBI <0	TBI >0
	Trade Balance Index (TBI)	

Source: Widodo T. (2009)

The figure 2 represents a matrix for the distribution of the entire set of exported products into 4 groups according to the two selected indicators.

The Revealed Symmetric Comparative Advantage (RSCA) by Dalum et al. (1998) and Laursen (1998) is the indicator of comparative advantage and Trade Balance Index (TBI) by Lafay (1992) is the indicator of export-import activities.

The RSCA index is a simple decreasing monotonic transformation of Revealed Comparative Advantage (RCA) or Balassa index. RSCA index is formulated as follows:

$$RSCA = (RCA_{it-1}) / (RCA_{ij+1}) \quad (2)$$

The values of RSCA_{ij} index can vary from minus one to one. RSCA_{i j} greater than zero implies that country i has comparative advantage in group of products j. In contrast, RSCA_{ij} less than zero implies that country i has comparative disadvantage in group of products j. (Svatos and Smutka, 2012). Trade Balance Index (TBI) is employed to analyze whether a country has specialization in export (as net-exporter) or in import (as net-importer) for a specific group of products. TBI is simply formulated as follows:

$$TBI_{ij} = (x_{ij} - m_{ij}) / (x_{ij} + m_{ij}) \quad (3)$$

where TBI_{ij} denotes trade balance index of country i for product j; x_{ij} and m_{ij} represent exports and imports of group of products j by country i, respectively. (Lafay, 1992). Values of the index range from -1 to +1. Extremely, the TBI equals -1 if a country only imports, in contrast, the TBI equals +1 if a country only exports. Indeed, the index is not defined when a country neither exports nor imports.

A country is referred to as “net-importer” in a specific group of products if the value of TBI is negative, and as “net-exporter” if the value of TBI is positive. (Widodo, 2009; Zaghini, 2003).

The next index used in this thesis is the Lafay index (Lafay, 1992). Using this index, we consider the difference between each item’s normalized trade balance and the overall normalized trade balance. Unlike the above indexes, the Lafay index does not take into account world variables. Using the LFI index we can focus on the bilateral trade relations between the countries and regions. Moreover, this index is a more reliable comparison of sectors within a country over time. The Lafay index helps us to understand how the comparative advantages over time and to compare strength of comparative advantage of individual products and product groups, for individual regions and countries.

For a given country, i , and for any given product j , the Lafay index is defined as:

$$LFI_j^i = 100 \left(\frac{x_j^i - m_j^i}{x_j^i + m_j^i} - \frac{\sum_{j=1}^N (x_j^i - m_j^i)}{\sum_{j=1}^N (x_j^i + m_j^i)} \right) \frac{x_j^i + m_j^i}{\sum_{l=1}^N (x_l^i + m_l^i)} \quad (4)$$

Where x_{ij} and m_{ij} are exports and imports of product j of country i , towards and from the region or the rest of the world, respectively, and N is the number of items.

Positive values of the Lafay index indicate the existence of comparative advantages in a given item, the larger the value the higher the degree of specialization. (Zaghini, 2003)

HHI index is formulated as follow:

$$HHI = S_1^2 + S_2^2 + S_3^2 + \dots + S_n^2 \quad (5)$$

Where: S_n is the market share percentage of firm (or country) n expressed as a whole number, not a decimal.

3.2. The metodological approach to analyse the impacts of geographical distance and economic power of the trading countries on bilateral international trade flows. The econometric Gravity model

The econometric Gravity model was used to clarify an intuitive framework to understand the determinants of flows between Uzbekistan and trade partner countries, in particular: the volume of agrarian international trade (exports and imports), GDP of Uzbekistan and trading countries, and geographical distance between Uzbekistan and the trading countries. Namely the chapter aims to test the hypothesis on the association between GDPs of trading partners (H1) and the geographical distance (H2) on the one hand and the volume of the bilateral international agrarian trade flows between the countries on the other hand.

The Gravity model was estimated on panel dataset of exports and imports (two separate regressions) of Uzbekistan over the period 2016-2021. The dataset included 22 trading countries, representing 90% of the agrarian international trade of Uzbekistan. The total number of observations was 104. The following panel regression equation was estimated:

$$\widetilde{Ln Y}_{ct} = \beta_0 + \beta_1 Ln GDP_{UZ}_t + \beta_2 Ln GDP_{partner}_{ct} + \beta_3 Ln dist_c + \varepsilon \quad (6)$$

where

\widetilde{Y}_{ct} - export (import) from country c to Uzbekistan and back at time t , real bill. USD;

c - trading partner country;

$dist_c$ - distance between capitals of country c and Uzbekistan in km;

GDP_{UZ}_t - Uzbekistan real GDP in real bill. USD;

$\beta_2 GDP_{partner}_{ct}$ – GDP of trading partner in constant bill. UDS;

β_i - regression coefficients;

ε - error term.

Given the panel nature of the data, the regression (6) was estimated via Generalize list square random effects model.

3.3. The methodological approach to analyze the extent that the state regulatory environment impact international trade flows from the perspective of firm managers and owners. The Ordinal regression analysis

This part of the thesis relied on survey data, collected jointly by The World Bank (WB), the European Bank for Reconstruction and Development (EBRD), and the European Investment Bank (EIB), in the study titled Enterprise Survey (ES 2019). In this survey the managers/owners/directors' of 1239 establishments answered the questionnaire. The establishment referred to a physical location where business activities and industrial operations occur, or services were provided. In order to be included in this survey, an establishment must have its own management ensuring the autonomy to make independent financial decisions, be able to maintain separate financial statements and have control over its payroll (Enterprise survey 2019). Besides other, the questionnaire studied the opinions on regulatory environment of firm owners and managers operating in Uzbekistan. Though the firm owners and managers represent distinct groups in form operation and there are potential conflicts between them, this section does not differentiate the opinion of firm owner and firm manager as the data did not allow to do so.

The ordinal regression analysis was employed to test the association between the extent of firm engagement in the international trade and the opinions of the firm management and owners on regulatory environment in the country. Namely, the chapter aims to test the hypotheses: the more the firm engages in international trade, the more of an obstacle it perceives in trade barriers (H1.1), taxation and licensing (H1.2), political environment (H1.3), health safety and environmental regulations (H1.4).

The ordinal regression analysis controls for firm characteristics, such as annual sales, the number of full-time employees, the year the firm began operation, the percentage of the firm owned by the same family, by government or by foreigners, the participation of women in management, the existence of the website, region, and industry.

The ordinal regression is computed according to the following formula:

$$\begin{aligned} \text{Regulations} = \text{logit} (a_0 + a_{1-2} \text{trade} + a_{3-4} \text{women} + a_{5-11} \text{firm characteristics} + a_{12-19} \text{region} + \\ + a_{20-27} \text{industry} + e) \end{aligned} \quad (7)$$

Where

Regulations – indicators of state regulations and obstacles for business from the point of view of business owners and managers. Namely, How Much of An Obstacle:

- Health and hygiene regulations;
- Occupational safety regulations;
- Environmental regulations;
- Political Instability;
- Corruption;
- Courts;
- Tax Rates;
- Tax Administrations;
- Business Licensing And Permits;
- Transport;
- Customs And Trade Regulations?

trade – exports as % of sales, % of inputs of foreign origin

women – presence of women in (1) ownership structure, (2) top management

firm characteristics - sales (annual, last fiscal year), employees (full time, number end of the last fiscal year), year the establishment began operation, % of establishment Owned By The Same Family, % Owned By Government, % Owned By Foreigners, the existence of establishment website

region – 8 regional dummies (Andijan Region, Fergana Region, Qashqadaryo Region, Samarqand Region, Tashkent Region, Tashkent, Karakalpakstan, Navoiy and Jizzakh Region)

industry – 7 dummies for industries (Food, Textiles, Garments, Rubber and Plastics Products, Non-Metallic Mineral Products, Other Manufacturing, Retail)

e – error term. The equation (7) was estimated as ordinal regression model (link function logit).

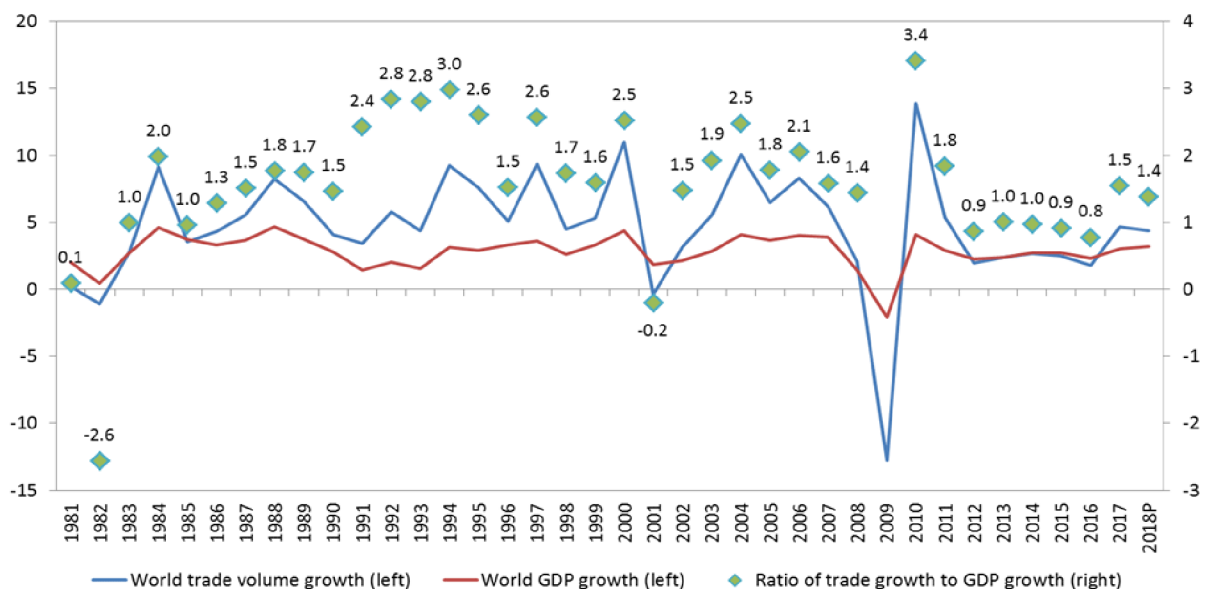
4. Theoretical part

4.1. Globalization and trade liberalization in agriculture

The era starting in the early 1980s has been characterized by escalating shifts toward worldwide economic deregulation (Figure 5). The push for globalization has been fueled by rising tendencies favoring the diminishment of trade impediments, unification in international financial markets, and progress in telecommunication and informational technology, which ease the processes of trade and investment deliberations and exchanges – even remotely (Coote, C., Gordon, A., and Marter, A., 2000; Wise, T. A. 2009).

Prior to the adjustment in commerce regulations, nations in development predominantly traded in agricultural and extractive goods. However, post-1980, the proportion of industrial products in the exports of developing nations soared and began to overshadow the export profiles of the largest emerging economies (Krugman, P. R., Obstfeld, M., and Melitz, M. J., 2012).

Figure 5 The Growth of World Trade



Source: WTO (2018)

After 1990, the liberalization of the world economy accelerated. This period included the following important events.

Including the end of the Cold War

The disintegration of the Soviet Union in 1991 signaled the conclusion of the "Cold War" and paved the integration of the erstwhile Eastern Bloc nations into the global economy.

Including Uzbekistan, after becoming independent from the Soviet Union, it went on the path of economic transition and integration into the world economy, which is distinguished by both obstacles and some achievements.

After the breakup of the Soviet Union, many countries transitioned from a centralized and planned economy to a market-based economy. Russia and Eastern European countries have begun to implement important economic reforms aimed at liberalizing their economies and encouraging foreign investment.

The initial economic isolation of Uzbekistan

In the years after independence, Uzbekistan had almost no opportunity to immediately transition to a new economic system, so it kept a relatively closed economy. The government retained many aspects of the Soviet economic model, namely price controls, central planning, and a large public sector. Therefore, the role of Uzbekistan in the liberalization of the world economy was limited.

Introduction of new technologies and their achievements

The emergence of new technologies and their advances, especially the development of the Internet and the acceleration of information and communications technology (ICT), have played a critical role in connecting markets and reducing global transaction costs.

Financial market liberalization

The liberalization of financial markets, especially since the 1990s, has allowed capital to move more freely across borders. This has led to an increase in foreign direct investment in emerging markets.

Agricultural trade of Uzbekistan

Given its strong agricultural sector, especially cotton and fruit production, Uzbekistan is seeking to use trade liberalization to increase exports. However, problems such as forced labour in the cotton industry have led to international controls and trade restrictions, and the government is working to address them.

Step-by-step integration

Despite the initial cautious approach, Uzbekistan gradually began to join the global economy. Soon after gaining independence, the country joined the International Monetary Fund (IMF), the World Bank and the European Bank for Reconstruction and Development (EBRD). This integration aims to help the country acquire the financial resources and technical knowledge needed for economic reforms.

Economic reforms

Since the mid-1990s, Uzbekistan has implemented a number of economic reforms, including currency conversion for current account transactions, lowering trade barriers, and improving conditions for foreign investment. However, these reforms were often implemented inconsistently.

Acceleration of reforms in recent years

Since 2016, under the leadership of President Shavkat Mirziyoyev, a new wave of economic liberalization has begun in Uzbekistan, including liberalization of the exchange rate, reform of the business environment, and reduction of trade barriers. These efforts are aimed at opening up the economy, attracting foreign investment and increasing the country's participation in global trade.

In short, Uzbekistan is consistently expanding its participation in the liberalization of the world economy, and in recent years more decisive steps have been taken. The country's place in the future world economy, as well as in the countries of Asia and the CIS, is an example of the consistency and effectiveness of the deep reforms being implemented in many respects.

Doha Round and Uzbekistan's role

The Doha Round, also known as the Doha Development Agenda, is a trade-negotiation round of the World Trade Organization (WTO) that began in Doha, Qatar, in 2001. Its aim is to achieve major reform of the international trading system through the introduction of lower trade barriers and revised trade rules.

As for Uzbekistan, it's important to note that as of my last update in September 2021, Uzbekistan is not a member of the WTO; however, the country has been in the process of negotiating its accession to the WTO since 1994. Thus, the direct impacts of the Doha Round on Uzbekistan must be considered within the context of its potential future membership and current observer status.

Assuming Uzbekistan's eventual accession to the WTO, the Doha Round could have significant implications for the country. Potential benefits might include better access to global

markets for Uzbek exports, such as cotton and gold, which are major components of its economy. Moreover, the Doha Round emphasizes assistance for developing countries in trade-related aspects, which could help Uzbekistan modernize its trade practices and infrastructure, boost economic growth, and alleviate poverty.

In summary, while Uzbekistan is not presently part of the WTO, the Doha Round's focus on reforming trade practices and reducing barriers could eventually provide the country with new opportunities for economic development and integration into the global economy, pending successful accession negotiations, (European Commission., 2008).

Benefits of globalization on the world economy

In summary, globalization brings numerous benefits to the world economy, such as increased competition, access to new markets, and a wider range of goods and services for consumers. It promotes economic growth and development, improves efficiency and productivity, and creates job opportunities. Additionally, globalization encourages the spread of new technologies, helps reduce poverty, fosters cultural exchange, and increases foreign direct investment. These factors combined contribute to the overall progress and prosperity of countries engaged in the global marketplace.

The main benefits are:

- *Increased competition:* Globalization leads to increased competition among businesses, which can result in better products and services at lower prices for consumers.
- *Access to new markets:* Companies can expand their reach and sell their products and services to new markets, leading to increased revenue and growth opportunities.
- *Access to a wider range of goods and services:* Consumers can benefit from a wider variety of goods and services from different countries, leading to more choice and better quality.
- *Increased economic growth:* Globalization can lead to increased economic growth and development as countries can specialize in what they do best and trade with others.
- *Improved efficiency and productivity:* Globalization can lead to improved efficiency and productivity as companies can tap into global supply chains and benefit from economies of scale.
- *Job creation:* Globalization can create jobs as companies expand and invest in new markets.
- *Access to new technologies:* Globalization can lead to the spread of new technologies and innovation, improving productivity and quality of life.

- *Reduced poverty*: Globalization can help reduce poverty as developing countries can benefit from increased trade and investment.
- *Cultural exchange*: Globalization can lead to cultural exchange and understanding as people from different countries interact and learn from each other.
- *Increased foreign direct investment*: Globalization can lead to increased foreign direct investment, which can help boost a country's economy and infrastructure.

Uzbekistan is relatively new to integrating with the global economy, primarily due to its history of a state-controlled economy from its time as part of the Soviet Union. However, since its independence in 1991, Uzbekistan has been gradually transitioning to a market economy and taking steps to play a role in globalization.

A few key aspects of Uzbekistan's role in globalization and the world economy include:

- **Trade Relations**: Uzbekistan has been working on developing stronger trade relations with various countries. Its central location in Central Asia makes it a potential trade hub between Asia and Europe.
- **Natural Resources**: The country has significant natural resources, including gold, natural gas, and cotton, which contribute to the global supply of these commodities. Uzbekistan is one of the world's largest cotton exporters and has substantial gold reserves and production.
- **Economic Reforms**: Uzbekistan has been implementing economic reforms to open up its economy, improve the business environment, and attract foreign investment. These reforms have included liberalizing foreign currency regulations, reducing the state's role in the economy, and improving the transparency of its business practices.
- **Belt and Road Initiative**: As part of China's Belt and Road Initiative (BRI), Uzbekistan could significantly benefit from increased investment in infrastructure and connectivity, facilitating enhanced regional economic integration and trade flows.
- **Textile Industry**: With an abundant supply of cotton, Uzbekistan has the potential to grow its textile and garment industry, integrate further with global supply chains, and increase exports.

- Labor Migration: Remittances from Uzbek workers abroad, particularly in Russia and Kazakhstan, play a significant role in the country's economy and link it to the global labor market.
- Tourism: Uzbekistan has been taking steps to promote tourism, leveraging its rich cultural heritage and historical sites, such as Samarkand and Bukhara, which contributes to cultural exchange and global visibility.

In sum, Uzbekistan's role in globalization is evolving. Its strategic location, economic reforms, abundant natural resources, and efforts to improve its investment climate position it to become more integrated into the global economy, potentially serving as a significant player in regional trade and economic development.

4.2. Determination Influencing international agricultural trade Dynamics

International trade in agricultural products is influenced by a range of factors unique to the nature of agriculture and food commodities. Some key factors include:

Climate and Seasonality

Agricultural production is highly dependent on climate conditions, and seasonal variations can significantly affect the supply and prices of agricultural goods.

Subsidies and Trade Barriers

Many countries provide subsidies to their agricultural sectors, which can distort trade by making exported goods artificially competitive. Conversely, quotas, tariffs and non-tariff barriers can inhibit agricultural trade.

Sanitary and Phytosanitary Standards

International standards designed to protect the life and health of plants, animals or people can affect trade in agricultural products, as countries must comply with these rules to enter different markets.

Exchange Rates

Fluctuating currencies can impact the competitiveness of agricultural exports and affect farmers' incomes.

Transport and Storage Costs

Since many agricultural goods are perishable, the cost and efficiency of transportation and storage are critical.

Technology and Productivity

Progressions in agricultural technology can result in enhancements in efficiency and yield, potentially influencing trade quantities and configurations.

Trade Policies and Agreements

Bilateral or multilateral trade agreements can open up or restrict access to markets for different agricultural products.

Global Demand and Consumer Preferences

Changing tastes, dietary trends, and population growth can affect the types of agricultural goods in demand globally.

Prices of Inputs

The cost of farm inputs such as fertilizers, seeds, and machinery can affect the price competitiveness of agricultural exports.

Political Stability and Policies

Political stability and supportive government policies are vital for agricultural trade, as instability can disrupt supply chains and trade flows.

The international agricultural trade is subject to a combination of environmental, economic, political, and social factors that can vary considerably from one agricultural commodity to another and from one region to another, affecting both the volume and the value of trade.

4.2.1. Elements Influencing Global Agricultural Consumption

Global agricultural consumption is impacted by a variety of elements that can change demand.

These include:

Population Growth

As the world population increases, so does the demand for food, requiring greater agricultural output.

Income Levels

Higher incomes typically lead to increased food consumption and a more diverse diet that may include more meat and dairy, impacting agricultural demand.

Urbanization

Urbanization can shift consumption patterns due to changes in lifestyle and dietary preferences, and typically leads to increased reliance on food supply chains.

Consumer Preferences

Global trends, such as organic and health-conscious eating, can change the demand for certain agricultural products.

Price of Food

The cost of food items can directly affect demand; higher prices may reduce consumption or shift demand to cheaper alternatives.

Biofuel Production

The utilization of agricultural produce for biofuel generation can amplify the need for select items to the detriment of food cultivation.

Global Trade Policies

Trade agreements and tariffs can impact global supply and demand by controlling how much produce is available on the international market.

Climate Change

Changes in climate can affect food production and availability, significantly influencing demand and consumption patterns.

Technological Advances

Developments in agricultural technology can increase productivity, potentially lowering prices and increasing consumption.

Economic Development

As economies develop, dietary patterns shift towards higher-value foods, altering agricultural demand.

The global agricultural consumption is influenced by demographic changes, economic factors, consumer tastes, environmental issues, and technological advancements, among others, all shaping the demand for agricultural products worldwide.

The escalating interest in bioenergy carries with it a mix of adverse and beneficial impacts on agriculture. Elevated food costs may exacerbate hunger among city dwellers with low incomes and those rural individuals without land. Conversely, enhanced prices and increased marketable output could invigorate the agricultural industry, presenting fresh prospects for rural societies. At the countrywide scale, it could provide avenues for progress in nations endowed with substantial resources. (Müller, A., Schmidhuber, J., Hoogeveen, J., and Steduto, P., 2008).

4.2.2. Factors affecting world agricultural supply

The capability to fulfil the world's agri demands hinges on an intricate web of determinants impacting the provision of agricultural goods. From the earth to the marketplace, numerous components affect not just the volume and calibre of farm products but also the effectiveness and persistence of worldwide food networks (Trostle, R. 2008, 2010). Understanding these factors is critical to addressing the challenges of providing adequate food to a growing world population, managing natural resources responsibly, and responding to the dynamic forces of economic and environmental change. Despite these challenges, let's look at the main factors affecting global agricultural supply.

Several factors can influence the global supply of agricultural products:

Weather and Climate Conditions

Droughts, floods, and other extreme weather events can significantly impact crop yields.

Technological Advances

Improvements in agricultural technology can increase productivity and efficiency, leading to a greater supply of agricultural products.

Land Availability

The amount of land suitable for agriculture can constrain or expand the production capabilities of a region.

Labor Force

The availability and cost of agricultural labor can affect production levels.

Crop Diseases and Pests

Disease outbreaks and pest infestations can reduce crop yields and thus the overall supply.

Input Costs

The price of inputs such as seeds, fertilizers, and machinery impacts production costs and, consequently, supply.

Government Policies

Subsidies, tariffs, and other government interventions can affect the amount of agricultural produce that farmers are willing to supply.

Global Trade

Trade restrictions or agreements can influence the amount of agricultural goods available on the world market.

Market Prices

The prices obtained for agricultural goods can incentivize or deter farmers from producing.

Investment in Agriculture

Capital investment in agricultural operations can lead to increased capacity and supply.

Understanding these factors is vital for policymakers, farmers, and agribusinesses as they adapt to changing conditions and strive to meet global food demand (Fugazza, M., 2004).

4.2.3. Primary Influences on Global Agricultural Market Prices

Agricultural world market prices are shaped by a complex interaction of supply and demand dynamics, environmental factors, economic policies, cost of production, and market speculation. These factors can result in significant fluctuations in prices, impacting both producers and consumers worldwide.

The main drivers of agricultural world market prices include:

Supply and Demand

Basic economic principles of supply and demand significantly affect market prices. A rise in demand or a drop in availability usually causes an uptick in prices and conversely.

Weather Conditions

Weather events such as droughts, floods, or unseasonable temperatures can impact crop yields and livestock, leading to changes in prices.

Oil Prices

Fuel costs affect transportation and production costs within agriculture, influencing the end market prices.

Exchange Rates

Currency fluctuations can affect the competitiveness of agricultural exports and imports, impacting prices.

Global Trade Policies

Tariffs, quotas, and other trade restrictions or incentives can lead to price changes by affecting the flow of goods.

Production Costs

The cost of inputs like seeds, fertilizers, and machinery directly affects final product prices.

Market Speculation

Traders and investors speculating on future price movements in commodity markets can drive prices up or down.

Government Subsidies and Interventions

Government policies can artificially increase or decrease market prices by supporting farmers or regulating production and trade.

Technological Advancements

Innovations that increase production efficiency can lead to lower prices due to higher output.

Biofuel Demand

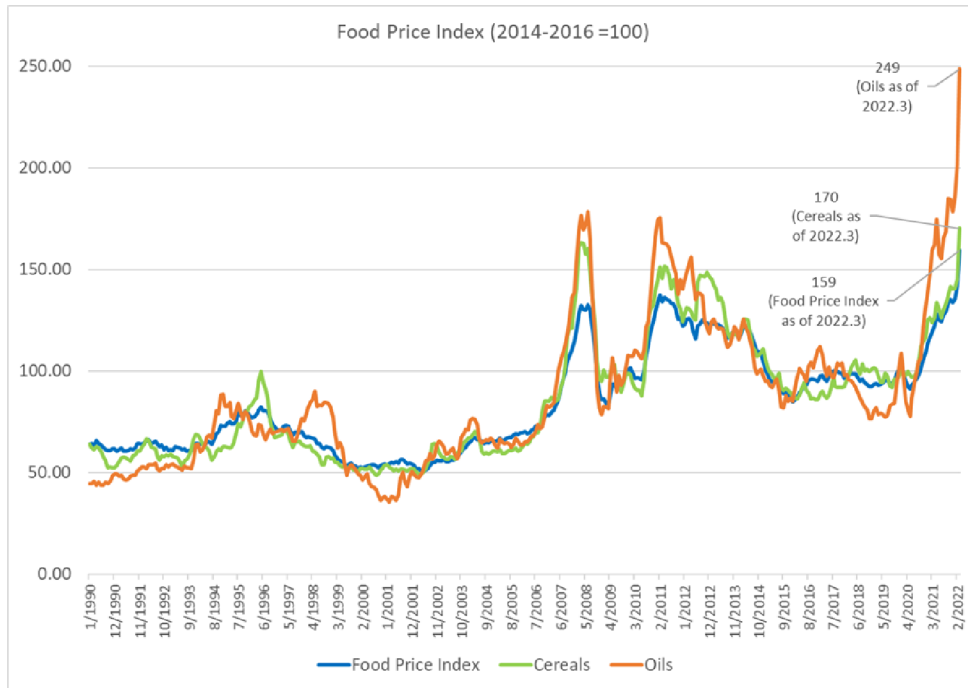
The use of crops for biofuel production can increase demand for certain agricultural commodities and raise prices.

FAO unveiled its World Food Price Index, indicating that the index surged to a record level in March 2022 amid volatile global socio-economic circumstances (On April 8). The Food Price Index*, marking a rise of 12.6 percent over February, averaged 159.3 points and attained its peak since inception in 1990. This jump is attributed in part to unprecedented rates for items like vegetable oil, grains, and meat.

The FAO Cereal Price Index escalated by 17.1 percent month-over-month to 170.1 points, hitting its highest point since 1990. The uptick reflects costlier global wheat and coarse grain varieties (including corn, barley, and sorghum) chiefly owing to trade interruptions in Ukraine and Russia. However, rice prices have stayed relatively stable since February and are 10 percent below January's rates. March saw the FAO Vegetable Oil Price Index averaging at 248.6 points, up by 46.9 points from February, and reaching an unprecedented high. Price spikes in sunflower, palm, soybean, and rapeseed oils primarily fueled this. Specifically, sunflower oil prices internationally soared due to diminished exports resulting from conflict in the Black Sea vicinity. Palm, soybean, and rapeseed oil prices followed suit amid worries of sunflower oil supply disruptions(Figure 6).

In current times, as the global interconnectivity through food systems grows stronger, we're reminded of the crucial need to maintain global tranquility to ensure persistent food and nutritional security (IYAMA Miyuki, Information Program).

Figure 6 World agricultural prices (Food Price Indices)



Source: JIRCAS (2024)

Stock levels in Uzbekistan since 1991 and its impact on agricultural performance

Since independence in 1991, Uzbekistan's stock levels, especially in agriculture, have undergone significant changes that have significantly impacted the country's agricultural trade. Initially, following the collapse of the Soviet Union, Uzbekistan faced economic and infrastructural problems that affected its agricultural sector, given its heavy dependence on cotton production. However, the government's desire for self-sufficiency, especially in grain production, stimulated a gradual increase in the level of agricultural reserves.

Over the years, Uzbekistan has sought to diversify its agricultural sector, reducing its dependence on cotton and increasing production of food crops such as fruits, vegetables and grains. This diversification, combined with improvements in irrigation, the introduction of new technologies and farms management, has generally led to improved stock levels.

The impact on agricultural trade was noticeable:

Export diversification

Uzbekistan has expanded its agricultural exports beyond cotton to include various food products, opening up new international markets and trade relationships.

Regional Trade

The country has strengthened trade ties with neighboring Central Asian countries, as well as with larger trading partners such as Russia, China and the European Union.

Economic Stability

As stock levels have stabilized and increased, agricultural trade has become a more consistent contributor to Uzbekistan's GDP and economic stability.

Food Security

Increased stock levels have helped improve national food security and provided a buffer against global market volatility.

Investment Attractiveness

Improved stock levels and trade potential have attracted both domestic and foreign investment into Uzbekistan's agricultural sector.

However, challenges remain, including water shortages, the use of outdated farming methods in some areas, and the need to improve post-harvest and logistics infrastructure to reduce losses and improve trade efficiency. As Uzbekistan continues to implement agricultural reforms and improve its trade policies, the country's stock levels are likely to play an even more important role in shaping its agricultural trade profile on the global stage (STATUZ).

Energy prices and their impact on the agricultural economy

Global energy prices are closely linked to the agricultural economy, influencing costs, production choices, technology adoption and the overall sustainability of the sector (OECD, P., 2002, 2008, 2009, 2010).

Due to rising energy prices:

Operating costs: Farmers' production costs rise, reducing potential profitability or increasing food prices for consumers.

Transportation: Throughout the supply chain, the cost of transporting goods from field to market increases, affecting domestic and international trade.

Crop production: Some crops are more expensive to grow, especially energy-intensive crops for processing or greenhouses.

Investment in alternatives: This might foster the commitment of funds into alternative energy forms such as solar power or biological energy to sever reliance on conventional fuel sources.

Technology Adaptation: Adoption of energy efficient technologies and agricultural practices may increase to reduce costs.

Lower energy prices can lower production costs, increase agricultural output, and lead to lower food prices, benefiting both producers and consumers. However, persistently low energy prices may slow the transition to sustainable energy sources in the agricultural sector (OECD, P., 2011).

Currency exchange fluctuations

Over the past 20 years, currency fluctuations have had serious consequences for global agricultural trade. At the turn of the millennium, a weakening USD dollar, due in part to the bursting of the dot-com bubble and expansionary monetary policy, helped make USD agricultural exports more competitive in the world market due to lower relative prices. Exchange rate fluctuations affect the pricing of trade contracts and can lead to unpredictable earnings, affecting the profits of farmers and exporters. It also affects the purchasing power of imports of agricultural machinery, fertilizers and pesticides, which are often priced in key global currencies such as EUR or the USD.

For Uzbekistan, exchange rate fluctuations over the past 20 years have been particularly significant for its agricultural trade due to several key economic reforms and the country's position as a major exporter of agricultural products such as vegetables, fruits and cotton. Initially, the Uzbek som was heavily regulated by the government, resulting in an overvalued currency that made exports less competitive. However, significant reform occurred in 2017 when Uzbekistan took steps to liberalize its currency. This decision led to the devaluation of the som, which in turn initially increased the competitiveness of Uzbek agricultural exports as their price on the international market decreased in foreign currency terms.

Overall, the past two decades have seen changes in the competitiveness of agricultural commodities in the global market due to exchange rate changes, forced adjustment to changing import costs, and increased need for risk management in trade agreements to mitigate the impact of currency volatility on the economy.

Growing inflationary pressure and its impact on global agricultural trade

Rising inflation usually occurs due to rising prices of goods and services, which can directly affect agricultural production in several ways:

Including operating costs: Energy prices often rise along with inflation, which leads to increased costs for operating equipment and transporting goods. This may affect the competitiveness of agricultural exports.

Currency Value: Inflation can diminish the value of a currency, which can have a varied effect on trade. A depreciated currency may render a nation's exports more competitive internationally due to reduced costs for overseas purchasers. Concurrently, this might result in increased prices for imports, potentially impacting the cost of foreign goods and materials.

Purchasing power of consumers: High inflation tends to reduce the purchasing power of consumers, which reduces the demand for certain agricultural products, especially non-staple or luxury goods, and further affects trade flows.

Price volatility: Inflation can contribute to instability in global commodity prices, making it difficult for everyone in the agricultural trade chain to predict future prices and manage risk, from farmers to commodity traders.

Subsidies and trade policy: Governments may respond to inflation and rising domestic food prices with subsidies or policies such as export restrictions to secure domestic food supplies that affect global trade patterns.

Rising inflation pressures directly impact the complex dynamics of global agricultural trade, affecting spending, consumer demand and policy decisions, all of which have important implications

for food security and the global economy. Additionally, the expansion of bio-energy production reallocates farmland and other production resources from food production and affects market trends (Von Witzke, H., Noleppa, S., and Schwarz, G., 2008).

4.2.4. Trade protectionism in agriculture

In agriculture, trade protectionism refers to policies and practices that countries adopt to protect their domestic agricultural industries from foreign competition. Protectionist measures may include tariffs, import quotas, export restrictions, domestic subsidies, and other regulatory barriers. Such practices can have serious consequences for global agricultural trade, including distortions in market prices, restrictions on market access, and trade tensions between countries.

Agricultural protectionism has different motives around the world. Some countries want to ensure their food security, maintain rural employment and maintain traditional farming methods in the face of competitive pressures in the global market.

Such policies can create an unequal playing field for agricultural producers in different countries and are often a source of contention in global trade negotiations held within the World Trade Organization (WTO).

In the case of Uzbekistan, the country has historically pursued protectionist policies aimed at self-sufficiency in basic food products and supporting agriculture, which is an important part of the economy. However, in recent years, Uzbekistan has undergone major economic reforms and efforts are being made to liberalize trade policy for closer integration into the global economy.

Uzbekistan is a major producer and exporter of agricultural products such as cotton, fruits and vegetables. The government has taken measures such as tax exemptions on certain types of farm equipment and subsidies on key crops to support local farmers to become competitive in the global market. However, the balance between protecting domestic industry and access to international trade remains delicate and problematic.

As global discussions continue to address issues of sustainability and trade imbalances, agricultural protectionism and market liberalization are being discussed to ensure a fair and equitable global environment for agricultural trade.

Enhancing the effectiveness of national agricultural support programs, such as maintaining market prices at levels above international rates, necessitates the implementation of import regulation tactics. Agricultural subsidization is linked to a greater level of food autonomy (Swinnen, J. F., 1994).

4.2.4.1. Goals and outcomes of agricultural trade barriers

The primary purpose of agricultural trade barriers is to protect the domestic agricultural sector from international competition, thereby maintaining food security, protecting rural employment, and preserving traditional farming practices. These barriers include tariffs, quotas, subsidies and regulation. The main effect of these trade barriers is market distortion, as they can lead to higher prices for consumers and inefficiencies in global trade. They may also provoke retaliation from other countries, which could lead to trade disputes and sour relations between trading partners.

In the case of Uzbekistan, the government has historically established trade barriers to encourage a sustainable domestic agricultural sector, especially strategic crops such as cotton. Subsidies and other support for farmers were aimed at food self-sufficiency and stabilization of the rural economy.

However, these measures may also isolate domestic markets from global price signals, leading to inefficiencies and reduced competitiveness of the sector. In the past few years, Uzbekistan has initiated steps to liberalize its economy, including lowering some trade barriers to better integrate the agricultural sector into the global market. This has created both opportunities and challenges as the country protects its domestic interests by opening up international trade.

The progression of the agricultural sector in advanced nations is swayed by various elements:

Innovation and technology: Adopting new technologies such as biotechnology, precision agriculture and smart farming tools is essential to improve productivity and sustainability.

Government policies and subsidies: Developed countries often have comprehensive agricultural policies that offer subsidies and support programs aimed at stabilizing the agricultural sector and farmers' incomes (Bagherzadeh, M. 2007).

Market forces: These include agricultural prices, production costs, and exchange rates that affect the competitiveness of agricultural exports.

Environmental and climate problems: Environmental policies and the influence of global warming (climatic change) on agricultural circumstances and practices are becoming progressively significant.

Consumer Trends: Demand for organic, non-GMO food and locally grown products has increased, impacting farming practices and crop selection.

Land Availability and Usage: Urbanization is reducing arable land, increasing the need for intensive agriculture or innovations such as vertical farming to maintain production levels.

Labor Market: Availability and cost of labor are important factors, including immigration policies affecting the agricultural labor force.

Research and development: Public and private investment in agricultural R&D impacts the long-term sustainability and performance of the sector.

At the same time, Uzbekistan, although not one of the “developed countries,” is a country with an important segment of agriculture. In recent years, work has been carried out in our country to modernize agriculture. Factors influencing the state of agriculture include:

Economic Reforms: Efforts to liberalize the economy and agricultural markets have opened Uzbekistan's agricultural sector to greater competition and global market forces.

Land reform: changes in land ownership and management practices aimed at improving agricultural efficiency and productivity.

Water use: Irrigation is especially important in water-scarce areas, and efficient use of water resources is a priority for sustainable agriculture.

Dependence on Cotton: Government policy has historically focused on cotton production, although there has been a recent shift towards diversifying agriculture and reducing dependence on this single crop.

Export diversification: In addition to fruits, vegetables and other cotton products, attention is being paid to increasing agricultural exports.

Rural development: Investments in rural infrastructure such as roads and warehouses affect agricultural productivity and trade opportunities.

These factors combine to create a unique agricultural landscape in Uzbekistan, which faces challenges in maintaining traditional practices while introducing innovation and reform to support agriculture in the global economy.

Mechanisms of Agricultural Policy

Agricultural policy includes various mechanisms designed to manage and regulate the agricultural sector. These instruments shape the interactions between governments, producers, consumers and the environment, and define the basis for growing, pricing and marketing food and other agricultural commodities. The effectiveness of these mechanisms is critical to achieving a range of goals, from ensuring food security and protecting farmers' livelihoods to promoting sustainable practices and improving market competitiveness. When examining the specifics of agricultural policy, it is important to understand the various tools available to policymakers and how they can be used to address the complex problems of modern agriculture.

The authorities are involved in agricultural trade through direct and indirect methods. Direct protection measures affect goods involved in international trade, both inbound and outbound. The most prevalent forms include quotas, tariffs, export and import restrictions, export fees and incentives, and plant health and health restrictions. These instruments apply to agriculture, as in other sectors, according to the procedures outlined in section 4.3.

Agricultural policy mechanisms often have a profound impact on agricultural trade, shaping the flow of goods both into and out of a country. Some of these mechanisms include:

- *Tariffs:* Import taxes that make foreign goods more expensive than domestic ones are intended to protect local producers from international competition.
- *Subsidies:* financial support provided to farmers that can reduce production costs and allow them to sell produce at competitive prices in the world market.
- *Quotas:* Limits on the quantity of products that can be exported or imported are used to control market supply and prices.
- *Export taxes:* Fees levied on exported goods are often used to maintain domestic supply by disincentivizing the export of key goods.
- *Sanitary and Phytosanitary (SPS):* Regulations on food safety and animal/plant health standards that may act as non-tariff barriers to trade.

- *Technical Barriers to Trade (TBT)*: Standards and regulations regarding product characteristics or production methods that may affect trade by requiring certain criteria to be met.
- *Price controls and support*: measures to stabilize or increase the prices of agricultural products, ensuring farmers' profitability even when market prices are low.

An alternative method of bolstering farmers' earnings is by granting farms immunity from income tax or providing them with a tax status that is more advantageous than the one available to other enterprises (Reynolds, C. A., Jackson, T. J., and Rawls, W. J., 2000).

The impact of these policy instruments on agricultural trade is numerous:

- They can protect the domestic agricultural sector from international competition, allowing local industry to grow and support the rural economy.
- They can lead to trade distortions, making international markets less efficient and often causing retaliation from trading partners.
- Subsidies can lead to overproduction, cause environmental stress and dumping on international markets at prices below cost.
- Non-tariff measures such as SPS and TBT can hinder trade if they are overly restrictive or applied in a discriminatory manner.
- Policy mechanisms can be used as negotiating tools in trade agreements, where countries can trade one aspect of agricultural policy for concessions in other areas.

In general, agricultural policy mechanisms can have a protective effect on domestic agriculture but can also provoke international disputes and require careful balancing to comply with global trade rules and obligations (Sarris, A. 2009).

The consequences of agricultural protectionism (FAO., 1988)

Agricultural protectionism, the strategic implementation of policies designed to protect a country's agricultural sector from the tide of international competition, often results in a number of significant and far-reaching consequences. As stated in a 1988 Food and Agriculture Organization (FAO) report, understanding the consequences of such protective measures is paramount to assessing their true impact on global agricultural dynamics. These impacts not only impact the immediate economic landscape, but also have implications for international trade relations, domestic consumer markets, and the long-term sustainability of agricultural production. By delving into FAO's findings, we can unravel the complex consequences of protectionist policies in agriculture.

The key conclusions drawn from the 1988 FAO report on the consequences of agricultural protectionism are the following:

- Distorted global markets. Protectionism can disrupt the balance of global agricultural markets, leading to price volatility and reduced efficiency in distribution and production.
- Trade Retaliation: Countries harmed by another country's protectionist policies may respond with trade barriers of their own, leading to tit-for-tat dynamics that can escalate into trade wars.
- Impact on Consumers: Citizens of countries that practice protectionism often face higher prices for food and agricultural products because trade restrictions limit supply and increase costs for producers, which are then passed on to consumers.
- Environmental costs: Protectionism can lead to environmental degradation if subsidies encourage overuse of inputs such as fertilizers and pesticides, or if they support agriculture in less suitable areas, resulting in soil erosion or habitat loss.
- Impact on developing countries: Protectionist policies in developed countries can hinder the growth and development of agricultural sectors in developing countries, where agriculture often represents a significant part of the economy.
- Inefficiency and misallocation. Government support can keep agricultural sectors uncompetitive, resulting in an allocation of resources that does not reflect true market demand and does not involve the most efficient producers.
- Overproduction and waste. Protectionist measures, especially subsidies, can lead to overproduction, with excess goods often resulting in waste or being sold on world markets at artificially low prices, which can harm producers in other countries.

These findings highlight the complex and often negative aspects of agricultural protectionism, highlighting the need to carefully consider and possibly reform such policies to ensure fair and sustainable global agricultural practices.

Safeguarding domestic agricultural markets in developed nations diminishes the market's capacity to absorb shifts in global production. Anticyclical measures in wealthier countries often escalate resource allocations to farmers during downturns in global commodity prices, thereby imposing the bulk of market volatility onto producers in developing countries (OECD, 2002).

4.3. Gains of global trade

As the engine of economic growth, global trade offers many benefits that span countries and continents. Going beyond local markets, world trade facilitates the exchange of services, goods, and resources, thereby facilitating an interconnected global economy. The benefits of such commercial exchanges are wide and varied, from increased efficiency resulting from comparative advantage to the diffusion of innovation and technology.

Global trade can be characterized as an exchange that involves the transfer of goods or some collateral of economic assets across national borders (Krugman and Obstfeld, 2003).

The foundational cases for open trade started to replace mercantilist perspectives in the early to mid-eighteenth century. Many of these initial concepts stemmed from straightforward exchange or production frameworks indicating that open trade would benefit everyone and certainly serve the national good. Nonetheless, throughout the 19 and 20 centuries, a range of challenges emerged implying that open trade might not be advantageous for all parties involved (Suranovic S., 2010).

4.3.1. The arguments of absolute and comparative advantages

Trade enables a nation to enhance its quantity of accessible goods and services at a given time by permitting the procurement of these commodities from locations where their production costs are relatively lower (FAO., 2000).

The comparative advantage hypothesis is constructed on the idea that countries can benefit from trade if they specialize in the production of goods for which they have a relatively lower opportunity cost compared to other countries, even if they do not have an absolute advantage in producing those goods. Essentially, this suggests that a country should focus on those areas where it is most relatively efficient, and then trade goods that cost it more to produce domestically. This principle underlies much of modern international trade policy and economic theory (Gunawardana, P. J., Khorchurklang, S., 2007). Despite its fundamental place in international trade theory, the Ricardian model has been criticized for its simplicity. Leamer and Levinson (1996) consider this model too elementary for serious empirical analysis. They argue that the real complexities of international trade require a more nuanced approach than the basic structure of the Ricardian model, which traditionally considers only two countries and two goods without taking into account factors such as the variety of goods and services scope of economic enlargement, trade barriers, costs of transport, and the role of technology and capital. This suggests that a comprehensive understanding of the dynamics of

international trade, especially in empirical studies, may require more complex models that can capture the complexities and interdependencies of the modern global economy.

The model of Ricardian indeed emphasizes labor as the sole input of production, ignoring the significant role played by capital, land and technology in the production process. This simplification leads to the impractical conclusion that countries will specialize entirely in the production of tradable goods, which is not consistent with real-world observations that countries typically produce a diverse range of goods, albeit in different proportions (Golub S. and Xie Xie, 2000) .

Given these limitations, economists have proposed a variety of alternative trade models that build on the basic principles of comparative advantage while offering a more complex and realistic representation of the dynamics of international trade (Fertö, I., and Hubbard, L. J. 2003). These new models include multiple factors of production, consider the consequences of production scale efficiencies, and consider the variety of products and services, along with the impact of technological advancements and financial resources. In doing so, they attempt to reconcile theoretical predictions with actual trade patterns and provide a more accurate basis for analyzing the complexities of global trade.

4.3.2. Economies of scale and the case for diversification.

In agricultural trade, the concepts of economies of scale and arguments for diversification are of great importance to both producers and countries. Economies of scale in agriculture can arise from several factors: mechanization of farming operations, bulk purchases of inputs such as seeds and fertilizers, or advances in agricultural technology that increase crop yields. As agricultural businesses expand, they can spread the fixed costs of land and expensive machinery over a larger volume of production, lowering the average price of production and potentially enhancing competitive standing in both local and global marketplaces.

In addition, economies of scale and diversification of agricultural trade can increase a country's export potential. By lowering the expenses of production, countries can offer agricultural products at competitive prices on the international market. Conversely, diversification opens up new market opportunities by preventing over-reliance on a single export product that may be susceptible to international market volatility.

Overall, the dual strategy of achieving economies of scale and diversification plays a decisive role in enhancing the benefits that agricultural trade offers to producers, consumers and national

economies. By effectively using these strategies, the agricultural sector can achieve greater efficiency, sustainability and, ultimately, more sustainable economic development.

Trade models incorporating external economies of scale were formulated and developed by pioneering economists such as Matthews R.C. (1949), Kemp (1964), Melvin J.R. (1969), Negishi T. (1969) and Chipman J.S. (1970), as documented by the Royal Swedish Academy of Sciences Prize Committee for Commerce and Geography (2008).

These models take into account how production costs can fall as an industry grows within a country rather than as an individual firm grows—usually due to factors such as specialized suppliers, skilled labor, and technological spinoffs that are beneficial. all firms in the industry.

The models also help to explain emergence of trade between similar countries and the importance of geographic and industry factors in shaping global trade patterns.

These frameworks, which probe into the subtleties of trade beyond the classic Ricardian and Heckscher-Ohlin models, have evolved into instruments for scrutinizing the economics of regional trade pacts, the impacts of global interconnection, and policies of international trade. In the late 1970s, a group of scholars – including Norman and Dixit (1980), Lancaster, K. (1980) and Krugman, P. R. (1979a, 1980) – independently conceptualized the theory that large-scale production efficiencies and non-perfect market competition could spawn trade, even lacking a relative cost advantage.

4.4. The impediments to international trade

International agricultural trade barriers specifically refer to barriers that affect the exchange of agricultural products between countries. Like general trade barriers, they can seriously undermine agricultural market dynamics, affecting farmers, consumers and the economy as a whole.

To remove these barriers and expand agricultural trade, countries often engage in international negotiations through forums such as the WTO agreement on Agriculture, which aims to reform trade in the sector and reduce trade barriers. Removing these barriers is critical to developing a fair and competitive international agricultural market, ensuring food security and improving the livelihoods of farmers around the world.

These barriers can affect countries' comparative advantages and affect the structure of global trade. Reducing barriers to trade requires coordinated international efforts and negotiations, often through trade agreements like those of the WTO. While some trade barriers serve to protect specific

industries or address issues of national security and safety standards, excessive trade restrictions are generally considered detrimental to global economic efficiency and growth.

Sanitary and Phytosanitary

These include laws and regulations designed to protect plants, people and animals from diseases, pollutants or pests. Overly strict or inconsistently applied SPS measures are necessary to ensure safety but can act as barriers to trade.

Technical Barriers to Trade

Quality, packaging or labeling standards and regulations that vary from country to country can impede trade in agricultural products.

Customs and administrative import procedures

Ineffective port operations and customs procedures can lead to significant delays in the delivery of agricultural products, which can be especially problematic given their perishable nature.

Market access restrictions

In some cases, domestic policies may restrict market access for certain agricultural products through mechanisms such as state-owned trading enterprises or monopoly controls on imports and exports.

Domestic Agricultural Policies

Policies that affect domestic agricultural production, such as land use restrictions or environmental regulations, may indirectly affect international trade in those commodities.

Geopolitical factors and trade disputes

Political relations and trade agreements between countries can smooth or impede agricultural trade. Disputes over agricultural policy could lead to retaliation and trade wars.

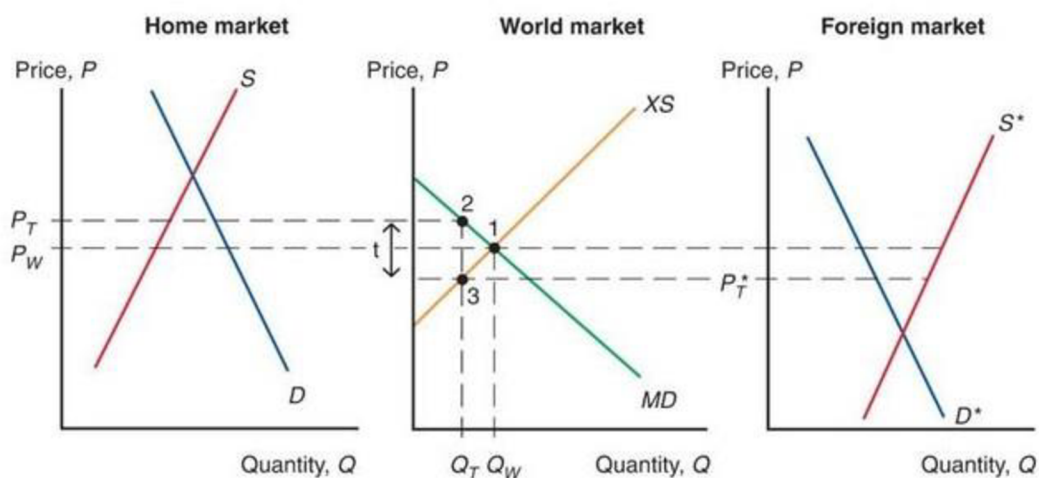
Infrastructure and Logistics Challenges

Reliable transportation and storage of agricultural commodities are essential due to their perishability. Poor infrastructure and inefficient supply chains can be major obstacles.

Tariff Barriers

Tariffs on agricultural products can be particularly high as governments seek to protect their domestic farmers from cheaper imports. Such protection can help ensure domestic food security, but can also lead to higher food prices (Krugman, Paul R., 2012; Love, P., and Lattimore, R. 2009). Figure 7 shows the impact of a specific tariff.

Figure 7 Effects of a Tariff



Source: Krugman, Obstfeld, Melitz (2014)

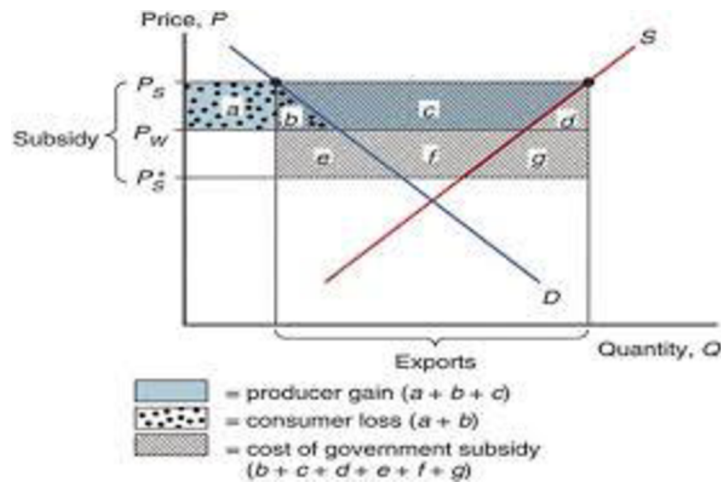
Export Subsidies

Agricultural trade export subsidies are financial support provided by governments to domestic agricultural producers to stimulate exports and increase their competitiveness in the global market. These subsidies can take many forms, such as direct payments, tax breaks, preferential loans, or even rebates on production costs for things like seeds, fertilizers, and equipment (Figure 8).

Recognizing the destructive potential of such subsidies, the World Trade Organization (WTO) has developed rules governing their use. Agricultural trade export subsidies are financial support provided by governments to domestic agricultural producers to stimulate exports and increase their competitiveness in the global market. These subsidies can take many forms, such as direct payments, tax breaks, preferential loans, or even rebates on production costs for things like seeds, fertilizers, and equipment (Figure 8).

Recognizing the destructive potential of such subsidies, the World Trade Organization (WTO) has developed rules governing their use.

Figure 8 Effects of an Export Subsidy

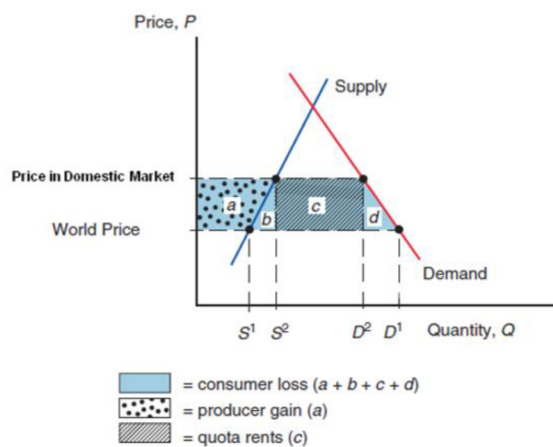


Source: Krugman, Obstfeld, Melitz (2014)

Import quotas and restrictions

These direct restrictions on the quantity or value of agricultural products that can be imported into a country can be more stringent than tariffs (Figure 9).

Figure 9 Effects of Quota



Source: Krugman, Obstfeld, Melitz (2014)

4.4.1. Justifications for Trade Restriction

The justifications for imposing trade restrictions in the international agricultural sector are numerous and based on a combination of protectionist desires, strategic economic planning and socio-political objectives. These restrictions serve as a tool for governments to control the inflow and outflow of agricultural products, thereby exercising control over their domestic markets and wider international implications.

To begin with, agricultural trade restrictions are often imposed as cover for nascent or vulnerable domestic industries. By shielding local markets from the waves of global competition, countries hope to strengthen their agricultural bases, thereby preserving employment and ensuring sovereignty over food supplies. This facet of trade impediments holds notable significance for developing nations, which may not possess competitive edges in aspects such as technological innovation or operational magnitude.

The foundational rationale for free trade stands as one of the most time-honored debates in economic theory; it's irrefutable that the principle asserting free trade boosts overall production, amplifies global consumption, and augments efficiency on an international level. However, detractors emphasize that this contention is largely hypothetical. In practice, they contend, numerous reasons may validate the imposition of protective trade policies (Rittenberg L., Tregarthen T., 2009).

The argument of infant-industry

The argument of infant industry is a well-established economic rationale used to justify trade protectionism in developing sectors of a country's economy. This argument argues that emerging industries can initially be unable to compete with established international competitors in the open market due to economies of scale, technological advantages, and established production and distribution networks. As a result, these nascent industries may require temporary protection from international competition to develop and thrive.

The rationale for protecting infant industries, originally conceived by Friedrich List Alexander Hamilton and in the early 19th century, has gained widespread acceptance among economists over the past two hundred years (Melitz M.J., 2005).

Strategic Trade Policy

Strategic trade policies can significantly impact international agricultural trade, influencing market dynamics, trade flows and global competitiveness. When a government adopts strategic trade policy, it often does so with the intention of supporting domestic industry and changing the balance of trade to benefit the national economy (Bates W., 1990).

Impact on domestic agriculture- By supporting local farmers and producers, strategic trade policies can increase domestic production, create jobs and support rural economies.

Protection-against-dumping argument

The anti-dumping argument plays a critical role in agricultural trade by providing mechanisms to protect the domestic agricultural sector from unfair foreign competition. Dumping in agriculture occurs when countries export goods at prices below their actual cost of production or below the market value in the exporting country, perhaps due to excess production, government subsidies, or strategic pricing to gain market share (Ron Sheppard Catherine Atkins, 1994).

Impact on domestic agriculture. Anti-dumping measures help protect local farmers from being driven out of business by imported goods sold at artificially low prices. Sustainable agriculture. By preventing dumping, these measures encourage sustainable farming practices and pricing, ensuring that farmers can continue to produce without resorting to cost-cutting practices that can harm the environment (Cheng, L. K., Qiu, L. D., and Wong, K. P. 2001).

Job Protection Argument

The job protection argument in the context of trade policy argues that government intervention is necessary to protect internal industries from international competition that threatens local employment. Proponents argue that without protective measures such as tariffs, quotas or subsidies, domestic industries could suffer from an inability to compete with cheaper imports, leading to significant job losses and economic hardship. This argument is particularly relevant for industries that contribute significantly to a country's employment and economic stability, where the adverse effects of open trade may be felt most acutely in the domestic labor market.

As a major employer and a key contributor to the national GDP, Uzbekistan's agricultural sector often requires job protection measures to maintain its global competitiveness and domestic stability. By taking such measures, Uzbekistan seeks to guard against market shocks caused by

cheaper agricultural imports that could destabilize the local economy. Protectionist policies may include import tariffs on foreign agricultural products, subsidies for local farmers, and investments in agricultural technology and infrastructure. However, it is critical for Uzbekistan to find a balance between protecting jobs and ensuring the long-term competitiveness and efficiency of its agricultural sector. This balance will involve promoting agricultural modernization and innovation while carefully managing trade relations to maintain profitable export markets.

Adopting a long-term perspective on a more robust global economy, enduring benefits can be derived from the redistribution of resources across industries and from advancements in productivity. Lowering obstacles to international direct investment in services is especially observed to boost the need for more educated labor, whereas the offshoring of services does not appear to result in the relocation of jobs overseas. (Dee, P., Francois, J., Manchin, M., Norberg, H., Nordås, H., and van Tongeren, F., 2011).

4.5. International Organizations and Trade Agreements

International organizations and trade agreements are key structures in the global economic landscape that promote international cooperation and economic integration. They serve as platforms for countries to negotiate rules of trade and economic interaction to promote open markets, fair practices and sustainable development.

International organizations such as the International Monetary Fund (IMF), the World Bank and the WTO play a central role in regulating and controlling international trade and financial matters. They offer a framework for policy dialogue, dispute resolution and technical assistance, working to ensure that global trade operates smoothly, predictably and freely.

Trade agreements, on the other hand, are legally binding contracts between two or more countries that agree on mutual trade terms. They aim to reduce or eliminate trade barriers such as tariffs and import quotas, thereby encouraging international trade and investment. These agreements may be multilateral (involving several countries) or also bilateral (between two countries) (Stryk, D., 2000).

Trading Blocs

Global trading blocs are made up of countries that come together to form an alliance or association to expand trade and economic cooperation within their circle. These members typically

reduce or eliminate tariffs and restrictions, creating a more favourable trading environment for member countries.

Uzbekistan's connections to international trading blocs are an important aspect of its economic strategy as it seeks to expand its markets and strengthen its economic position in the world. Here are some ways Uzbekistan can interact with trading blocs:

Commonwealth of Independent States (CIS)

Uzbekistan is part of the CIS, which includes several former Soviet republics. As a member, Uzbekistan enjoys favorable trade conditions with other CIS countries.

Eurasian Economic Union (EAEU)

Although not a member, Uzbekistan signed a memorandum of understanding with the EAEU in 2020 on cooperation and strengthening ties, potentially signaling its interest in closer economic relations with the bloc.

Shanghai Cooperation Organization (SCO)

Uzbekistan is a member of the SCO, which, although not primarily a trading bloc, provides a platform for member countries to cooperate on a range of economic issues, including trade, which can indirectly benefit Uzbekistan's economic interests.

World Trade Organization (WTO)

Uzbekistan has been negotiating accession to the WTO for more than two decades. Accession to the WTO will allow Uzbekistan to integrate more deeply into the global trading system and could potentially open up opportunities for more bilateral and multilateral trade agreements.

Bilateral agreements

Uzbekistan is actively seeking bilateral trade agreements with countries inside and outside these blocs to ensure favorable trade conditions and access to new markets.

By participating in these international trading blocs and agreements, Uzbekistan seeks to increase its trade and investment, diversify its economy and accelerate its development. Moreover, it is a strategic move to position itself as a significant player in the region and take advantage of growing economic opportunities in Central Asia and beyond.

4.5.1. World Trade Organization and General Agreement on Tariffs and Trade

The General Agreement on Tariffs and Trade (GATT) was a multilateral agreement governing international trade. Created in 1947, its main purpose was to reduce trade barriers such as quotas, tariffs and subsidies through rounds of negotiations among member countries to promote economic recovery after World War II. GATT was based on several key principles: trade without discrimination, protection through tariffs, stable trade policies, and preferential treatment for developing countries. Over the years, the GATT has expanded in scope and membership, laying the foundation for rules for global trade and dispute resolution (Kostecki, M. 2001).

In 1995 WTO replaced the GATT, inheriting its structure and expanding its sphere of influence. The relationship between GATT and WTO can be seen as evolutionary: GATT was the structure that facilitated trade negotiations and provided advance agreement on trade rules for decades, while the WTO is a more comprehensive institution that enforces those rules and regulates trade complexities of modern international trade. The WTO attempts to embody and develop the liberalizing spirit of the GATT by providing a sound framework for managing the ever-changing nature of global trading relations.

Uzbekistan and the World Trade Organization

At present, Uzbekistan is not a participant of the WTO. The country first applied for WTO membership in 1994 and then resumed the application process in 2005. Uzbekistan is working to complete the accession process, which includes complex negotiations and the implementation of numerous economic reforms to bring domestic business practices and laws into line with the WTO standards.

The accession process is typically complex and time-consuming, requiring the applicant country to engage in bilateral and multilateral negotiations with WTO members to agree on the terms of the country's membership. This includes detailing commitments to reduce tariffs and open markets for services and goods, as well as adopting WTO-compliant trade policies.

In recent years, Uzbekistan has expressed renewed interest in joining the WTO, reflecting changes in the country's economic policies and its desire to be more integrated in the international economy. The government is pursuing various reforms to liberalize its trade regime and improve the business environment, partly as steps towards achieving WTO membership.

The WTO General Council in July 2020 approved the creation of a working group to facilitate Uzbekistan's accession. This marked a significant step forward in the process and demonstrated the international community's support for Uzbekistan's proposal.

If successful, WTO membership is expected to provide Uzbekistan with a number of benefits, such as improved access to global markets, increased foreign investment, strengthened rule of law in trade matters and boosted economic growth. Moreover, this will signify the country's commitment to the rules of economic openness and global trade.

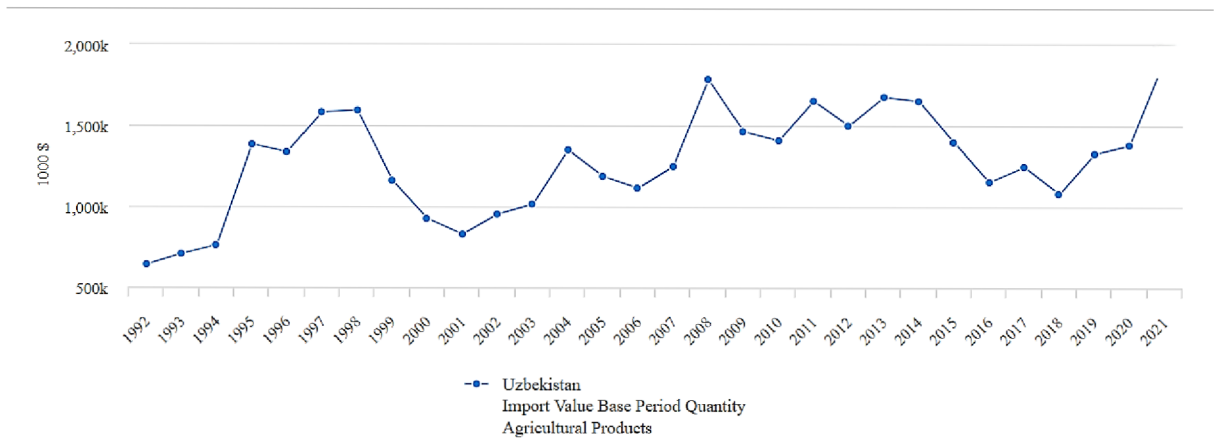
4.5.2. International trade in agricultural products: theoretical framework and global trends

Global trends in international agricultural trade demonstrate an ever-changing landscape influenced by numerous factors. Technological advances have revolutionized manufacturing and supply chains, while consumer preferences and dietary changes continue to shape demand patterns. Globalization has expanded markets but also increased competition (Koo, W., and Kennedy, P. L. 2005). Geopolitical shifts and the growth of emerging economies have reconfigured traditional trade routes. Environmental concerns and sustainable practices are increasingly shaping policy and consumer behavior, while multilateral and regional trade agreements aim to reduce barriers and create more stable trade relationships (Roberts, M., and Wehrheim, P. 2001).

Studying international agricultural trade involves analyzing how these theoretical constructs manifest in real-world trends and understanding that while economics provides the critical framework, nuances of politics, culture, sustainability, and technology make significant contributions to the structure of global agricultural trade (Scott, M. F. G. 1975).

The last forty years have observed significant shifts in the spatial trends of agricultural commerce. The significance of agricultural exchanges within the broader context of trade configurations has evolved across both industrialized and emerging nations (Francois, J., Stringer, R., and Sarris, A., 2005).

Figure 10 Import value base period quantity - Agricultural Products (Total)



Source: FAOSTAT (2023)

Figure 11 Export value base quantity – Agricultural Products (Total)

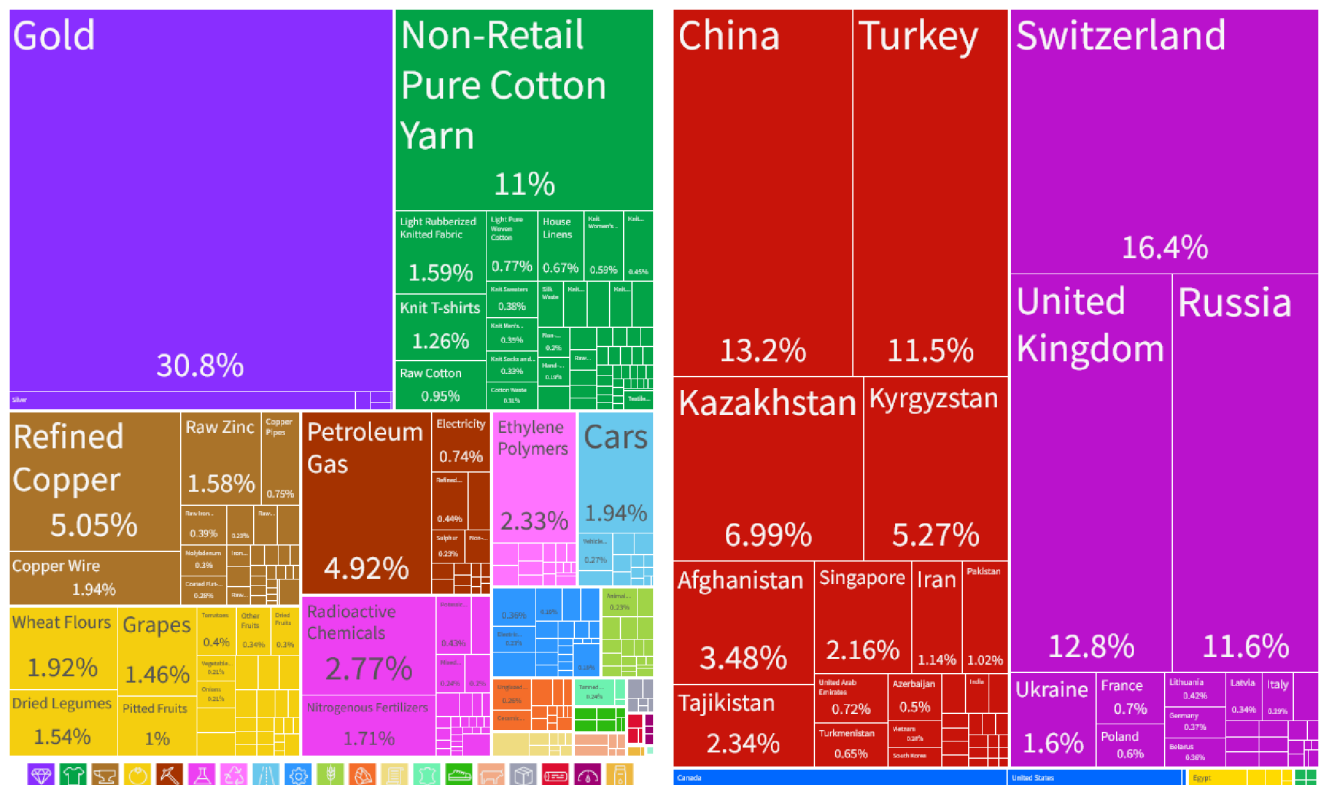


Source: FAOSTAT (2023)

4.6. International trade in agricultural products in Uzbekistan

The proportion of Uzbekistan's farm produce in the international marketplace is growing annually. The primary causes for this are the overhaul of agricultural production and the fortification of economic connections with trading allies.

Figure 12 Exports of Uzbekistan (2021)

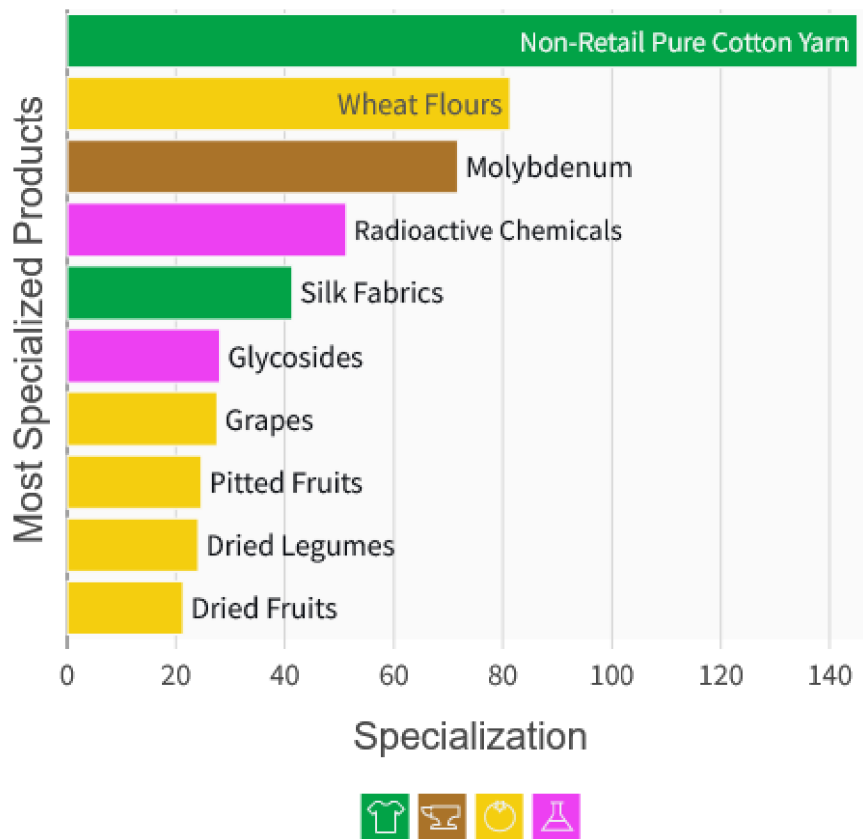


Source: Observatory of Economic Complexity, OEC

This chart includes indicators of the share of goods and countries in the total exports of the Uzbek economy on the world market in 2021 (Figure 12). The largest share of exports is gold, which accounts for 30.8% of total exports. Gold exports are distributed among the following countries: Switzerland (52%), United Kingdom (39.1%), Singapore (6.17%), United Arab Emirates (1.73%) and China (0.89%). The next product is non-retail pure cotton yarn accounts for 11% of total exports. The total export volume of non-retail pure cotton yarn is shared by the following countries: China (37%), Turkey (28.1%), Pakistan (3.67%), Iran (2.42%), Bangladesh (0.61%), Russia (18.7%), Poland (2.85%), Egypt (1.66%), Belarus (0.89%), Ukraine (0.83%), Germany (0.4%), Portugal

(0.8%) and Belgium (0.27%) and other countries. With refined copper accounting for 5.05% of total exports, the main importing countries are China and Turkey. In addition, Petroleum gas accounts for 4.92% of total exports in Uzbekistan, and the main importing countries are China (80.5%), Russia (10.6%), Tajikistan (5.82%), Kyrgyzstan (1.71 %) and Afghanistan (1.36%).

Figure 13 Specialization (export value, 2021)



Source: Observatory of Economic Complexity, OEC

This figure shows the total exports of Uzbekistan in international market by sector. Belong in this graph, Non-Retail Pure Cotton Yarn accounts for the largest share of exports, with its share of total exports amounting to 1.61 bil. The second largest export is Wheat Flour with its share of total exports amounting to 281 M (Figure 13).

4.6.1. Market Overview of the Republic of Uzbekistan

The government's fiscal strategy is grounded on import-replacing and export-driven industrialisation. All significant sectors of the nation are possessed or regulated by the state.

Since 2017, Uzbekistan has emphasized securing overseas investments. Nevertheless, a limited assortment of substantial state-initiated and government-endorsed investment ventures over the forthcoming five years will create the bulk of prospects for exports to Uzbekistan.

Expanding international appetite for food items manufactured in Uzbekistan fosters export chances for providers of food processing and packaging innovations.

Given its unique doubly landlocked position, Uzbekistan is enhancing its transport framework, incorporating linkages with key transcontinental routes. The state railway enterprise is planning to upgrade its locomotive fleet. In tables 1 and 2 presented below, the reader can discover the merchandise exports and imports of Uzbekistan by product category – yearly (Million USD).

Table 1 Merchandise imports of Uzbekistan by product group – annual (Million US dollar)

Product/Sector	Partner Economy	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total merchandise	World	12034	13138	13925	11461	11328	12035	17312	21866	19932	23740
Agricultural products	World						1686	2133	2475	2720	3583
Food	World	1265	1338				1297	1634	2025	2248	3081
Fuels and mining products	World	1931	2084				1048	1319	1647	1690	2449
Fuels	World	932	994				742	880	941	1095	1542
Manufactures	World						9299	13840	17685	15520	17707
Iron and steel	World						1094	1559	1697	1424	2089
Chemicals	World	1852	1973				1840	2129	2683	2920	3653
Pharmaceuticals	World						832	861	939	1169	1605
Machinery and transport equipment	World	5818	6099				4577	7701	9602	8007	8424
Office and telecom equipment	World						323	356	666	812	1018
Electronic data processing and office equipment	World						139	171	319	325	320
Telecommunications equipment	World						149	136	278	437	576
Integrated circuits and electronic components	World						35	49	69	51	122
Transport equipment	World						1356	2360	2716	2103	2687
Automotive products	World						1132	1958	2020	1795	2054
Textiles	World						211	250	319	306	396
Clothing	World						29	43	53	48	55

Source: UN COMTRADE, own processing, 2023

Table 2 Merchandise exports of Uzbekistan by product group – annual (Million US dollar)

Product/Sector	Partner Economy	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total merchandise	World	11210	12000	11500	9443	8974	10079	10921	14024	13097	14081
Agricultural products	World	2212	2640				1441	1425	1990	1782	1798
Food	World	909	1479				849	1077	1504	1410	1437
Fuels and mining products	World	6183	5643				2592	3643	3752	1876	2830
Fuels	World	5091	4692				1608	2667	2466	785	904
Manufactures	World	2700	3050				2608	2703	2860	3273	5004
Iron and steel	World						140	306	92	89	114
Chemicals	World	791	603				686	670	597	547	844
Pharmaceuticals	World						8	11	10	23	22
Machinery and transport equipment	World	949	830				352	204	378	445	689
Office and telecom equipment	World						11	12	18	22	23
Electronic data processing and office equipment	World						0	0	0	1	1
Telecommunications equipment	World						9	11	15	19	20
Integrated circuits and electronic components	World						2	1	2	1	2
Transport equipment	World						167	82	193	225	429
Automotive products	World						149	55	162	214	401
Textiles	World						835	967	1216	1372	2244
Clothing	World						272	293	362	514	658

Source: UN COMTRADE, own processing, 2023

4.6.2. Key economic indicators of Uzbekistan

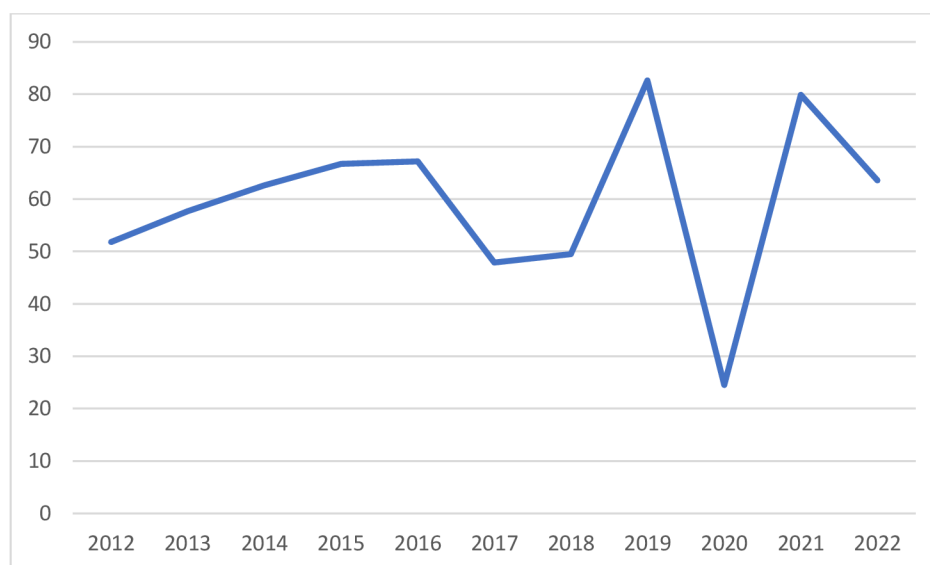
The table 3 and the graphs below depict the evolution of key economic indicators of Uzbekistan. From the graph it follows that after the economic crisis in 90th of the last century caused by the dissolution of the Soviet Union, from approximately 2007 Uzbekistan experienced economic growth in terms of both real GDP and real GDP per capita. This economic growth partially slowed down in 2015-2019, but the economic reforms enacted in 2017 by the current president managed to reverse the process.

Table 3 Key economic indicators of Republic of Uzbekistan

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Nominal GDP (billion USD)	51.8	57.7	62.6	66.7	67.2	47.9	49.5	82.65	24.51	79.92	63.6
Consumer price inflation (percent)	11.9	11.7	9.1	8.4	8.8	13.8	17.5	14.5	12.8	10.8	11.1
Foreign Direct Investment, net inflows (percent of GDP)	1.1	0.9	1	1.2	1.9	2.9	1.2	3.9	2.9	3	
Current account balance (percent of GDP)	1.8	1.8	2.6	1	0.2	2.4	-6.8	-5.6	-5	-7	-3.3
Exports FOB (billion USD)	14.25	15.08	14.10	12.87	12.56	13.95	10,9	14,9	13,2		
Imports CIF (billion USD)	12.02	13.79	13.95	12.41	12.11	13.00	17,3	21,8	20,0		

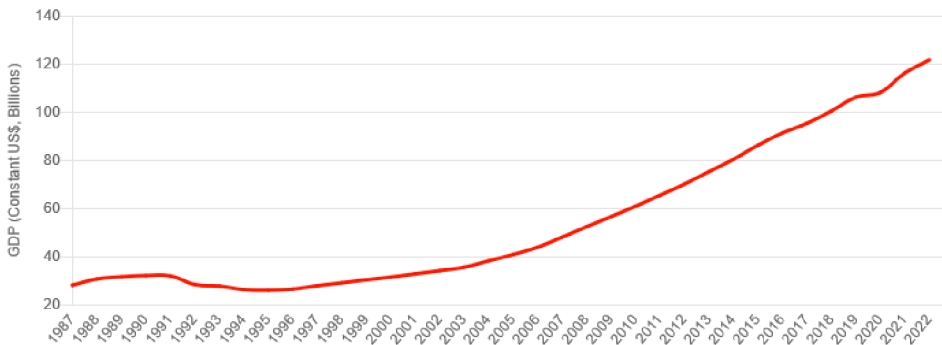
Source: International Monetary Fund (2023)

Figure 14 Nominal GDP (billion USD)



Source: International Monetary Fund (2023)

Figure 15 Real GDP (US\$): Uzbekistan



Source: World Bank, World Economics, Notes: 2010 Constant Prices

Figure 16 Real GDP Per Capita (US\$): Uzbekistan



Source: World Bank, World Economics, Notes: 2010 Constant Prices (US\$)

4.6.3. Agricultural sector and food manufacturing of Uzbekistan

The agricultural sector plays a crucial role in Uzbekistan's economic landscape, representing around 23.5% of GDP and engaging about 26% of the workforce (WTO, 2022). Cotton and cereals stand as the nation's key harvests. In 2022, the exportation of agri-goods accounted for roughly 8.4% of Uzbekistan's foreign revenue (ITA, 2023). Uzbekistan aims to elevate agri-food productivity by embracing novel technologies and to enhance packaging and processing capacities, thereby adding value to both homegrown and exportable products.

This table shows economic data for a specific industry or trade in Uzbekistan for the period 2015 to 2018. Here is a summary of the table:

Total local production varied, with a peak in 2016, a significant drop in 2017, and a recovery in 2018. Total exports have generally declined over four years, with the lowest level in 2017 and a slight increase in 2018. Total imports also decreased from 2015 to 2017, with a slight increase in 2018.

The total market size, which can be calculated as local production plus imports minus exports, also peaked in 2016, declined in 2017, and increased in 2018 (Table 4).

Exchange rates have risen sharply, more than tripling from 2015 to 2018.

Data suggests that while local production and market size have been somewhat volatile, there has been a consistent upward trend in exchange rates, indicating a possible devaluation of the local currency over the years. It is also clear that the industry or market depicted is capable of growth and recovery from a downturn.

Declines in exports and changes in imports suggest changes in global demand, competition and possibly domestic consumption patterns, which, along with fluctuations in production performance, may indicate economic or political shifts affecting the sector in these years.

Table 4 Food Manufacturing in Uzbekistan and its total volume in the economy (USD thousand)

	2015	2016	2017	2018
Total Local Production	6,446,705	7,965,329	4,961,550	6,457,862
Total Exports	1,317,100	1,069,800	875,800	1,087,567
Total Imports	1,585,200	1,439,700	1,273,900	1,432,933
Total Market Size*	6,714,805	8,335,229	5,359,650	6,803,228
Exchange Rates	2,595	2,965	5,121	8,000

*(total market size = (total local production + imports) - exports)

Source: State Committee of The Republic of Uzbekistan for Investments (2019)

Table 5 Exports of agricultural products in Uzbekistan (thousand ton) past 5 years

Products	Years				
	2010	2011	2012	2013	2015
Fresh vegetables	292.4	315.7	200.4	337.3	286.6
Melons and watermelon	65.9	87.9	41.8	45.7	7.7
Fruit	148.8	178.1	117.3	204.1	108.7
Grapes	66.4	111.1	118.9	22.1	186.9
Dried fruit	24.2	48.2	41.7	46.1	
Raisins	29.8	36.1	35.9	26.1	

Source: State Committee of The Republic of Uzbekistan for Investments (2022)

Uzbek fruits and vegetables have been renowned for their superior quality and sensory properties throughout the CIS nations for numerous years (Table 5). Recent advancements have led to efforts to enhance ties between neighboring nations through the establishment of a Customs Union comprising Kazakhstan, Belarus, and Russia, aimed at boosting exports of fruits and vegetables.

4.6.4. Market Challenges of Republic of Uzbekistan

Duties and Import Taxes

In Uzbekistan, duty rates on vehicles, domestic gadgets, electronic devices, fabrics, and edibles vary between 5 percent up to 100 percent, due to state interventions aimed at safeguarding domestic sectors.

Currency Issues

In the past few years, the rulership of Uzbekistan has executed significant economic transformations, comprising the deregulation of the foreign exchange market. In September 2017, a crucial resolution was adopted to abolish the currency's formal fixed rate to the US dollar, permitting its exchange rate to oscillate with greater liberty, which likewise assisted in eradicating the underground market for foreign currencies.

Banking Sector

At present, 33 commercial banks are operating in Uzbekistan, with 4 being entirely owned by the government, 8 being partly owned by the state, 10 being joint-stock commercial banks, 6 being banks with international involvement, and 5 being privately owned banks (OECD, 2022).

4.6.5. Trade Standards of Republic Uzbekistan

In Uzbekistan, a variety of standards can be implemented within the realm of trade and business, as established by the governmental authorities.

These include:

Security Standards: Rules established to confirm that products are free from harm for users and comply with their health and protection specifications.

Quality standards: guidelines concerning product excellence and longevity. This certifies that the item is dependable and suitable for its intended function.

Hygiene Standards: Protocols designed to guarantee that products are free from health hazards, commonly enforced in the food and medicinal sectors.

Technical Specifications: Comprehensive criteria addressing the technical facets of a product, including its configuration, construction, constituents, and the methodologies employed in its manufacture.

Ecological Standards: Protocols that products must adhere to in order to be deemed eco-conscious, including factors like emission thresholds or environmental sustainability measures.

Sector-Specific Norms: Criteria tailored to distinct sectors like automotive, aviation, or electronic industries, each with its own unique set of prerequisites.

Within the Republic of Uzbekistan, such benchmarks are typically overseen and regulated by the "Uzstandart" agency, tasked with the responsibility of certifying that products and procedures align with the pertinent domestic and global standards.

4.6.6. Foreign Exchange Controls of Republic of Uzbekistan

The Republic of Uzbekistan implements a series of regulations to regulate the inflow of foreign capital. These measures aim to oversee the currency exchange rates, inhibit the outflow of domestic capital, and safeguard the worth of the national currency. They encompass various actions, from mandating currency exchange to imposing restrictions on the quantity of foreign currency that individuals and corporate bodies can purchase, trade, or retain.

Companies aiming to trade or transport goods or services across borders are required to adhere to stringent declaration and authorization processes to align with the foreign exchange regulations.

The objective of these regulatory measures is to fortify the stability of the domestic economy, maintain adequate levels of international currency reserves, and facilitate a favorable balance of payments situation. The regulations also strive to curb significant price volatility in the domestic agricultural market that could stem from unchecked import practices. As Uzbekistan progresses with its modernization and possibly eases its fiscal system, the guidelines governing agricultural commerce may be adjusted to encourage additional expansion and steadiness within the industry.

4.6.7. Import Tariffs and requirements of Uzbekistan

Uzbekistan's system of import duties and stipulations is structured to manage the influx of merchandise into the nation, safeguard domestic sectors, and provide income for the state. The tariff framework consists of an array of taxes imposed on foreign goods, which may fluctuate according to the nature of the item, its source, and additional variables.

The nation commonly utilizes a blend of ad valorem duties—taxes based on a fixed proportion of the goods' value—and specific duties, which are predetermined fees dependent on the quantity, mass, or capacity of the items. Certain products may incur elevated tariffs to defend local sectors against overseas rivalry, whereas some may be assigned reduced tariffs or granted exemption to stimulate the import of goods advantageous to the economy.

Import taxes comprise:

- Value-added tax (VAT);
- Customs processing fee;
- Tariffs and duties;
- Excise duty

Tariff rates for imported merchandise vary from zero up to in excess of 100%, with the average rate hovering around 30%. Commencing from January 2010, a 5% tariff is levied on imports like live animals, dairy like milk and cream, wheat, and computer equipment; duties ranging from 10-30% are imposed on apparel, furnishings, metals, and edibles, while luxury personal goods such as tobacco products and automobiles are subject to tariffs exceeding 50%.

The VAT rate applied to imports stands at 20% across all goods. This VAT is calculated on a basis that encompasses the declared customs valuation plus any customs duties and relevant excise taxes that may apply.

4.6.8. Trade Agreements of Uzbekistan

Uzbekistan has established bilateral investment treaties or free trade agreements with 45 nations, encompassing the United States as well. The nation inked a pivotal strategic accord with Russia in 2004, which provided advantageous conditions for free trade and investment initiatives. Moreover, in November 2005, a “Treaty of Allied Relations” featuring provisions for economic interconnection was ratified between Uzbekistan and Russia. Concurrently, in 2004, Uzbekistan and Ukraine came to a consensus on dismantling all reciprocal commerce barriers. Embarking on an integration trajectory with the Eurasian Economic Community (EurAsEC) in 2006, Uzbekistan subsequently ceased its efforts to join the organization in November 2008.

Uzbekistan is not currently a constituent of the WTO, although it has signaled interest in joining in the past. The nation formalized its participation in the Commonwealth of Independent States (CIS) Free Trade Zone in the year 2014.

Most Favored Nation Treatment – bilateral trade agreements

Uzbekistan extends MFN status to an array of 45 countries, in alignment with the stipulations of bilateral agreements on mutual cooperation (Table 6)

Table 6 Bilateral contracts about mutual collaboration of the Republic of Uzbekistan

1. Austria	16. Italy	31. Slovakia
2. Bangladesh	17. Jordan	32. USA
3. Belgium	18. Cyprus	33. Turkey
4. Bulgaria	19. Republic of Korea	34. Finland
5. The United Kingdom	20. People’s Republic of China	35. France
6. Hungary	21. Latvia	36. Czech Republic
7. Vietnam	22. Lithuania	37. Switzerland
8. Germany	23. Malta	38. Sweden
9. Greece	24. Luxemburg	39. Estonia
10. Denmark	25. The Netherlands	40. Japan
11. Egypt	26. Portugal	41. Saudi Arabia
12. Israel	27. Pakistan	42. Malaysia
13. India	28. Poland	43. Iran
14. Ireland	29. Slovenia	44. Singapore
15. Spain	30. Rumania	45. Indonesia

Source: State Committee of The Republic of Uzbekistan for Investments (2023)

Tariff preferences

Uzbekistan enforces a regime of tariff preferences under an accord with the European Union. This agreement specifies a cap on customs duties for imported textile goods. Contrarily, the WTO system of tariff preferences is not adopted in Uzbekistan.

Quota system

The Republic of Uzbekistan refrains from utilizing a quota system. However, a roster of select imported goods requiring licenses and quotas has been instituted by the Cabinet of Ministers of the Republic of Uzbekistan. Moreover, the governmental authorities oversee the import and export of ozone-depleting substances within Uzbekistan in compliance with the Montreal Protocol (1987), reinforced by a governmental decree enacted in 2005.

Antidumping

Uzbek regulatory bodies mandate anti-dumping duties on certain imports, aiming to protect local industries from unfairly priced foreign competition. As of now, domestic anti-dumping measures are not established. The specific rates for anti-dumping duties are determined by the Cabinet of Ministers of the Republic of Uzbekistan.

Countervailing duties

The Uzbek government is authorized to enforce counteractive duties and safeguarding actions on imported merchandise that is manufactured, exported, or transited through Uzbekistan's territory and identified as inflicting substantial damage to the national economy. The procedural regulations for the application of countervailing duties mirror those utilized for anti-dumping duties.

4.6.9. Uzbekistan within global organizations and trading blocs

Commonwealth of Independent States (CIS)

The Commonwealth of Independent States (CIS) is a regional intergovernmental organization of former Soviet republics. It was created on December 8, 1991, after the collapse of the Soviet Union to ease the process of dissolution and provide a mechanism for joint management of the Soviet legacy and cooperation in a number of areas, including trade, finance, lawmaking and security.

The first parties to sign the agreement were the leaders of the three Soviet republics:

Russian President Boris Yeltsin (representative of the Russian Federation),

President of Ukraine Leonid Kravchuk (representative of Ukraine),

Chairman of the Parliament of Belarus Stanislav Shushkevich (representative of Belarus).

These leaders declared that the Soviet Union no longer existed and announced the creation of the CIS as its successor, seeking to preserve ties between the newly independent states.

The CIS includes nine full member countries: Azerbaijan, Armenia, Belarus, Kyrgyzstan, Kazakhstan, Tajikistan, Moldova, Russia and Uzbekistan.

In addition, Turkmenistan has the status of an associate member, that is, it participates in the organization, but has not ratified the CIS charter. Ukraine participated in the CIS as a founding member, but never ratified the charter, and in 2018 announced the termination of its participation in the organization's statutory bodies. Georgia was also a member of the organization but left the organization in 2009.

In the CIS, Russia largely plays a dominant role due to its size, economic power, population and military capabilities. Historically and culturally, Russia was a central player in the region and continued to exert significant influence on the CIS in terms of political leadership and direction.

Russia's dominance in the CIS is evident in many areas, including:

Economic Influence: Russia is the largest economy in the CIS, serving as a major trading partner for many member states, as well as providing them with critical energy resources such as gas and oil.

Cultural and linguistic connections: As a successor state to the Soviet Union, Russia has historical, cultural and linguistic ties with other members of the CIS, which enhances its influence.

Security and Defense: Russia heads the Collective Security Treaty Organization (CSTO), a military alliance of several CIS members, and maintains numerous military bases in the region.

Although Russia is the most influential member, other countries have regional importance and influence in certain regions or subregions of the CIS. Kazakhstan, for example, plays a growing role due to its economic growth and stability, as well as significant energy resources. Belarus also exerts influence, in part due to its close political and economic ties with Russia.

It is important to note that the degree of influence may change over time due to changing political, economic and social dynamics both within the CIS member states and in the international arena.

Uzbekistan, as one of the founding members of the CIS, plays an important role in the organization due to its strategic location, population and economic potential in Central Asia. Its participation in the CIS underscores its interest in regional cooperation and stability.

Here are some aspects of the role of Uzbekistan in the CIS:

Economic participation: Uzbekistan is the most populous country in Central Asia and has significant natural resources, including gold, natural gas and cotton making it an important economic player in the region and the CIS. Its economy and trade links within the CIS are significant, with a particular focus on energy and agricultural products.

Migration and labor market: Uzbekistan is a source of labor migrants, especially for Russia, which is a key destination for Uzbek workers seeking work abroad (about 2.5 million Uzbek migrants in 2019). This links the economy of Uzbekistan with the CIS countries through remittances and labor agreements.

Energy Exporter: Uzbekistan is a prominent exporter of natural gas in the CIS, where energy dynamics play an influential role in economic cooperation and geopolitics.

Regional Diplomacy: The country actively participates in regional diplomacy initiatives within the CIS, seeking to maintain friendly relations and resolve common issues such as border issues, water management and economic integration.

Security Cooperation: Although Uzbekistan suspended its membership in the CSTO, a military alliance of several CIS members, in 2012, it remains involved in security and counterterrorism discussions and initiatives within the CIS, guided by the common goal of regional stability.

Uzbekistan's role in the CIS has changed over time, reflecting changes in its domestic and foreign policies. At certain periods, it pursued a more independent foreign policy approach, even temporarily withdrawing from the CIS collective security agreement. However, Uzbekistan remains a member of the CIS and continues to engage in various levels of cooperation with other member states, maneuvering its role to balance its national interests with regional partnerships and commitments.

Eurasian Economic Community

The Eurasian Economic Community (EurAsEC) was created on October 10, 2000 by the leaders of Belarus, Kyrgyzstan, Kazakhstan, Tajikistan and Russia during a summit in Astana, Kazakhstan (now Nur-Sultan). The Community was created to promote integration in economic and energy policies, as well as to create a customs union between member countries. Armenia joined the organization in 2003, and Moldova and Ukraine were observer countries.

The main role of the EurAsEC was to coordinate and harmonize the national economic policies of the member countries, create a common customs territory, and work to form a common economic space. The Community sought to facilitate the free movement of services, capital, goods and labor between member states (Razumkov, O. 2002).

All member countries were considered equal partners, but due to their size and economy, Russia and Kazakhstan were seen as the dominant powers within the community.

It is important to note that the EurAsEC was effectively dissolved in 2015 with the creation of the EAEU, which replaced the EurAsEC and expanded its goals. Currently, the EAEU includes Armenia, Belarus, Kyrgyzstan, Kazakhstan and Russia. Integration within the EAEU has become deeper, including coordinated economic policies and a higher level of political dialogue between member states.

Uzbekistan is not a full member of the Eurasian Economic Union (EAEU). However, the country has shown interest in the EAEU and is studying the potential advantages and disadvantages of joining the union.

In December 2020, Uzbekistan received observer status in the EAEU, which allows it to attend meetings of the Union without the right to vote. This status is seen as a step that could potentially lead to full membership, but at the same time it allows Uzbekistan to better understand the functioning of the EAEU and assess how membership could affect its economy and sovereignty.

Thus, Uzbekistan's relations with the EAEU are cautious. The country is weighing the economic benefits of access to a wider common market and smoother regional trade against concerns about regulation, the loss of some economic independence and the impact on its labor market, given the significant number of Uzbek citizens working in Russia and other EAEU member states.

Shanghai Cooperation Organization (SCO)

The SCO is a regional multinational organization founded in Shanghai on June 15, 2001, by the leaders of China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan. The SCO focuses on political, economic and security cooperation.

The deadline is September 2021, full members of the SCO are China, Kyrgyzstan, Tajikistan, Kazakhstan, Russia, Uzbekistan, India (joined in 2017), Pakistan (joined in 2017). In addition to the above-mentioned full members, the SCO has observer states and dialogue partners who participate in various activities of the organization.

The main goals of the SCO are to strengthen mutual trust and good neighborly relations between member countries. Promote effective cooperation in political issues, trade and economics, research and culture, technology, as well as in the fields of education, tourism, transport, energy, environmental protection, etc. Work together to ensure stability and security in the region, combat terrorism, separatism and extremism. Advocate for an equitable, just, and sensible global political and economic system.

Uzbekistan is one of the founding members of the SCO and plays an active role in the organization. Due to its strategic location in Central Asia, Uzbekistan is vital to the regional security and economic integration promoted by the SCO. Being landlocked, Uzbekistan benefits from cooperation on issues such as energy, transport infrastructure and counterterrorism within the SCO.

United Nations and The Food and Agriculture Organization

The UN is a global institution established in 1945 to foster harmony, safety, and collaboration among nations. It currently has 193 member states, which include virtually all of the world's recognized independent states.

The main role of the UN includes:

- Maintaining security and international peace;
- Development of friendly relations between peoples;
- Collaboration in addressing global issues and advocating for human rights;
- To serve as a hub for coordinating the efforts of countries.

The FAO functions as a specialized branch of the UN, spearheading global endeavours to combat hunger while enhancing nutritional standards and bolstering food security. It has 195 member countries, plus the European Union, for a total of 196 members.

FAO's role includes:

- Help improve agricultural productivity and food security and thus improve the living conditions of rural populations;
- Providing impartial data, information and advice to member countries and international partnerships;
- Development and dissemination of knowledge about best practices in agriculture, forestry, fisheries and sustainable development;
- Serving as a neutral forum where all countries can meet, negotiate and discuss food and agriculture policies.

Uzbekistan became a member of the FAO of the UN on October 1, 1993. Since joining the organization, Uzbekistan has been collaborating with FAO to promote sustainable agricultural development, improve food security and ensure adequate nutrition for its population.

Cooperation between Uzbekistan and FAO covers several areas, including:

Technical assistance: FAO supported Uzbekistan in developing and modernizing its agricultural sector through various projects and initiatives.

Policy recommendations: FAO has offered recommendations on best practices in agricultural policy, helping Uzbekistan develop policies that improve food production and living standards in rural areas.

Capacity building: FAO helped build the capacity of Uzbek farmers, agricultural professionals and institutions through training and knowledge sharing.

Data and Statistics: Uzbekistan uses FAO resources to collect and analyze agricultural data to help inform policy decisions.

Innovation and technology: FAO promotes the use of new technologies and innovative methods in agriculture in Uzbekistan to improve efficiency and productivity.

Market access: FAO supports efforts to improve Uzbekistan's integration into regional and international agricultural markets.

Over the years, Uzbekistan has participated in FAO regional and global meetings and implemented numerous FAO-supported projects aimed at addressing various challenges such as improving livestock production, sustainable management of natural resources and addressing the impacts of climate change on agriculture.

The relationship between Uzbekistan and FAO continues to evolve, with initiatives being implemented that adapt to the most pressing needs of Uzbekistan's agriculture and related sectors.

The Asian Development Bank (ADB)

The ADB inaugurated in 1966, stands as a regional financial institution devoted to accelerating social and economic progress across Asia. Uzbekistan became a member of the ADB on September 19, 1995.

ADB's partnership with Uzbekistan focuses on various sectors, including transport, energy, water and sanitation, agriculture and natural resource management, finance, education, and health. Bank assistance often combines financing with knowledge and partnerships with other development stakeholders.

Some of the key areas of ADB's work with Uzbekistan include:

Infrastructure: ADB has provided significant investment to improve Uzbekistan's road network, which helps improve regional connectivity and trade.

Energy: Another priority was supporting Uzbekistan's efforts to improve energy efficiency and promote renewable energy sources.

Private Sector Development: ADB is helping Uzbekistan create a more conducive environment for private sector growth and foreign direct investment.

Water Resources Management: Development of efficient and sustainable irrigation and water management systems has been an important part of ADB projects in Uzbekistan, given the country's agricultural profile.

Social Services: Through financing and project implementation, ADB has helped improve the quality of education and health care in Uzbekistan.

Economic Management: ADB provides advisory services to help Uzbekistan improve macroeconomic and public financial management.

Uzbekistan's partnership with ADB also aligns with its national development priorities, ensuring the country's inclusive and sustainable growth. ADB's strategies and operational plans for Uzbekistan often coincide with the country's strategies for economic diversification, modernization, and improved regional cooperation. ADB continues to be a major multilateral development partner for Uzbekistan, and their joint efforts play a significant role in the country's socio-economic progress.

5. Empirical part

5.1. The competitiveness analysis of Uzbek agrarian trade.

In this chapter, the competitiveness of agrarian trade in the global market of Uzbekistan, as well as regional and product structure changes, are analyzed from the point of view of the last 24 years (1995-2019). The demonstrates the existence of comparative advantage using the TBI and LFI indices, taking into account only indicators of agricultural trade. A review of the competitiveness of Uzbekistan's agricultural market facilities in the world and CIS countries has been studied. That is, the results obtained from the modified approach provide a more accurate picture of the distribution of comparative advantages of Uzbekistan's agricultural exports. It is known that the Republic of Uzbekistan carries out trading activities with different trading groups in different modes and on different conditions. As a member of the CIS countries, Uzbekistan can freely export and import its products to the CIS market without any restrictions, on the other hand, to certain regions trade activities between the European Union and other European countries and Uzbekistan are affected by agreements signed by the WTO or on a bilateral basis. If we want to understand the true distribution of comparative advantage, we must analyze it for each individual group of countries. The analysis includes not only a comparison of different product structures and the competitiveness of individual products for individual groups of countries. This also makes it possible to compare the state of the product composition at the beginning and at the end of the analyzed period.

The results of analyses over past periods show that a large share of agricultural trade of the Republic of Uzbekistan falls on the CIS countries and Asia. According to the results of the analysis, despite limited relations with some trading partners, trade in agricultural products of Uzbekistan has regular positive growth.

Table 7, situated below, illustrates a condensed version of the competitive edge analyses detailed in subsections 5.1.1. through 5.1.5. This synopsis specifically pertains to the goods for which Uzbekistan possessed a relative advantage against CIS member countries and globally in the selected years: 1995, 2000, 2010, 2015, 2018, and 2019. The data from the table indicates that, in many of the aforementioned years, Uzbekistan enjoyed a relative advantage over global countries in categories such as Animal-derived products, Consumable vegetables and certain tubers, Eatable fruits and nuts along with rinds of citrus fruits, Vegetable, fruit, and nut preparations, along with Alcoholic and non-alcoholic beverages and vinegars. In comparison to CIS member countries, Uzbekistan additionally displayed a relative advantage in commodities like Tea, Tobacco and Coffee.

Table 5 Comparative advantage of Uzbek agricultural commodities. Summary.

Comparative advantage	1995	2000	2010	2015	2018	2019
UZ vs world	HS05 (Products of animal origin), HS08 (Edible fruit and nuts peel of citrus fruit), HS12 (Oil seeds), HS14 (Vegetable plaiting materials vegetable products), HS20 (Preparations of vegetables, fruit, nuts), HS23 (Beverages, spirits and vinegar)	HS01 (Live animals), HS05 (Products of animal origin), HS06 (Live trees and other plants bulbs) HS07 (Edible vegetables and certain roots), HS08 (Edible fruit and nuts peel of citrus fruit), HS12 (Oil seeds), HS13 (Lac gums, resins), HS14 (Vegetable plaiting materials vegetable products), HS20 (Preparations of vegetables, fruit, nuts), HS22 (Beverages, spirits and vinegar), HS23 (Beverages, spirits and vinegar), HS24 (Tobacco)	HS03 (Fish and crustaceans, molluscs), HS07 (Edible vegetables and certain roots), HS08 (Edible fruit and nuts peel of citrus fruit), HS13 (Lac gums, resins), HS14 (Vegetable plaiting materials vegetable products), HS20 (Preparations of vegetables, fruit, nuts), HS22 (Beverages, spirits and vinegar)	HS05 (Products of animal origin), HS07 (Edible vegetables and certain roots), HS08 (Edible fruit and nuts peel of citrus fruit), HS14 (Vegetable plaiting materials vegetable products), HS20 (Preparations of vegetables, fruit, nuts),	HS04 (Dairy produce birds' eggs natural honey edible products of animal origin), HS07 (Edible vegetables and certain roots), HS08 (Edible fruit and nuts peel of citrus fruit), HS13 (Lac gums, resins), HS14 (Vegetable plaiting materials vegetable products), HS20 (Preparations of vegetables, fruit, nuts), HS22 (Beverages, spirits and vinegar)	HS05 (Products of animal origin), HS07 (Edible vegetables and certain roots), HS08 (Edible fruit and nuts peel of citrus fruit), HS20 (Preparations of vegetables, fruit, nuts), HS22 (Beverages, spirits and vinegar)
UZ vs CIS	HS05 (Products of animal origin), HS08 (Edible fruit and nuts peel of citrus fruit), HS12 (Oil seeds), HS13 (Lac gums, resins), HS14 (Vegetable plaiting materials vegetable products), HS15, HS18 (Cocoa and cocoa preparations), HS20 (Preparations of vegetables, fruit, nuts), HS21 (Miscellaneous edible preparations), HS24 (Tobacco)	HS05 (Products of animal origin), HS06 (Live trees and other plants bulbs) HS07 (Edible vegetables and certain roots), HS08 (Edible fruit and nuts peel of citrus fruit), HS12 (Oil seeds), HS13 (Lac gums, resins), HS14 (Vegetable plaiting materials vegetable products), HS19 (Preparations of cereals, flour, starch), HS20 (Preparations of vegetables, fruit, nuts), HS22 (Beverages, spirits and vinegar), HS23 (Beverages, spirits and vinegar), HS24 (Tobacco)	HS01 (Live animals), HS05 (Products of animal origin), HS06 (Live trees and other plants bulbs) HS07 (Edible vegetables and certain roots), HS08 (Edible fruit and nuts peel of citrus fruit), HS09 (Coffee, tea, mate and spices), HS12 (Oil seeds), HS13 (Lac gums, resins), HS14 (Vegetable plaiting materials vegetable products), HS16 (Preparations of meat, of fish or of crustaceans), HS20 (Preparations of vegetables, fruit, nuts), HS22 (Beverages, spirits and vinegar), HS24 (Tobacco)	HS05 (Products of animal origin), HS06 (Live trees and other plants bulbs) HS07 (Edible vegetables and certain roots), HS08 (Edible fruit and nuts peel of citrus fruit), HS09 (Coffee, tea, mate and spices), HS13 (Lac gums, resins), HS14 (Vegetable plaiting materials vegetable products), HS20 (Preparations of vegetables, fruit, nuts), HS22 (Beverages, spirits and vinegar), HS24 (Tobacco)	HS05 (Products of animal origin), HS06 (Live trees and other plants bulbs) HS07 (Edible vegetables and certain roots), HS08 (Edible fruit and nuts peel of citrus fruit), HS09 (Coffee, tea, mate and spices), HS14 (Vegetable plaiting materials vegetable products), HS20 (Preparations of vegetables, fruit, nuts), HS22 (Beverages, spirits and vinegar), HS24 (Tobacco)	HS05 (Products of animal origin), HS06 (Live trees and other plants bulbs) HS07 (Edible vegetables and certain roots), HS08 (Edible fruit and nuts peel of citrus fruit), HS09 (Coffee, tea, mate and spices), HS14 (Vegetable plaiting materials vegetable products), HS18 (Cocoa and cocoa preparations), HS20 (Preparations of vegetables, fruit, nuts), HS24 (Tobacco)

Source: Source: own processing, 2022. These results present the summary of the comparative advantage analyses presented in the section 5.1.1-5.1.5. Namely, the table present the goods, in the case of which Uzbekistan had comparative advantage with respect to World countries and CIS countries.

5.1.1. Changes in the character and competitiveness of Uzbekistan's agrarian Foreign Trade 2000-2015

This chapter is based on the author's following published article: Ortikov, A. (2017). Changes in the character and competitiveness of Uzbekistan's agrarian foreign trade.

Agricultural sector represents an important pillar in Uzbek economy and society. Agricultural trade represents nearly 10% of total merchandise exports and over 10% of total merchandise imports. The character and structure of Uzbek agrarian trade are fast changing. Only in period 1992 – 2015, the value of agrarian trade turnover increased from 140 mill. USD up to 1.7 billion USD. Changes affected not only the structure but also the value, volume, unit prices and competitiveness. Competitiveness is analyzed not only in relation to global markets, but it is also analyzed in relation to different groups of countries and significant agrarian trade partners. Both agrarian trade competitiveness and territorial and commodity structure changes are analyzed from the perspective of the last 15 years (2000-2015).

Agrarian trade development (territorial structure) is analysed from two different perspectives: intra-trade (CIS market) and extra-trade (other countries). Competitiveness analyses is done through the application of following methods: Lafay index, Trade balance index and also the product mapping approach is applied. Uzbek agrarian trade territorial structure has become more concentrated, the commodity structure became more diversified. Uzbek trade is quite competitive especially in relation to the Asian countries and CIS countries, the competitiveness in relation to other territories is limited. The significant weakness in Uzbek agrarian trade is its ability to generate added value. The unit values of Uzbek imports are much higher in comparison to exports unit values. The main pillar of Uzbek competitiveness is low price of inputs and cheap volume of unprocessed products.

In Uzbekistan, the performance of export of agricultural products has been increased every year. It is a symbol of efficient use of resources. The export potential of agricultural products is one of the organic parts of the national economy. It involves the possibility of the national economy to produce products that will be competitive in the international market and export those products in sufficient quantity for world/market prices. The main role of agricultural exports is the ability to foster the current state of the Uzbek agro-industrial complex and to use its competitive prospects. The application of Uzbekistan to join the WTO as a full member was sent in December 1994. In December 1995, WTO working group was formed to consider the issue of Uzbekistan's membership. In the years that followed, no progress was made in the work on accession to the WTO. On May 31, 2013, national government signed a protocol establishing the free trade zone between the Republic of Uzbekistan and Community of Independent States (CIS). The purpose of the Protocol is to encourage mutual cooperation between Uzbekistan and CIS. Another reason why this Protocol was signed is the effort of Uzbekistan to unify the trade regimes in relation to CIS and to foster cooperation existing within the former soviet countries Customs Union.

Uzbek agrarian foreign trade experienced significant changes during the last few years. Only in the period from 2000 through 2015, its export value increased from 249 million USD to 561 million USD. The growth of exports even exceeded the growth of imports (from 270 million USD up to 1 billion 200 million USD).

Uzbek agrarian export territorial structure in the period of 2001 to 2015 was heavily concentrated in relation to CIS countries. The dominant positions are kept by Russia, Kazakhstan and Belarus. Tradition role of Russia as the main trade partner is changing. The share of exports to Russia is decreasing, on the other hand, Kazakhstan has become the extremely important trade partner for Uzbek agrarian export within the last few years (Ilyina, 2016). Within the mentioned time period, the Republic of Uzbekistan and other post-soviet countries significantly changed their trade strategies and policies. The negative feature of Uzbek agrarian trade is much faster growth of import value in comparison to the growth of export value. The result is constantly increasing negative trade balance.

Results coming from individual analyses provide the following findings. The agrarian trade of Uzbekistan is concentrated on CIS members, central Asian and European countries (Table 8 and 9). The most dominant role is represented by CIS members, Asian countries and EU members. The Asian share in the Uzbek agricultural export and import reached about 89,2 % respectively 40,7 % in 1995. The share of EU28 in agricultural export and import reached about 10,8 % respectively 24,5 % in 1995. The share of CIS members in agricultural exports and imports reached 83,3% respectively 33,6% in 1995.

Table 6 Uzbek agrarian exports' concentration - by regional groups in 1995 (HHI index)

1995	Market share	Square
Asia	39,2%	1536,64
Africa	0,1%	0,01
EU 28	29,2%	852,6
Other European countries		
CIS	31,0%	961,0
North America	0,4%	0,2
Latin America		
Australia and Oceania		
World	100,0%	3350,5

Source: own processing, 2019

Table 7 Uzbek agrarian exports' concentration - by regional groups in 2015 (HHI index)

2015	Market share	Square
Asia (without GIS countries)	24,8%	576,0
Africa	0,2%	0,0
EU 28	5,8%	33,6
Other European countries (without EU and CIS)	0,6%	0,4
CIS (without Asian countries)	67,3%	4529,3
North America	1,1%	1,2
Latin America	0,1%	0,0
Australia and Oceania	0,0%	0,0
World	100,0%	5140,6

Source: own processing, 2019

Table 8 Uzbek agrarian exports' concentration - by CIS countries in 2000 (HHI index)

2000	Market share	HHI index
Azerbaijan	0,04%	0,00
Belarus	3,37%	11,36
Moldova	0,01%	0,00
Armenia	0,11%	0,01
Georgia	1,47%	2,16
Kazakhstan	1,06%	1,12
Kyrgyzstan	1,91%	3,65
Russian Federation	87,32%	7 624,78
Tajikistan	2,34%	5,48
Turkmenistan	1,51%	2,28
Ukraine	0,86%	0,74
Total	100,00%	7 651,58

Source: own processing, 2019

Table 9 Uzbek agrarian exports' concentration - by regional groups in 2015 (HHI index)

2015	Market share	HHI index
Azerbaijan	0,50%	0,25
Belarus	1,14%	1,30
Moldova	0,09%	0,01
Armenia	0,13%	0,02
Georgia	0,88%	0,77
Kazakhstan	78,85%	6 217,32
Kyrgyzstan	0,93%	0,86
Russian Federation	15,68%	245,86
Tajikistan		
Turkmenistan		
Ukraine	1,80%	3,24
Total	100,00%	6 469,64

Source: own processing, 2019

A common measure of market concentration and determine market competitiveness in CIS countries, analyses provide the following results. The most dominant role in CIS is represented by the Russian Federation, Belarus and Tajikistan (Table 10 and 11). The Russian Federation share in the Uzbek agricultural export and import reached about 87,3 % respectively 12,2 % in 2000. The

share of Belarus in agricultural export and import reached about 3,4 % respectively 0,2 % in 2000. The share of Tajikistan in agricultural exports and imports reached 2,4 % respectively 0,09 % in 2000.

In 2015, the trading partnership has been partly changed. The Russian Federation share in the Uzbek agricultural export and import reached about 15,7 % respectively 33,3 % in 2015. The share of Belarus in agricultural export and import reached about 1,2 % respectively 0,4 % in 2015). The share of Kazakhstan in agricultural exports and imports reached 78,9 % respectively 60,50 % in 2015.

During the next fifteen years (2000 - 2015), the share of individual trade partners changed by the following way. The Asian share in agricultural export and import reached 24,8% respectively about 11,3% (in 2015). The share of EU28 in total exports and imports reached 5,8% respectively 14,4%. And the share of CIS countries in total agricultural exports and imports reached 67.3% respectively 68.6% (no. Table 12 till 15).

The total value of agricultural trade performance recorded the significant growth. The nominal value of exports increased from cc 250 mil. USD up to cc 562 mil. USD. The value of imports recorded the growth from 271 mil. USD up to 1,2 bill. USD. The total value of negative agri-food trade balance increased from 21 mil. USD up to cc 650 mil. USD. However, the negative trade performance is increasing, the inter annual growth of exports (2 times growth) is much higher in comparison to inter-annual growth rate of imports (5 times growth). Speaking about the last fifteen years development, the specific paradox was recorded. Despite of constantly increasing negative trade balance, the export/import coverage ration significantly increased from 14% to 46% and emerged a highly concentrated marketplace.

Table 10 Uzbek agricultural export by geographic regions (in USD)

	2000	2002	2004	2006	2008	2010	2012	2014	2015
Asia	18 677 323	19 474 643	34 763 998	36 010 089	62 350 550	101 525 002	69 210 113	77 554 682	140 100 653
Africa		548	1 247 171		32 894	472 816	1 478 852	1 792 267	1 356 616
EU 28	17 749 020	15 326 803	25 737 114	26 300 142	36 160 426	28 838 225	42 278 529	66 463 152	32 917 097
Other European countries	3 092 804	231 174	14 671 411	2 982 886	3 447 461	5 247 670	4 679 451	5 380 019	3 647 255
CIS	210867285	113 316 831	302 262 592	538 194 712	311 563 734	584 297 384	482 705 102	502 399 066	380 292 388
North America	2 181 042	2 539 439	603 725	1 813 202	2 145 021	2 556 550	4 521 095	9 615 120	6 057 608
Latin America	95		495 899	207 610	167 628	375 707	231 988	371 487	527 356
Australia and Oceania			9 389	29 398	11 258	82 285	115 869	85 902	35 196
World	252 567 569	150 889 438	379 791 299	605 538 039	415 878 972	723 395 639	605 220 999	663 661 695	564 934 169

Source: own processing 2019

Table 11 Territorial structure of the Uzbek agricultural export (%)

	2000	2002	2004	2006	2008	2010	2012	2014	2015
Asia	7,4%	12,9%	9,2%	5,9%	15,0%	14,0%	11,4%	11,7%	24,8%
Africa			0,3%			0,1%	0,2%	0,3%	0,2%
EU 28	7,0%	10,2%	6,8%	4,3%	8,7%	4,0%	7,0%	10,0%	5,8%
Other European countries	1,2%	0,2%	3,9%	0,5%	0,8%	0,7%	0,8%	0,8%	0,6%
CIS	83,5%	75,1%	79,6%	88,9%	74,9%	80,8%	79,8%	75,7%	67,3%
North America	0,9%	1,7%	0,2%	0,3%	0,5%	0,4%	0,7%	1,4%	1,1%
Latin America			0,1%			0,1%		0,1%	0,1%
Australia and Oceania									
World	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Source: own processing 2019

Table 12 Uzbek agricultural imports by geographic regions (in USD)

	2000	2002	2004	2006	2008	2010	2012	2014	2015
Asia	35 743 330	44 009 551	54 027 658	57 971 234	99 855 675	113 574 116	161 920 695	182 568 163	137 246 993
Africa		86 990	4 048	53 640	505 966	2 313 311	566 036	670 950	193 580
EU 28	141 937 313	69 801 319	97 122 381	169 794 863	209 102 830	170 740 536	300 124 179	459 768 749	175 374 376
Other European countries	336 619	1 265 708	1 132 043	453 902	3 705 561	6 160 991	4 418 643	9 763 858	8 531 567
CIS	91 372 459	59 185 551	67 631 873	128 365 443	543 971 155	547 275 202	825 428 487	872 279 137	833 276 490
North America	1 793 607	42 002 487	12 096 492	1 370 642	1 798 798	479 211	1 362 428	3 720 462	2 901 732
Latin America	57 994	579 034	9 996 577	5 288 507	7 444 715	19 531 782	12 635 840	6 477 835	53 931 938
Australia and Oceania		878 951	135 980	2 582 628	4 043 422	3 605 879	7 324 815	4 683 916	2 950 252
World	271 241 322	217 809 591	242 147 052	365 880 859	870 428 122	863 681 028	1 313 781 123	1 539 933 070	1 214 406 928

Source: own processing 2019

Table 13 Territorial structure of the Uzbek agricultural import (%)

	2000	2002	2004	2006	2008	2010	2012	2014	2015
Asia	13,2%	20,2%	22,3%	15,8%	11,5%	13,2%	12,3%	11,9%	11,3%
Africa					0,1%	0,3%			0,0%
EU 28	52,3%	32,0%	40,1%	46,4%	24,0%	19,8%	22,8%	29,9%	14,4%
Other European countries	0,1%	0,6%	0,5%	0,1%	0,4%	0,7%	0,3%	0,6%	0,7%
CIS	33,7%	27,2%	27,9%	35,1%	62,5%	63,4%	62,8%	56,6%	68,6%
North America	0,7%	19,3%	5,0%	0,4%	0,2%	0,1%	0,1%	0,2%	0,2%
Latin America		0,3%	4,1%	1,4%	0,9%	2,3%	1,0%	0,4%	4,4%
Australia and Oceania		0,4%	0,1%	0,7%	0,5%	0,4%	0,6%	0,3%	0,2%
World	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Source: own processing 2019

5.1.2. Comparative advantage: product mapping of Uzbekistan's agricultural exports 1995-2015

This chapter is based on the author's following published article: Ortikov, A., and Vacek, T. (2018).

Comparative advantage: products mapping of Uzbekistan's agricultural exports.

The agrarian trade of Uzbekistan is concentrated on European and central Asian countries. The most dominant role is represented by Asian countries, CIS members and EU members. The Asian share in the Uzbek agricultural export and import reached about 39% respectively 23% in 1995. The share of EU28 in agricultural export and import reached about 29% respectively 53% (in 1995). The share of CIS members in agricultural exports and imports reached 31% respectively 18.3% (in 1995).

Table 14 Uzbek agrarian foreign trade value development between 1995 and 2015 (in USD)

1995	Asia	Africa	EU 28	Other European countries	CIS	North America	Latin America	Australia and Oceania
Export	19 125 435	67 379	14 275 793	2 641	15 139 841	2 181 042		
Import	80 859 051	636 358	180 904 505	9 072 518	62 152 922	1 793 607	5 227 238	
Balance	-61 733 616	-568 979	-166 628 712	-9 069 877	-47 013 081	387 435		
Balance/Export	-322,78%	-844,45%	-1167,21%	-343425,86%	-310,53%	17,76%		
2015	Asia	Africa	EU 28	Other European countries	CIS	North America	Latin America	Australia and Oceania
Export	140 100 653	1 356 616	32 917 097	3 647 255	380 292 388	6 057 608	527 356	35 196
Import	137 246 993	193 580	175 374 376	8 531 567	833 276 490	2 901 732	53 931 938	2 950 252
Balance	2 853 660	1 163 036	-142 457 279	-4 884 312	-452 984 102	3 155 876	-53 404 582	-2 915 056
Balance/Export	2,04%	85,73%	-432,78%	-133,92%	-119,11%	52,10%	-10126,86%	-8282,35%

Source: own processing 2019

Table 15 Uzbek agrarian foreign trade value development by CIS countries between 2000 and 2015 in USD

2000	Export	Import	Balance	Balance/Export	2015	Export	Import	Balance	Balance/Export	Export Basic index 2015/2000	Import Basic index 2015/2000
Azerbaijan	93 673	28 120	65 553	70%	Azerbaijan	1 898 439	1 257 758	640 681	34%	20	45
Belarus	7 103 200	180 400	6 922 800	97%	Belarus	4 332 900	3 392 900	940 000	22%	1	19
Moldova	30 437	1 075 751	-1 045 314	-3434%	Moldova	349 960	712 324	-362 364	-104%	11	1
Armenia	237 680		237 680	100%	Armenia	490 761	658 467	-167 706	-34%	2	
Georgia	3 092 442	307 985	2 784 457	90%	Georgia	3 335 096	3 154 955	180 141	5%	1	10
Kazakhstan	2 232 000	73 481 100	-71 249 100	-3192%	Kazakhstan	299 862 880	504 536 327	-204 673 447	-68%	134	7
Kyrgyzstan	4 031 855	1 383 710	2 648 145	66%	Kyrgyzstan	3 520 227	3 063 060	457 167	13%	1	2
Russian Federation	184 119 106	11 084 490	173 034 616	94%	Russian Federation	59 645 360	277 278 826	-217 633 466	-365%		25
Tajikistan	4 931 000	81 000	4 850 000	98%	Tajikistan						0
Turkmenistan	3 190 410	179 810	3 010 600	94%	Turkmenistan						0
Ukraine	1 805 482	3 570 093	-1 764 611	-98%	Ukraine	6 856 765	39 221 873	-32 365 108	-472%	4	11
Total	210 867 285	91 372 459	119 494 826	57%	Total	380 292 388	833 276 490	-452 984 102	-119%	2	9

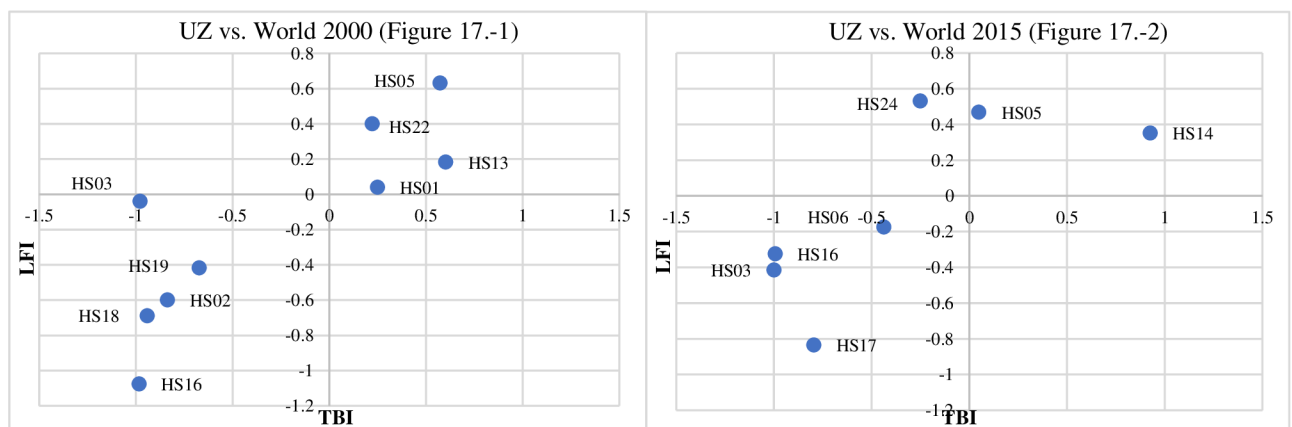
Source: COMTRADE database, 2019 and own calculations

Over the subsequent two decades (1995 – 2015), the proportion of specific trading allies shifted subsequently. The Asian fraction of agricultural imports and exports attained 25% and roughly 11% respectively (in 2015). The portion of EU28 in collective imports and exports achieved 6%

respectively 14%. Additionally, the proportion of CIS countries in aggregate agricultural imports and exports amounted to 67.1% respectively 68.5%.

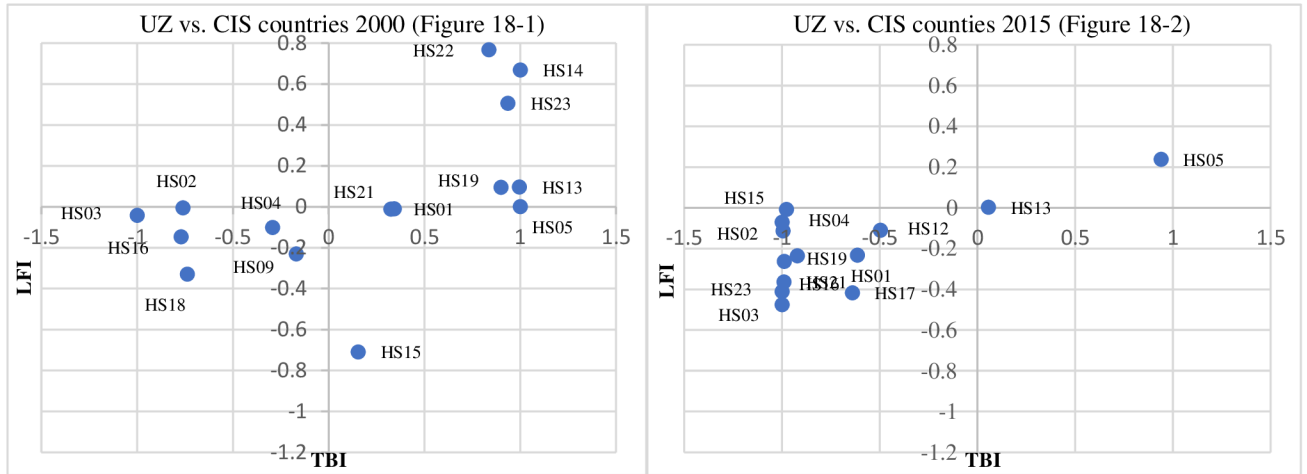
The total value of agricultural trade performance recorded the significant growth. The nominal value of exports increased from cc 51 mil. USD up to cc 562mil. USD. The value of imports recorded the growth from 340 mil. USD up to 1,2 bill. USD. The total value of negative agri-food trade balance increased from 284 mil. USD up to cc 650 mil. USD. However, the negative trade performance is increasing, the inter annual growth of exports (10times growth) is much higher in comparison to inter-annual growth rate of imports (4times growth). Speaking about the last twenty years development, the specific paradox was recorded. Despite of constantly increasing negative trade balance, the export/import coverage ration significantly increased from 14% to 46%. As could be seen (Table 16 and 17) the current agricultural trade performance of Uzbekistan is heavily focused on CIS and Asian countries. Those partners represent nearly 92% of export value and 80% of import value. During the analyzed time period their shares in exports and imports increased by 22% respectively 38%. The key aspect of the Uzbek agrarian trade is its competitiveness (especially low-price competitiveness). Based on volume (tons) and value (total value and unit value) analysis, the bulk commodities (e.g. vegetables, fruits) could be considered as the main driver of agricultural export growth. Another very specific feature of Uzbek agri-food trade is its concentration on post-Soviet countries. Those countries’ markets represent the key territory for export oriented activities. And mutual trade agreements (trade preferential agreements and free trade zone) could be considered as the key element supporting national export ambitions.

Figure 17 Uzbek agrarian exports’ comparative advantages distribution – traditional and modified “Product mapping approach”



Source: own processing, 2019

Figure 18 Uzbek agrarian exports’ comparative advantages distribution – traditional and modified “Product mapping approach”



Source: own processing, 2019

Additional note on figure:

TBI - Trade balance index, LFI - Lafay index.

Table 16 The list of Harmonized commodity aggregations in the analysis (HS)

HS01	Live animals	HS13	Lac gums, resins and other vegetable saps and extracts
HS02	Meat and edible meat offal	HS14	Vegetable plaiting materials vegetable products not elsewhere specified or included
HS03	Fish and crustaceans, molluscs and other aquatic invertebrates	HS15	Animal or vegetable fats and oils and their cleavage products prepared edible fats animal or vegetable waxes
HS04	Dairy produce birds' eggs natural honey edible products of animal origin, not elsewhere specified or included	HS16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates
HS05	Products of animal origin, not elsewhere specified or included	HS17	Sugars and sugar confectionery
HS06	Live trees and other plants bulbs, roots and the like cut flowers and ornamental foliage	HS18	Cocoa and cocoa preparations
HS07	Edible vegetables and certain roots and tubers	HS19	Preparations of cereals, flour, starch or milk pastry cooks' products
HS08	Edible fruit and nuts peel of citrus fruit or melons	HS20	Preparations of vegetables, fruit, nuts or other parts of plants
HS09	Coffee, tea, mate and spices	HS21	Miscellaneous edible preparations
HS10	Cereals	HS22	Beverages, spirits and vinegar
HS11	Products of the milling industry malt starches inulin wheat gluten	HS23	Residues and waste from the food industries prepared animal fodder
HS12	Oil seeds and oleaginous fruits miscellaneous grains, seeds and fruit industrial or medicinal plants and fodder	HS24	Tobacco and manufactured tobacco substitutes

Source: COMTRADE database, 2019

The existence of comparative advantages is proved through the application of LFI and TBI indices taking into consideration only agricultural trade performance (Westin, P. 1998). The above-mentioned graphs provide an overview related to individual Uzbek agrarian trade items competitiveness in the world (Figures 17) and CIS members (Figures 18). Graphs provide a different overview of the modified product mapping approach.

The results provided by the modified approach deliver a more accurate overview of Uzbek agrarian exports comparative advantages distribution. The results provided by the modified approach deliver a more accurate overview of Uzbek agrarian exports comparative advantages distribution. The number of items located in groups B and C are significantly reduced and the whole commodity structure is divided into two groups A (having comparative advantages) and D (without comparative advantages). The modified approach is able to specify in more detail, the current level of Uzbek agrarian trade competitiveness and competitiveness development. On this applied approach, it is evident that the Uzbek agrarian trade commodity structure has been significantly changing its character. The commodity structure is still looking for its optimal state (for details see also tables 19 and 20).

Table 17 Uzbek agrarian trade commodity structure in 1995 in USD

All trade transactions worldwide 1995									
B-1995	Export	Share in export	Import	Share in import	A-1995	Export	Share in export	Import	Share in import
HS03	55 710	0,11%	403 256	0,12%	HS05	1 255 960	2,57%	364 572	0,11%
HS21	673 537	1,38%	8 406 785	2,47%	HS08	497 930	1,02%	415 735	0,12%
					HS12	1 606 879	3,29%	462 849	0,14%
					HS14	23 976 234	49,12%	16 570	0,00%
					HS20	7 902 184	16,19%	1 726 779	0,51%
					HS23	7 543 119	15,45%	2 418 849	0,71%
Total	729 247	1,49%	8 810 041	2,59%	Total	42 782 306	87,64%	5 405 354	1,59%
D-1995	Export	Share in export	Import	Share in import	C-1995	Export	Share in export	Import	Share in import
HS01	91 919	0,19%	951 082	0,28%	HS07	831 324	1,70%	3 886 531	1,14%
HS02	115 600	0,24%	28 926 790	8,52%					
HS04	78 534	0,16%	3 670 671	1,08%					
HS06	29 000	0,06%	351 980	0,10%					
HS09	67 399	0,14%	5 592 275	1,65%					
HS10	313 914	0,64%	108 039 941	31,80%					
HS11	15 199	0,03%	1 332 290	0,39%					
HS13	10 500	0,02%	281 100	0,08%					
HS15	1 209 296	2,48%	14 766 631	4,35%					
HS16	61 499	0,13%	1 540 656	0,45%					
HS17		0,00%	52 689 536	15,51%					
HS18	1 339 799	2,74%	23 448 339	6,90%					
HS19	112 998	0,23%	39 048 226	11,49%					
HS22	427 496	0,88%	36 536 961	10,76%					
HS24	599 799	1,23%	4 425 523	1,30%					
Total	4 472 952	9,16%	321 602 001	94,67%	Total	831 324	1,70%	3 886 531	1,14%

Source: own processing 2019

Table 18 Uzbek agrarian trade commodity structure in 2015 in USD

All trade transactions worldwide 2015									
B-2015	Export	Share in export	Import	Share in import	A-2015	Export	Share in export	Import	Share in import
HS12	26 903 631	4,79%	44 912 528	3,71%	HS05	3 424 405	0,61%	3 108 094	0,26%
HS22	12 697 393	2,26%	19 986 639	1,65%	HS07	170 597 333	30,38%	17 170 850	1,42%
HS24	10 055 967	1,79%	16 827 360	1,39%	HS08	267 541 542	47,64%	3 812 486	0,31%
Total	49 656 991	8,84%	81 726 527	6,75%	HS13	6 509 791	1,16%	3 996 360	0,33%
					HS14	1 518 073	0,27%	59 349	0,00%
					HS20	13 612 764	2,42%	7 192 376	0,59%
					Total	463 203 908	82,48%	35 339 515	2,92%
D-2015	Export	Share in export	Import	Share in import	C-2015	Export	Share in export	Import	Share in import
HS01	3 135 358	0,56%	41 499 305	3,43%					
HS02	31 592	0,01%	52 420 679	4,33%					
HS03		0,00%	3 778 216	0,31%					
HS04	3 056 285	0,54%	31 403 694	2,59%					
HS06	3 928 133	0,70%	10 064 254	0,83%					
HS09	6 322 794	1,13%	58 153 324	4,80%					
HS10	233 780	0,04%	261 849 919	21,62%					
HS11	24 456 766	4,35%	221 834 762	18,31%					
HS15	155 095	0,03%	192 982 132	15,93%					
HS16	8 240	0,00%	2 973 147	0,25%					
HS17	1 143 176	0,20%	10 082 444	0,83%					
HS18	2 173 528	0,39%	25 733 433	2,12%					
HS19	1 271 887	0,23%	35 518 941	2,93%					
HS21	448 792	0,08%	36 562 704	3,02%					
HS23	2 372 748	0,42%	109 328 977	9,03%					
Total	48 738 174	8,68%	1 094 185 931	90,34%					

Source: own processing 2019

Agricultural trade and also the whole agricultural sector passed the significant restructuring process. Production and also trade structure recorded important changes. But the process of Uzbek agrarian sector transformation still did not finish the restructuring process and its commodity profile is constantly changing. The significant share in total exports is still represented by low added value products (very low unit value). The value of Uzbek agrarian trade is typical especially because of its specific character in relation to individual partners/partner territories. As it was mentioned already before Uzbek agrarian trade is focused on CIS, Europe and Asia. If we compare the period between 1995 and 2015, it is possible to see the significant growth of export and import value performance in relation to all main territories representing the main Uzbek agrarian trade partners (CIS - export value growth by 2400%; Asian countries - export value growth by more than 600%). As it was mentioned already before, the positive feature of Uzbek agrarian trade is much higher relative inter annual growth rate of export value in comparison to import value. This trend could be seen in the case of all analysed territories. Export/import coverage ratio also improved in the case of analysed regions (Asia from 20% to 102%; Africa from 10% to 700%; EU28 from 8% to 19%; Other Europeans from 0.2% to 42%; CIS from 24% to 45%; North America 121% to 208%).

The similar trade could be also seen not only at the level of agrarian trade territorial structure, but also at the level of commodity structure e.g., HS04, HS06, HS07, HS08, HS09, HS11, HS13, HS17, HS18, HS19, HS22 and HS24.

The problem of Uzbekistan is rather limited export competitiveness heterogeneity (aggregations HS07 and HS08 represent the key pillar of agri-food export activities). The comparative advantages analysis based on LFI indicator proved the existence of comparative advantages existing on bilateral level especially in relation to post-soviet countries (the most important partners are Russian federation, Kazakhstan and Caucasus region republics) only in the case of limited number of trade items.

The results presented by the product mapping approach provide the more accurate overview of the distribution of comparative advantages of Uzbekistan's agrarian exports. The majority of items representing agrarian trade commodity structure is distributed between two groups A (having comparative advantages: HS05, HS07, HS08, HS13, HS14, HS20) and D (without comparative advantages: HS01, HS02, HS03, HS04, HS06, HS09, HS10, HS11, HS15, HS16, HS17, HS18, HS19, HS21, HS23). Aggregations included into quadrant A represent nearly on the other hand, within the last twenty years, the significant changes in agrarian trade structure were recorded. Those changes can be considered as evidence of still running restructuring process. The commodity structure is still looking for the optimal state. The Republic of Uzbekistan is not competitive at the general level, but it has only bilateral comparative advantages as it was mentioned before. Comparative advantages have been existing especially in relation to trade partners applying restrictive trade policies in relation to the world market. The mutual trade is not result of the real price competitiveness, but it is the result of political deal.

5.1.2.1. Distribution of comparative advantages in relation to different groups of countries 1995-2015

This chapter is based on the author's following published article: Ortikov, A., and Vacek, T. (2018). Comparative advantage: products mapping of Uzbekistan's agricultural exports.

The Republic of Uzbekistan, as a member of the CIS, carries out its agrarian and trade activities in various regimes and different conditions with respect to certain groups of countries. As a CIS member, Uzbekistan can operate within the CIS market without any restrictions, on the other hand, with respect to some territories, as e.g., EU and other European countries, the agrarian trade of

Uzbekistan is influenced by multilateral agreements signed under the WTO rules, as well as signed at the bilateral level between individual members of the EU and the CIS. If we want to understand the real distribution of comparative advantages, we need to analyze them for every single group of countries - Asia (without CIS countries), EU28, other European countries (without members of the EU and CIS) and CIS countries, North American countries and the World. The analysis provides not only a comparison of different commodity structures and individual items competitiveness for individual groups of countries. It also makes possible to compare the state of the commodity structure at the beginning and at the end of analyzed period.

The results obtained from individual analyses provide the very interesting overview of current and past time situation. The significant dynamics of commodity structure development can be seen both in relation to the LFI and to the TBI index. The structure of agrarian trade has not been stabilized yet, and agricultural trade is still looking for the ideal state. Significant changes in the competitiveness of Uzbek agrarian trade in the period from 2000 to 2015 can be observed especially in relation to the EU28 countries and other European countries, Asian countries, Africa and CIS countries. According to the product mapping matrix the share of Group A products in the total volume of agricultural exports increased significantly between 2000 and 2015 (for details, see Tables 21 and 23). On the other hand, the proportion of items located in group D was significantly reduced. Developing countries have not changed their role in Uzbek agrarian trade activities both in the case of exports and imports. TBI and LFI index did not proved any important changes. The Republic of Uzbekistan is largely focused on trade activities carried out in relation to developed and especially Asian countries and the CIS (for details, see Tables 25 and 26).

Table 19 Uzbek agrarian trade value commodity structure - modified product mapping approach (1995)

Value 1995 (in USD)	A		B		C		D		Total	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Asia	19 052 546	359 342					72 889	80 499 709	19 125 435	80 859 051
Africa										
EU 28	13 165 948	1 853 929			288 932	2 632 276	820 913	176 418 300	14 275 793	180 904 505
Other European countries										
CIS	13234664	866 655			786 589	1 720 893	1 118 588	59 565 374	15 139 841	62 152 922
North America										
Latin America										
Australia and Oceania										
World	45 453 158	3 079 926			1 075 521	4 353 169	2 012 390	316 483 383	48 541 069	323 916 478

Source: own processing 2019

Table 20 Table 10.1.2.1.-2 Uzbek agrarian trade commodity structure (the share of individual export and import items in individual analysed groups) – modified product mapping approach (1995)

Share 1995 (%)	A		B		C		D	
	Export	Import	Export	Import	Export	Import	Export	Import
Asia	99,62%	0,44%					0,38%	99,56%
Africa								
EU 28	92,23%	1,02%			2,0%	1,5%	5,75%	97,52%
Other European countries								
CIS	87,42%	1,39%			5,2%	2,8%	7,39%	95,84%
North America								
Latin America								
Australia and Oceania								
World	93,64%	0,95%			2,2%	1,3%	4,15%	97,71%

Source: own processing 2019

Table 21 Uzbek agrarian trade value commodity structure - modified product mapping approach (2015)

Value 2015 (in USD)	A		B		C		D		Total	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Asia	136 400 761	9 125 485					3 699 892	128 121 508	140 100 653	137 246 993
Africa										
EU 28	26 170 655	931 293	5 072 749	21 522 601			1 673 693	152 920 482	32 917 097	175 374 376
Other European countries	3 502 336	187 946	144 616	159 776			303	8 183 845	3 647 255	8 531 567
CIS	364 726 446	26 005 338					15 565 942	807 271 152	380 292 388	833 276 490
North America	6 050 335	606 635					7 273	2 295 097	6 057 608	2 901 732
Latin America										
Australia and Oceania										
World	536 850 533	36 856 697	5 217 365	21 682 377			20 947 103	1 098 792 084	563 015 001	1 157 331 158

Source: own processing 2019

Table 22 Uzbek agrarian trade commodity structure (the share of individual export and import items in individual analysed groups) – modified product mapping approach (2015)

Share 2015 (%)	A		B		C		D	
	Export	Import	Export	Import	Export	Import	Export	Import
Asia (without GIS countries)	97,36%	6,65%					2,64%	93,35%
Africa								
EU 28	79,50%	0,53%	15,41%	12,27%			5,08%	87,20%
Other European countries (without EU and CIS)	96,03%	2,20%	3,97%	1,87%			0,01%	95,92%
CIS (without Asian countries)	95,91%	3,12%					4,09%	96,88%
North America	99,88%	20,91%					0,12%	79,09%
Latin America								
Australia and Oceania								
World	95,35%	3,18%	0,93%	1,87%			3,72%	94,94%

Source: own processing 2019

Table 23 Uzbek agrarian trade value commodity structure - modified product mapping approach by CIS countries (2015)

Value 2015 (in USD)	A		B		C		D		Total	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Azerbaijan										
Armenia										
Belarus	4 332 000	2 145 400	900	356 700		730 100		160 700	4 332 900	3 392 900
Moldova										
Georgia	3 224 211	181 376	110 885	2 973 579					3 335 096	3 154 955
Kazakhstan	287 373 941	5 291 282	12 416 999	39 502 106			71 940	459 742 939	299 862 880	504 536 327
Kyrgyzstan	3 287 144	167 840	229 870	2 779 600		740	3 213	114 880	3 520 227	3 063 060
Russian Federation	51 276 877	45 968 684	8 367 233	17 245 065			1 250	214 065 077	59 645 360	277 278 826
Tajikistan										
Turkmenistan										
Ukraine	5 412 177	29 779	1 443 253	34 146 452			1 335	5 045 642	6 856 765	39 221 873
Total	354 906 350	53 784 361	22 569 140	97 003 502		730 840	77 738	679 129 238	377 553 228	830 647 941

Source: own processing, 2019

Table 24 Uzbek agrarian trade value commodity structure - modified product mapping approach by CIS countries (2000)

Value 2000 (in USD)	A		B		C		D		Total	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Azerbaijan										
Armenia										
Belarus	7 102 000	73 800	1 200	44 600				62 000	7 103 200	180 400
Moldova										
Georgia	3 091 560		417				465	307 985	3 092 442	307 985
Kazakhstan	2 177 200	75 500	42 100	228 100			12 700	73 177 500	2 232 000	73 481 100
Kyrgyzstan	2 471 923	401 325	1 559 932	968 800				13 585	4 031 855	1 383 710
Russian Federation	183 447 298	8 153 671	473 530	1 270 185	198 185	969	93	1 659 665	184 119 106	11 084 490
Tajikistan										
Turkmenistan										
Ukraine	1 544 793	149 849	260 689	3 420 244					1 805 482	3 570 093
CIS	199 834 774	8 854 145	2 337 868	5 931 929	198 185	969	13 258	75 220 735	202 384 085	90 007 778

Source: own processing, 2019

During the analyzed time period, the agrarian trade of Uzbekistan changed its structure. The share of agrarian exports realized under the group A increased from 92% to 95.33%. The share of A group in total imports changed from 2.58% to 3.04%. Group B decreased its share in total agrarian export and imports from 3.16% to 0.93% respectively from 2.22% to 1.88%. The share of exports and imports realized under the group C decreased from 2.54% to 0.00% respectively from 1.67% to 0.00%. Exports and imports realized under the group D recorded the following changes. The share of exports in total agrarian exports increased from 2.30% to 3.74% and the share of realized imports increased from 93.52% to 95.8%. The conducted analysis also proved the dominant role of CIS countries as the main trade partners of the Republic of Uzbekistan. Their share in agrarian exports and imports is dominant 67.1% (the share is decreasing) respectively 72% (The share is rapidly increasing. In 2000 the share of CIS in total imports was only 33%).

As we have already mentioned above agrarian trade of Uzbekistan is concentrated on CIS members countries. The share of agrarian exports realized under the group A decreased from 98.7% to 94%. The share of A group in total imports decreased from 9.8% to 6.4%. Group B increased its share in total agrarian export and imports from 1.6% to 6% respectively from 6.6% to 11.6%. The share of exports and imports realized under the group C decreased from 0.10% to 0.00% and increased from 0.00% to 0.9%. Exports and imports realized under the group D recorded the following changes. The share of exports in total agrarian exports increased from 0.1% to 0.2% and the share of realized imports decreased from 83.5% to 81.7% (Tables 22 and 24).

5.1.3. Competitiveness of Uzbek agrarian foreign trade - Different regional trade blocks and the most significant trade partners. 2000-2018.

This chapter is based on the author's following published article: Ortikov, A., Smutka, L., and Benešová, I. (2019). Competitiveness of Uzbek agrarian foreign trade—different regional trade blocs and the most significant trade partners.

In the second decade of the 21st century, the world economy is undergoing significant changes in its overall picture, which we were accustomed to seeing during the period of so-called hyper-globalization. It is the result of fundamental changes in the economic and geopolitical framework of global development and the transformation process that globalization processes have brought about as a result of profound structural changes. The essential factors that have emerged in international relations include the slowing down of globalization processes, or even in certain areas, the opposite process of de-globalization, both at the global and regional level. In this context, professional literature appeared the idea of the return of so-called geopolitics and geoeconomics to the practice of world economic, but also in wider sense political relations. It aims to use trade policy instruments to achieve the strategic geopolitical goals of individual powers and their geopolitical ambitions (Benešová, Novotná, Šánová, and Laputková, 2016a; Veebel and Markus, 2018). Because of increasing power competition of “superpowers” small economies are under the permanent pressure. Very good example of such a situation is Uzbekistan - former post-Soviet country. Its economy is heavily dependent on CIS (Commonwealth of Independent states) countries and especially Russian Federation. The trade between these countries is influenced by the basic relationship defined by Head, Mayer and Ries (2010) based on post-colonial ties and further extended to post-Soviet republics

(Mazhikeyev and Edwards, 2013; Mazhikeyev, Edwards, and Rizov, 2015). At the same time, a typical centerperiphery relationship could be applied to the Russia-other relationship (Furusawa and Konishi, 2007; Kowalczyk and Wonnacott, 1992; Puga, 2001). When comparing 2000 and 2015, there is a greater degree of interdependence between countries, especially those linked to Russia. This is pointed out by Myant and Drahokoupil (2008). At the same time, the structure of foreign trade of individual countries is gradually changing. There is a greater interconnection between individual geographical units. From the perspective of openness of the economy, it can also be said that Tajikistan, together with Uzbekistan, is among the countries that are closest to autarchy in 2015. Similar conclusions were reached by Bose (2005), Cameron et al. (2012) and Korosteleva (2016), who add that the export structure of these countries is also a problem. The possibility to diversify trade territorial structure concentration is rather limited because of negative influence of traditional trade partners (Benesova et al., 2016b; Remeikiene et al., 2018). Uzbekistan is not member of the World Trade Organization. Uzbekistan's most important export partners include Switzerland, China, Russia, Turkey and Kyrgyzstan. In the case of imports, China, Russia, South Korea, Kazakhstan and Turkey are among the most important trading partners of Uzbekistan. China is an important trading partner for most Central Asian countries. One of the reasons is the large amount of mineral resources found in these countries (Bohr, 2004; Cobanli, 2014; Linn, 2012). Norling and Swanstrom (2007) point out that trade between these countries is becoming continental rather than regional and favors broader ties.

In the case of foreign trade between countries, there are also significant differences in the geographic structure of the market, where China and other Asian countries are an important trading partner for the Central Asian Republics (Chiaruttini, 2014; Linn, 2012; Spechler and Spechler, 2013; Yun and Park, 2012). Uzbekistan has similar structural problems to Russia. These challenges include unfinished transformation, over-reliance on natural resources, lack of innovation and low productivity (Connolly, 2015; Hartwell, 2013). Agrarian foreign trade has been chosen, to demonstrate the difficult situation of Uzbek foreign trade development and ambitions. The dissertation is devoted to the position of Uzbek agricultural and foodstuff product exports in the international market (Csaki and Nash, 1999). Uzbekistan is one of the main producers of fruits and vegetables in the CIS member countries. After a protocol establishing a free trade zone was signed between the Republic of Uzbekistan and the CIS in 2013, the trade turnover of the agricultural products of Uzbekistan significantly increased. The main goal of the Protocol is the effort of Uzbekistan to unify trade

regimes in relation to CIS, and to foster existing cooperation within the customs union of the former Soviet countries (Smutka et al., 2015a). The territorial structure of Uzbek agricultural and foodstuff exports in the period of 2000 to 2018 was heavily focused on Asian and CIS countries. Only in 2000, the share of CIS members in agricultural exports and imports reached 83.3% and 33.6%, respectively. In the same year - the share of other Asian countries in agri-food exports and imports reached cc 7.4% respectively 13%. Later on (in 2018), the share of CIS countries was reduced in favour of other Asian countries. While CIS countries share in exports and imports was reduced to 66% respectively 69%, the share of other Asian countries increased up to 32%, respectively 14%. The dominant positions are kept by Russia, Kazakhstan and Belarus. On the other hand, the share of exports to Russia is decreasing, and Kazakhstan has become an extremely important trade partner for Uzbek agrarian exports within the last few years. (Ilyina, D. FAO 2016). The Russian Federation share in Uzbek agricultural exports reached about 87.3% in 2000 and 25.4% in 2018. The share of Kazakhstan in Uzbek agricultural exports reached about 1.06% in 2000 and 55.8% in 2018. This dissertation analyzes trends in the major changes in the territorial and commodity structure of the agricultural sector of Uzbekistan from 2000 to 2018. In the analyzed time period, the post-Soviet countries and the Republic of Uzbekistan significantly changed their trade strategies and policies. A negative feature of Uzbek agrarian trade is a much faster increase in the value of imports compared to the value of exports. As a result, the negative trade balance is constantly increasing.

Table 25 Uzbek agrarian exports' concentration - by regional groups (HHI index)

Groups	2000		2018	
	Market share	HHI index	Market share	HHI index
Asia (without CIS countries)	7,4%	54,76	31,7%	1004,9
Africa	0,0%	0	0,0%	
EU 28	7,0%	49	1,8%	3,2
Other European countries (without EU and CIS)	1,2%	1,44	0,0%	
CIS (without Asian countries)	83,5%	6972,25	66,2%	4382,4
North America	0,9%	0,81	0,3%	0,1
Latin America	0,0%	0	0,0%	
Australia and Oceania	0,0%	0	0,0%	
World	100,0%	7078,26	100,0%	5390,7

Source: own processing, 2019

Table 26 Uzbek agrarian exports' concentration - by CIS countries (HHI index)

Groups	2000		2018	
	Market share	HHI index	Market share	HHI index
Azerbaijan	0,04%	0,00	0,75%	0,5625
Belarus	3,37%	11,36	1,24%	1,5376
Moldova	0,01%	0,00	0,06%	0,0036
Armenia	0,11%	0,01	0,08%	0,0064
Georgia	1,47%	2,16		
Kazakhstan	1,06%	1,12	55,86%	3120,3396
Kyrgyzstan	1,91%	3,65	12,31%	151,5361
Russian Federation	87,32%	7 624,78	25,43%	646,6849
Tajikistan	2,34%	5,48	1,42%	2,0164
Turkmenistan	1,51%	2,28	1,45%	2,1025
Ukraine	0,86%	0,74	1,40%	1,96
Total	100,00%	7 651,58	100,00%	3926,7496

Source: own processing, 2019

Over the past nineteen years (2000–2018), the proportions of distinct trading companions shifted as described here. The Asian quota in agricultural imports and exports attained 7.4% and approximately 31.7%, each. The portion of EU28 in collective imports and exports arrived at 7% and 1.8%, each, and the proportion of CIS countries in comprehensive agricultural imports and exports amounted to 83.5% and 66.2%, each (Table 27). Considerable shifts impacted the significance of specific longstanding trading associates. In 2018, the Russian Federation's segment of Uzbek agricultural exports and imports constituted just around 87.32% and 25.43%, each. The quota of Belarus in agricultural exports and imports was close to 3.37% and 1.24%, each. The segment of Kazakhstan in agricultural exports and imports was 1.6% and 55.86%, each (Table 28).

Table 27 Uzbek agrarian foreign trade value development between 2000 and 2018 in USD

2000	Africa	Asia (without GIS countries)	Australia and Oceania	CIS (without Asian countries)	EU 28	Latin America	North America	Other European countries (without EU and CIS)	World total
Export		18 677 323		210 867 285	17 749 020	95	2 181 042	3 092 804	252 567 569
Import		35 743 330		91 372 459	141 937 313	57 994	1 793 607	336 619	271 241 322
Balance		-17 066 007		119 494 826	-124 188 293	-57 899	387 435	2 756 185	-18 673 753
Balance/Export	0,00%	-91,37%	0,00%	56,67%	-699,69%	-60946,32%	17,76%	89,12%	-7,39%
2018	Africa	Asia (without CIS countries)	Australia and Oceania	CIS (without Asian countries)	EU 28	Latin America	North America	Other European countries (without EU and CIS)	World total
Export	356 832	350 697 619		731 889 267	19 612 179	35 221	2 821 751	281 193	1 105 694 062
Import	5 131 002	237 673 958	1 180 138	1 174 946 324	190 393 528	66 130 720	5 291 454	7 901 691	1 688 648 815
Balance	-4 774 170	113 023 661	-1 180 138	-443 057 057	-170 781 349	-66 095 499	-2 469 703	-7 620 498	-582 954 753
Balance/Export	-1337,93%	32,23%	-3350,67%	-60,54%	-870,79%	-187659,35%	-87,52%	-2710,06%	-52,72%
Export Basic index 2018/2000	0,02	18,78	-	3,61	1,10	370,75	1,29	0,09	4,52
Import Basic index 2018/2000	0,14	6,65	20,35	12,90	1,34	1 140,3	2,95	23,47	6,23

Source: COMTRADE database, 2019 and own calculations

Table 28 Uzbek agrarian foreign trade value development by CIS countries between 2000 and 2018 in USD

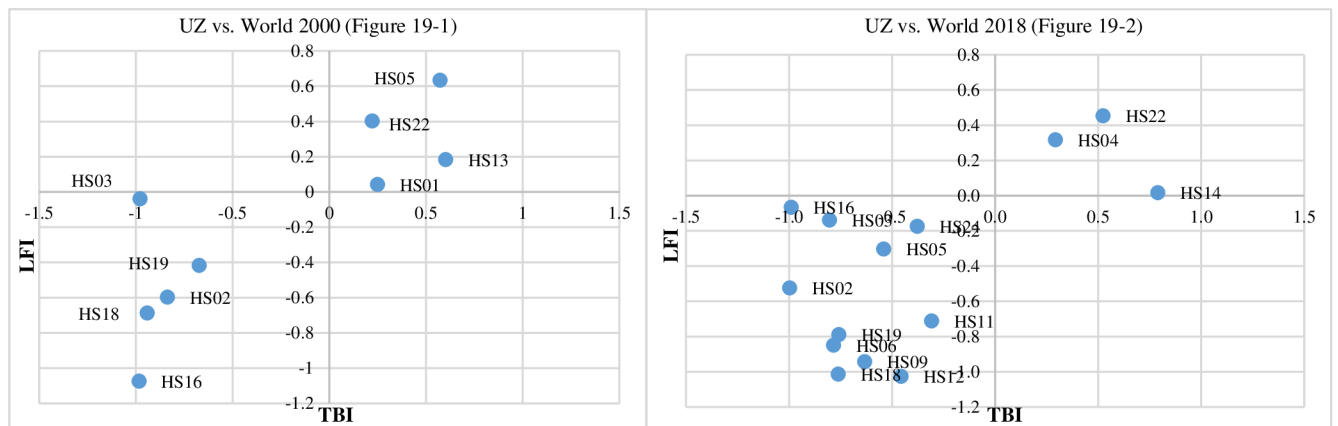
2000	Balance	Export	Import	Balance/Export	2018	Balance	Export	Import	Balance/Export	Export Basic index 2015/2000	Import Basic index 2015/2000
Azerbaijan	65 553	93 673	28 120	70%	Azerbaijan	5 528 197	2 701 010	2 827 187	51%	59	96
Belarus	6 922 800	7 103 200	180 400	97%	Belarus	9 147 774	21 686 357	-12 538 583	-137%	1	120
Moldova	-1 045 314	30 437	1 075 751	-3434%	Moldova	414 787	316 070	98 717	24%	14	0
Armenia	237 680	237 680		100%	Armenia	608 295	40 320	567 975	93%	3	
Georgia	2 784 457	3 092 442	307 985	90%							
Kazakhstan	-71 249 100	2 232 000	73 481 100	-3192%	Kazakhstan	411 787 557	612 408 366	-200 620 809	-49%	184	8
Kyrgyzstan	2 648 145	4 031 855	1 383 710	66%	Kyrgyzstan	90 772 582	1 999 282	88 773 300	98%	23	1
Russian Federation	173 034 616	184 119 106	11 084 490	94%	Russian Federation	187 484 593	400 116 086	-212 631 493	-113%	1	36
Tajikistan	4 850 000	4 931 000	81 000	98%	Tajikistan	10 483 127	371 576	10 111 551	96%	2	5
Turkmenistan	3 010 600	3 190 410	179 810	94%	Turkmenistan	10 679 195	2 531 545	8 147 650	76%	3	14
Ukraine	-1 764 611	1 805 482	3 570 093	-98%	Ukraine	10 299 639	132 775 712	-122 476 073	-1189%	6	37
Total	119 494 826	210 867 285	91 372 459	57%	Total	737 205 746	1 174 946 324	-437 740 578	-59%	3	13

Source: COMTRADE database, 2019 and own calculations

As can be seen in tables 29 and 30, the current agricultural trade performance of Uzbekistan is heavily focused on CIS and Asian countries. Those partners represent nearly 92% of export value and 80% of import value. The key aspect of Uzbek agrarian trade is its competitiveness (especially low-price competitiveness). Based on volume (tons) and value (total value and unit value) analysis, bulk commodities (e.g., vegetables, fruits) could be considered the main driver of agricultural export growth. Another very specific feature of Uzbek agri-food trade is its concentration on post-Soviet countries. The markets of those countries represent the key territory for export-oriented activities.

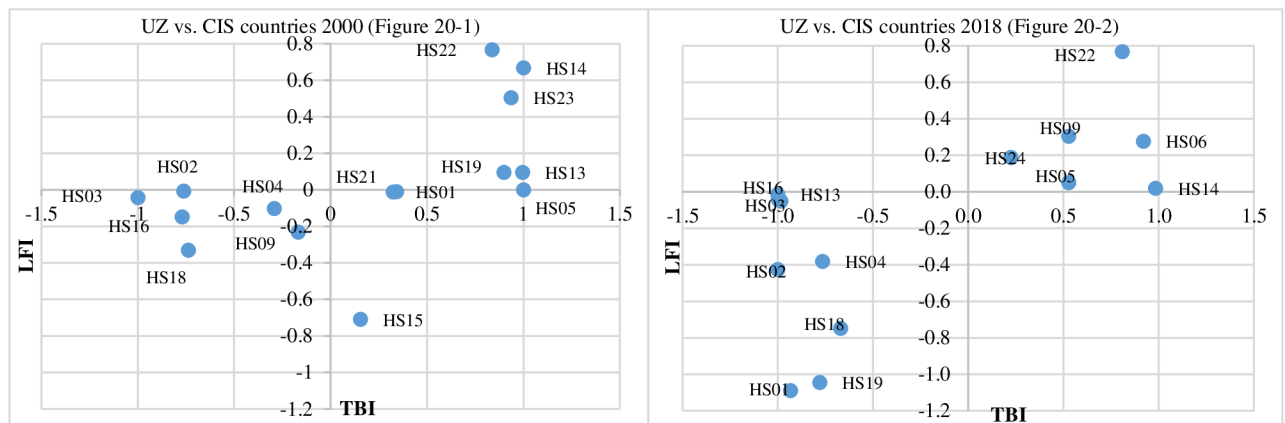
And mutual trade agreements (preferential trade agreements and free-trade zones) could be considered the key element supporting national export ambitions.

Figure 19 Uzbek agrarian exports’ comparative advantages distribution – traditional and modified “Product mapping approach”



Source: own processing, 2019

Figure 20 Uzbek agrarian exports’ comparative advantages distribution – traditional and modified “Product mapping approach”



Source: own processing, 2019

Additional note on figure:

TBI - Trade balance index, LFI - Lafay index.

Table 29 The list of Harmonized commodity aggregations in the analysis (HS)

HS01	Live animals	HS13	Lac gums, resins and other vegetable saps and extracts
HS02	Meat and edible meat offal	HS14	Vegetable plaiting materials vegetable products not elsewhere specified or included
HS03	Fish and crustaceans, molluscs and other aquatic invertebrates	HS15	Animal or vegetable fats and oils and their cleavage products prepared edible fats animal or vegetable waxes
HS04	Dairy produce birds' eggs natural honey edible products of animal origin, not elsewhere specified or included	HS16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates
HS05	Products of animal origin, not elsewhere specified or included	HS17	Sugars and sugar confectionery
HS06	Live trees and other plants bulbs, roots and the like cut flowers and ornamental foliage	HS18	Cocoa and cocoa preparations
HS07	Edible vegetables and certain roots and tubers	HS19	Preparations of cereals, flour, starch or milk pastry cooks' products
HS08	Edible fruit and nuts peel of citrus fruit or melons	HS20	Preparations of vegetables, fruit, nuts or other parts of plants
HS09	Coffee, tea, mate and spices	HS21	Miscellaneous edible preparations
HS10	Cereals	HS22	Beverages, spirits and vinegar
HS11	Products of the milling industry malt starches inulin wheat gluten	HS23	Residues and waste from the food industries prepared animal fodder
HS12	Oil seeds and oleaginous fruits miscellaneous grains, seeds and fruit industrial or medicinal plants and fodder	HS24	Tobacco and manufactured tobacco substitutes

Source: COMTRADE database, 2019

The existence of comparative advantages is proved through the application of LFI and TBI indices, taking into consideration only agricultural trade performance. The above-mentioned graphs provide an overview related to the global competitiveness of individual Uzbek agrarian trade items (Figure 19) and CIS members (Figure 20). The graphs provide a different overview of the modified product mapping approach. The results provided by the modified approach deliver a more accurate overview of the distribution of the comparative advantages of Uzbek agrarian exports. The number of items located in groups B and C is significantly reduced, and the whole commodity structure is divided into two groups, A (with comparative advantages) and D (without comparative advantages). The modified approach is able to specify in more detail the current level of Uzbek agrarian trade competitiveness and competitiveness development. Using this applied approach, it is evident that the structure of Uzbek agrarian commodity trading has been significantly changing its character. The commodity structure is still looking for its optimal state (for details see tables 32 and 34 (global) and also tables 33 and 35 (for CIS countries)).

Table 30 Uzbek agrarian trade commodity structure in 2000 (traditional product mapping) in USD

All trade transactions worldwide 2000									
B-2000	Import	Share in import	Export	Share in export	A-2000	Import	Share in import	Export	Share in export
					HS01	285 088	0,11%	473 396	0,19%
					HS05	1 148 989	0,42%	4 227 646	1,69%
					HS06	153 620	0,06%	5 850 545	2,35%
					HS07	6 534 242	2,41%	32 139 297	12,88%
					HS08	1 053 268	0,39%	85 853 445	34,41%
					HS12	2 739 601	1,01%	14 509 999	5,82%
					HS13	296 551	0,11%	1 193 263	0,48%
					HS14	160 607	0,06%	16 741 308	6,71%
					HS20	1 173 581	0,43%	27 575 339	11,05%
					HS22	3 113 466	1,15%	4 876 474	1,95%
					HS23	609 150	0,22%	13 047 628	5,23%
					HS24	9 079 735	3,35%	29 672 985	11,89%
					Total	26 347 898	9,72%	236 161 325	94,66%
D-2000	Import	Share in import	Export	Share in export	C-2000	Import	Share in import	Export	Share in export
HS02	3 589 988	1,33%	318 945	0,13%					
HS03	211 647	0,08%	2 247	0,00%					
HS04	16 914 352	6,24%	217 660	0,09%					
HS09	14 385 851	5,31%	763 809	0,31%					
HS10	64 044 224	23,64%	2 446 313	0,98%					
HS11	16 295 797	6,01%	305 017	0,12%					
HS15	16 986 672	6,27%	5 214 505	2,09%					
HS16	5 877 851	2,17%	45 180	0,02%					
HS17	91 835 500	33,90%	2 819 949	1,13%					
HS18	3 858 285	1,42%	115 100	0,05%					
HS19	2 868 718	1,06%	561 099	0,22%					
HS21	7 716 554	2,85%	503 978	0,20%					
Total	244 585 439	90,28%	13 313 802	5,34%					

Source: own processing, 2019

Table 31 Uzbek agrarian trade commodity structure by CIS countries in 2000 (traditional product mapping approach) in USD

Trade transactions by CIS countries 2000									
B-2000	Import	Share in import	Export	Share in export	A-2000	Import	Share in import	Export	Share in export
					HS05			710	0,00%
					HS06	7 751	0,01%	5 618 346	2,66%
					HS07	187 543	0,21%	31 618 947	14,99%
					HS08	55 679	0,06%	83 986 594	39,83%
					HS12	1 415 650	1,55%	10 389 548	4,93%
					HS13	969	0,00%	483 874	0,23%
					HS14		0,00%	3 341 257	1,58%
					HS19	28 796	0,03%	544 212	0,26%
					HS20	74 269	0,08%	26 718 344	12,67%
					HS22	427 779	0,47%	4 821 699	2,29%
					HS23	90 600	0,10%	2 738 382	1,30%
					HS24	1 126 880	1,23%	29 289 288	13,89%
					Total	3 415 916	3,74%	199 551 201	94,63%
D-2000	Import	Share in import	Export	Share in export	C-2000	Import	Share in import	Export	Share in export
HS02	12 561	0,01%	1 700	0,00%	HS01	156 907	0,17%	307 596	0,15%
HS03	91 077	0,10%		0,00%	HS15	3 755 936	4,11%	5 123 879	2,43%
HS04	286 333	0,31%	156 595	0,07%	HS21	196 665	0,22%	401 748	0,19%
HS09	721 258	0,79%	513 028	0,24%					
HS10	60 859 807	66,61%	1 536 569	0,73%					
HS11	14 774 369	16,17%	305 000	0,14%					
HS16	337 807	0,37%	43 869	0,02%					
HS17	6 000 432	6,57%	2 811 000	1,33%					
HS18	763 391	0,84%	115 100	0,05%					
Total	83 847 035	91,76%	5 482 861	2,60%	Total	4 109 508	4,50%	5 833 223	2,77%

Source: own processing, 2019

Table 32 Uzbek agrarian trade commodity structure in 2018 (traditional product mapping approach) in USD

All trade transactions worldwide 2018									
B-2018	Import	Share in import	Export	Share in export	A-2018	Import	Share in import	Export	Share in export
					HS04	6 306 013	0,37%	11 519 642	1,04%
					HS07	46 876 707	2,76%	307 714 084	27,69%
					HS08	25 303 500	1,49%	543 935 423	48,95%
					HS13	2 297 119	0,14%	23 681 603	2,13%
					HS14	50 530	0,00%	432 113	0,04%
					HS20	14 786 471	0,87%	30 727 553	2,77%
					HS22	4 135 961	0,24%	13 253 219	1,19%
					Total	99 756 301	5,87%	931 263 637	83,80%
D-2018	Import	Share in import	Export	Share in export	C-2018	Import	Share in import	Export	Share in export
HS01	75 001 264	4,41%	2 603 732	0,23%					
HS02	18 641 325	1,10%	40 035	0,00%					
HS03	5 850 531	0,34%	638 303	0,06%					
HS05	19 823 595	1,17%	5 921 220	0,53%					
HS06	37 106 855	2,18%	4 520 133	0,41%					
HS09	51 046 497	3,00%	11 483 346	1,03%					
HS10	305 594 848	17,98%	20 569 994	1,85%					
HS11	132 548 155	7,80%	70 111 379	6,31%					
HS12	85 136 376	5,01%	31 814 015	2,86%					
HS15	238 216 058	14,01%	1 918 960	0,17%					
HS16	2 376 474	0,14%	13 480	0,00%					
HS17	347 426 508	20,44%	4 794 369	0,43%					
HS18	45 450 239	2,67%	6 182 092	0,56%					
HS19	35 507 175	2,09%	4 877 633	0,44%					
HS21	48 021 765	2,82%	764 354	0,07%					
HS23	132 538 363	7,80%	4 705 420	0,42%					
HS24	20 008 873	1,18%	9 047 084	0,81%					
Total	1 600 294 901	94,13%	180 005 549	16,20%					

Source: own processing, 2019

Table 33 Uzbek agrarian trade commodity structure by CIS countries in 2018 (traditional product mapping approach) in USD

Trade transactions by CIS countries 2018									
B-2018	Import	Share in import	Export	Share in export	A-2018	Import	Share in import	Export	Share in export
					HS05	298 730	0,03%	967 509	0,13%
					HS06	181 054	0,02%	4 399 916	0,60%
					HS07	25 368 716	2,16%	159 678 854	21,82%
					HS08	1 054 224	0,09%	487 262 332	66,58%
					HS09	1 805 370	0,15%	5 837 989	0,80%
					HS14	2 529	0,00%	313 027	0,04%
					HS20	10 499 936	0,89%	20 893 587	2,85%
					HS22	1 336 916	0,11%	12 722 868	1,74%
					HS24	3 051 523	0,26%	4 815 777	0,66%
					Total	43 598 998	3,71%	696 891 859	95,22%
D-2018	Import	Share in import	Export	Share in export	C-2018	Import	Share in import	Export	Share in export
HS01	28 643 144	0,14%	995 059	0,14%					
HS02	10 559 437	0,00%		0,00%					
HS03	1 065 803	0,00%	1 820	0,00%					
HS04	12 027 581	0,22%	1 610 161	0,22%					
HS10	301 620 277	0,06%	420 697	0,06%					
HS11	128 502 892	0,01%	67 855	0,01%					
HS12	64 648 547	1,91%	13 967 112	1,91%					
HS13	301 657	0,00%		0,00%					
HS15	192 952 729	0,26%	1 910 610	0,26%					
HS16	1 262 824	0,00%	10 556	0,00%					
HS17	248 918 994	0,57%	4 196 115	0,57%					
HS18	27 232 210	0,74%	5 391 381	0,74%					
HS19	32 368 597	0,55%	4 011 230	0,55%					
HS21	33 261 013	0,08%	561 902	0,08%					
HS23	47 981 621	0,25%	1 852 910	0,25%					
Total	1 131 347 326	4,78%	34 997 408	4,78%					

Source: own processing, 2019

Agricultural trade as well as the entire agricultural sector went through a significant restructuring process. The production and trade structures recorded important changes. But the transformation of the Uzbek agrarian sector has not yet finished the restructuring process, and its commodity profile is constantly changing. Low added-value products (very low unit value) still represent a significant share of total exports. The value of Uzbek agrarian trade is typical primarily because of its specific character in relation to individual partners/partner territories. As already mentioned, Uzbek agrarian trade is focused on the CIS, Asia and Europe. During the examined timeframe (2000 - 2018), a notable augmentation in the worth of exports and imports is noticeable in association with all the primary regions representing the chief Uzbek commerce allies within the agricultural domain (Asian countries – escalation in export value exceeding 1700%, CIS countries – augmentation in export value of 250%). As noted above, a negative feature of Uzbek agrarian trade is a much higher relative increase in the value of imports compared to the value of exports. This tendency was seen in several key areas under the analysis (CIS, EU28, Latin America, North America, Other European countries). The only region – Asian countries (without CIS) recorded the growth of positive export/import coverage ratio.

Uzbekistan's problem is the rather limited heterogeneity of export competitiveness (aggregations HS07 and HS08 represent the key pillar of agri-food export activities). An analysis of comparative advantages based on the LFI index confirmed the existence of comparative advantages at the bilateral level, especially in relation to post-Soviet countries (the most important partners are the Russian Federation, Kazakhstan and the CIS countries), only in the case of a limited number of trade items. The results presented by the product mapping approach provide a more accurate overview of the distribution of the comparative advantages of Uzbekistan's agrarian exports. Most of the items representing the agrarian trade commodity structure are distributed between two groups, A (with comparative advantages: HS05, HS07, HS08, HS13, HS14, HS20) and D (without comparative advantages: HS01, HS02, HS03, HS04, HS06, HS09, HS10, HS11, HS15, HS16, HS17, HS18, HS19, HS21, HS23). The problem of Uzbek agrarian trade is its extreme commodity concentration. Just aggregations included into quadrant A represent nearly 83% of total export value. Uzbekistan has been suffering because of constantly decreasing competitiveness of individual trade items and the number of competitive aggregations is constantly decreasing as it could be demonstrated through the last two decades development (for details see Tables 10.1.3.-5 - 10.1.3.-8). Those changes can be considered as an evidence of an ongoing restructuring process. The commodity structure is still looking for the optimal state. The Republic of Uzbekistan is not competitive at the general level, but rather it has only bilateral comparative advantages, as previously mentioned. Comparative advantages exist, especially with regard to trading partners who apply restrictive trade policies in relation to the world market. Mutual trade is the result not of real price competitiveness, but of political deals.

5.1.3.1. Distribution of comparative advantages in relation to different groups of countries: 2000-2018

This chapter is based on the author's following published article: Ortikov, A., Smutka, L., and Benešová, I. (2019). Competitiveness of Uzbek agrarian foreign trade—different regional trade blocs and the most significant trade partners.

The Republic of Uzbekistan, as a member of the CIS, carries out its agrarian and trade activities in various regimes and different conditions with respect to certain groups of countries. As a CIS member, Uzbekistan can operate within the CIS market without any restrictions; on the other hand, with respect to some territories, such as other European countries and the EU, the agrarian trade of Uzbekistan is influenced by multilateral agreements signed under the WTO rules, as well as signed

at the bilateral level between individual members of the CIS and the EU. If we want to understand the real distribution of comparative advantages, we need to analyze them for each individual group of countries – Asia (without CIS countries), other European countries (without members of the EU28 and CIS), EU28 (without members of other EU countries) and CIS countries (without Asian countries), North American countries, and the whole world. The analysis provides for a comparison not only of different commodity structures and the competitiveness of individual items for individual groups of countries, but also of the state of the product structure at the beginning and end of the analyzed period. The results obtained from individual analyses provide a very interesting overview of the current and historical situation. Significant dynamics of commodity structure development can be seen in relation to both the LFI and TBI indices. The structure of agrarian trade has not yet been stabilized, and agricultural trade is still looking for the ideal state. Significant changes in the competitiveness of Uzbek agrarian trade in the period from 2000 to 2018 can be observed, especially in relation to the Asian countries, other European countries, CIS countries, African countries and EU28 countries.

According to the product mapping matrix, the share of Group A products in the total volume of agricultural exports increased significantly between 2000 and 2018 (for details, see tables 36 and 38). On the other hand, the proportion of items located in group D was significantly reduced. Developing countries have not changed their role in Uzbek agrarian trade activities, in the case of both exports and imports. The TBI and LFI indices did not show any important changes. The Republic of Uzbekistan is largely focused on trade activities carried out in relation to developed and, especially, Asian countries and the CIS (for details, see tables 37 and 39).

Table 34 Uzbek agrarian trade value commodity structure - modified product mapping approach (2000)

Value 2000 (in USD)	A		B		C		D		Total	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Asia	17,145,252	1,680,468	921,768	1,116,925			610,303	32,945,937	18,677,323	35,743,330
Africa										
EU 28	10,634,005	1,887,068	6,955,544	4,908,159			159,471	135,142,086	17,749,020	141,937,313
Other European countries	3,092,328						476	336,619	3,092,804	336,619
CIS	199 551 201	3 415 916			5 833 223	4 109 508	5 482 861	83 847 035	210 867 285	91 372 459
North America	2,181,042	15,374						1,778,233	2,181,042	1,793,607
Latin America										
Australia and Oceania										
World	232 603 828	6 998 826	7 877 312	6 025 084	5 833 223	4 109 508	6 253 111	254 049 910	252 567 474	271 183 328

Source: own processing, 2019

Table 35 Uzbek agrarian trade value commodity structure - modified product mapping approach by CIS countries (2000)

Value 2000 (in USD)	A		B		C		D		Total	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Azerbaijan										
Armenia										
Belarus	7 102 000	73 800	1 200	44 600				62 000	7 103 200	180 400
Moldova										
Georgia	3 091 560		417				465	307 985	3 092 442	307 985
Kazakhstan	2 177 200	75 500	42 100	228 100			12 700	73 177 500	2 232 000	73 481 100
Kyrgyzstan	2 471 923	401 325	1 559 932	968 800				13 585	4 031 855	1 383 710
Russian Federation	183 447 298	8 153 671	473 530	1 270 185	198 185	969	93	1 659 665	184 119 106	11 084 490
Tajikistan										
Turkmenistan										
Ukraine	1 544 793	149 849	260 689	3 420 244					1 805 482	3 570 093
CIS	199 834 774	8 854 145	2 337 868	5 931 929	198 185	969	13 258	75 220 735	202 384 085	90 007 778

Source: own processing, 2019

Table 36 Uzbek agrarian trade value commodity structure - modified product mapping approach (2018)

Value 2018 (in USD)	A		B		C		D		Total	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Asia	336 798 683	34 994 570			2 812 815	2 315 965	11 086 121	200 363 423	350 697 619	237 673 958
Africa	229 802		89 163	122 136			37 867	5 007 847	356 832	5 129 983
EU 28	13 558 000	2 820 796			5 413 156	20 442 610	641 023	167 130 122	19 612 179	190 393 528
Other European countries	281 193			5 854		7 895 837			281 193	7 901 691
CIS	696 891 859	43 598 998					34 997 408	1 131 347 326	731 889 267	1 174 946 324
North America	2 641 564	262 718	179 209	326 247			978	4 702 489	2 821 751	5 291 454
Latin America			35 221	1 621 011				64 509 709	35 221	66 130 720
Australia and Oceania										
World	1 050 401 101	81 677 082	303 593	2 075 248	8 225 971	30 654 412	46 763 397	1 573 060 916	1 105 694 062	1 687 467 658

Source: own processing, 2019

Table 37 Uzbek agrarian trade value commodity structure - modified product mapping approach by CIS countries (2018)

Value 2018 (in USD)	A		B		C		D		Total	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Azerbaijan	75 984	2 194 403	5 012 648	291 834	418 807	199 411	20 758	15 362	5 528 197	2 701 010
Armenia										
Belarus	9 089 262	311 957	20 625	21 156			37 887	21 353 244	9 147 774	21 686 357
Moldova										
Kazakhstan	400 854 383	22 887 580					10 933 174	589 520 786	411 787 557	612 408 366
Kyrgyzstan		13 500			90 729 059	1 365 300	43 523	620 482	90 772 582	1 999 282
Russian Federation	184 162 820	19 965 788		2 529			3 321 773	380 147 769	187 484 593	400 116 086
Tajikistan	7 038 650	25 422			3 444 477	346 154			10 483 127	371 576
Turkmenistan	8 923 819	138 903					1 755 376	2 392 642	10 679 195	2 531 545
Ukraine	10 260 111	272 439		31 959			39 528	132 471 314	10 299 639	132 775 712
Total	620 405 029	45 809 992	5 033 273	347 478	94 592 343	1 910 865	16 152 019	1 126 521 599	747 115 838	1 764 110 720

Source: own processing, 2019

During the analyzed period, the agrarian trade of Uzbekistan changed its structure. The share of agrarian exports realized under group A increased from 92% to 95%. The share of the A group in total imports changed from 2.58% to 4.84%. Group B decreased its share in total agrarian exports and

imports from 3.16% to 0.03% and from 2.22% to 0.12%, respectively. The share of exports and imports realized under group C export decreased from 2.54% to 1% and import increased from 1.67% to 2%, respectively. Exports and imports realized under group D recorded the following changes: The share of exports in total agrarian exports increased from 2.30% to 4.23% and the share of realized imports decreased from 93.52% to 93.22%. The conducted analysis also proved the dominant role of CIS and Asian countries as the main trade partners of the Republic of Uzbekistan. Their cumulative share in agrarian exports and imports is a dominant 98% respectively 83%. In 2000, their cumulative share in total exports and imports reached only 90%, respectively 46%.

As already mentioned above, the agrarian trade of Uzbekistan is concentrated especially on CIS member countries (however, their share in exports is decreasing). The share of agrarian exports realized under group A decreased from 98.7% to 84.2%. The share of the A group in total imports decreased from 9.8% to 3.9%. Group B decreased its share in total agrarian exports and imports from 1.6% to 0.6% and from 6.6% to 0.03%, respectively. The share of exports and imports realized under group C export increased from 0.10% to 12.8% and import increased from 0.00% to 0.1%, respectively. Exports and imports realized under group D recorded the following changes: The share of exports in total agrarian exports increased from 0.1% to 2.1% and the share of realized imports increased from 83.5% to 95.9%.

5.1.4. The development of comparative advantages of Uzbek agricultural export between 2010-2019

This chapter is based on the author's following published article: Ortikov, A. and Smutka, L. (2021). Re-product mapping of Uzbek agri-food products in the world market and determine their competitiveness in different trade blocs.

The agrarian trade of Uzbekistan is concentrated on CIS members, Central Asian and European countries (Table 40). The most dominant role is played by CIS members, Asian countries and EU members. But during the analyzed time period the role of individual partners changed. The total value of agricultural trade performance recorded significant growth. The nominal value of exports decreased from about 723 mil. USD to about 445 mil. USD. The value of imports recorded growth from 863 mil. USD up to 1.4 bil. USD. The total value of the negative agri-food trade balance increased from 140.2 mil. USD up to about 700 mil. USD. The problem of Uzbek agrarian trade value development is connected to much lower inter-annual growth rate of export value in comparison to

inter-annual growth of import value. Because of much higher imports' dynamics in comparison to exports, Uzbekistan recorded the significant reduction of export/import coverage ratio.

Table 38 Uzbek agrarian exports' concentration - by regional groups (HHI index)

Groups	2010		2019	
	Market share	HHI index	Market share	HHI index
Asia (without GIS countries)	14.0%	196.0	16.0%	256.0
Africa	0.1%	0.0	1.0%	1.0
EU 28	4.0%	16.0	10.1%	102.0
Other European countries (without EU and CIS)	0.7%	0.5	0.5%	0.3
CIS (without Asian countries)	80.8%	6,528.6	70.5%	4,970.3
North America	0.4%	0.2	1.6%	2.6
Latin America	0.1%	0.0	0.2%	0.0
Australia and Oceania	0.0%	0.0	0.0%	0.0
World	100.0%	6741.3	100.0%	5,332.1

Source: own processing, 2021

During the analyzed time period export/import coverage ratio significantly decreased from 84% to 39%.

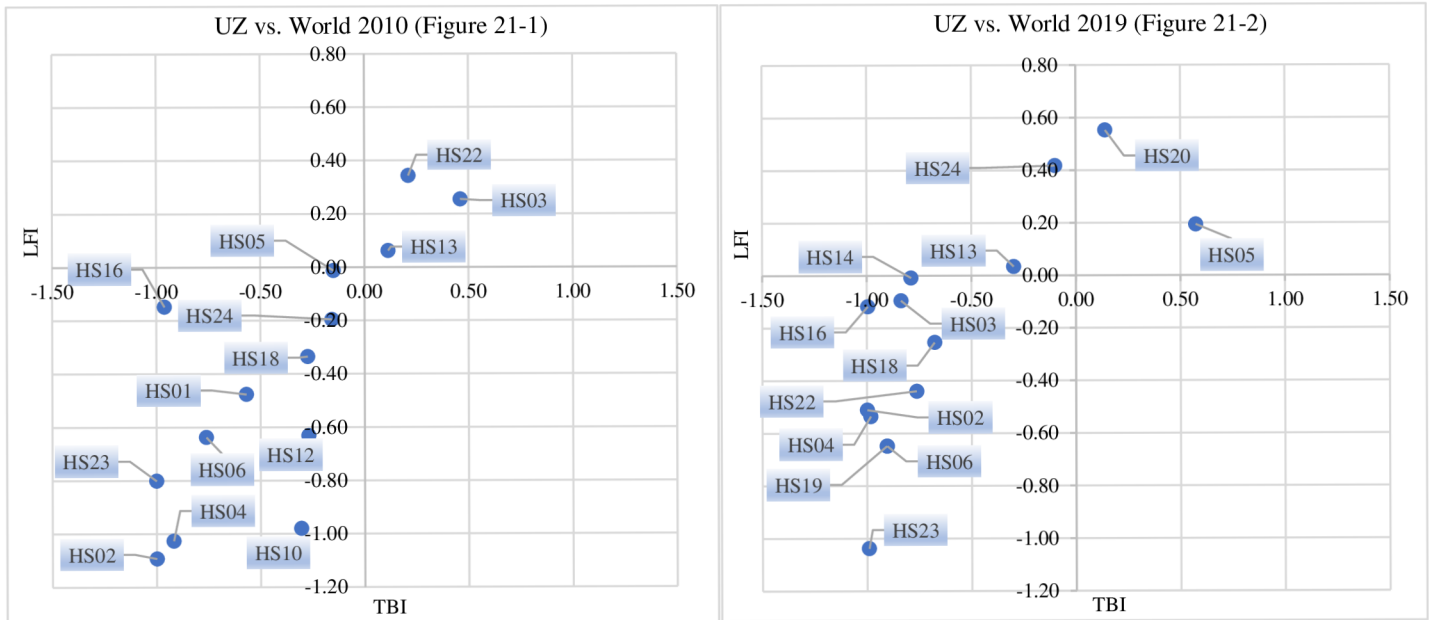
In 2000, the Asian share in Uzbek agricultural exports and imports reached about 14% and 16%, respectively. In the same year - the share of EU28 in agricultural exports and imports reached about 4% and 10.1%, respectively and the share of CIS members in agricultural exports and imports reached 80.8% and 70.5%, respectively.

Table 39 Uzbek agrarian foreign trade value development between 2010 and 2019 in USD

2010	Africa	Asia	CIS	Australia and Oceania	EU 28	Other European countries	North America	Latin America	World total
Export	472,816	101,525,002	584,297,384	82,285	28,838,225	5,247,670	2,556,550	375,707	723,395,639
Import	2,290,843	113,574,116	547,275,202	3,605,879	170,740,536	6,160,991	479,211	19,531,782	863,658,560
Balance	-1,818,027	-12,049,114	37,022,182	-3,523,594	-141,902,311	-913,321	2,077,339	-19,156,075	-140,262,921
Balance/Export	-384.51%	-11.87%	6.34%	-4282.18%	-492.06%	-17.40%	81.26%	-5098.67%	-19.39%
2019	Africa	Asia	CIS	Australia and Oceania	EU 28	Other European countries	North America	Latin America	World total
Export	4,242,449	71,303,099	313,852,390	129,227	45,160,072	2,367,330	7,106,512	949,032	445,110,111
Import	1,801,970	136,545,955	770,881,216	32,654	182,540,924	9,406,982	28,085,124	15,990,928	1,145,285,753
Balance	2,440,479	-65,242,856	-457,028,826	96,573	-137,380,852	-7,039,652	-20,978,612	-15,041,896	-700,175,642
Balance/Export	57.53%	-91.50%	-145.62%	274.19%	-304.21%	-297.37%	-295.20%	-42707.18%	-157.30%
Export Basic index 2019/2010	0.23	3.82	0.54	1,360.28	1.57	0.45	2.78	9,989.81	0.62
Import Basic index 2019/2010	0.05	3.82	1.41	0.56	1.07	1.53	58.61	275.73	1.33

Source: COMTRADE database, 2021 and own calculations.

Figure 21 Uzbek agrarian exports’ comparative advantages distribution – traditional and modified “Product mapping approach”



Source: own processing, 2021

Additional note on figure:

TBI - Trade balance index, LFI - Lafay index.

Figure 22 The list of Harmonized commodity aggregations in the analysis (HS)

HS01	Live animals	HS13	Lac gums, resins and other vegetable saps and extracts
HS02	Meat and edible meat offal	HS14	Vegetable plaiting materials vegetable products not elsewhere specified or included
HS03	Fish and crustaceans, molluscs and other aquatic invertebrates	HS15	Animal or vegetable fats and oils and their cleavage products prepared edible fats animal or vegetable waxes
HS04	Dairy produce birds' eggs natural honey edible products of animal origin, not elsewhere specified or included	HS16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates
HS05	Products of animal origin, not elsewhere specified or included	HS17	Sugars and sugar confectionery
HS06	Live trees and other plants bulbs, roots and the like cut flowers and ornamental foliage	HS18	Cocoa and cocoa preparations
HS07	Edible vegetables and certain roots and tubers	HS19	Preparations of cereals, flour, starch or milk pastry cooks' products
HS08	Edible fruit and nuts peel of citrus fruit or melons	HS20	Preparations of vegetables, fruit, nuts or other parts of plants
HS09	Coffee, tea, mate and spices	HS21	Miscellaneous edible preparations
HS10	Cereals	HS22	Beverages, spirits and vinegar
HS11	Products of the milling industry malt starches inulin wheat gluten	HS23	Residues and waste from the food industries prepared animal fodder
HS12	Oil seeds and oleaginous fruits miscellaneous grains, seeds and fruit industrial or medicinal plants and fodder	HS24	Tobacco and manufactured tobacco substitutes

Source: COMTRADE database, 2019

As can be seen in tables 41 the current agricultural trade performance of Uzbekistan is heavily focused on CIS and Asian countries. Those partners represent nearly 86 % of export value and 80% of import value in 2018. The key aspect of Uzbek agrarian trade is its competitiveness (especially low-price competitiveness). Based on volume (tons) and value (total value and unit value) analysis, bulk commodities (e.g., vegetables, fruits) could be considered the main driver of agricultural export growth. Another very specific feature of Uzbek agri-food trade is its concentration on post-Soviet countries. The markets of those countries represent the key territory for export-oriented activities. And mutual trade agreements (preferential trade agreements and free-trade zones) could be considered the key element supporting national export ambitions.

The existence of comparative advantages is proved through the application of LFI and TBI indices, taking into consideration only agricultural trade performance. The above-mentioned graphs provide an overview related to the global competitiveness of individual Uzbek agrarian trade items (Figure 21). The graphs provide a different overview of the modified product mapping approach. The results provided by the modified approach deliver a more accurate overview of the distribution of the comparative advantages of Uzbek agrarian exports. The number of items located in groups B and C

is significantly reduced, and the whole commodity structure is divided into two groups, A (with comparative advantages) and D (without comparative advantages). The modified approach is able to specify in more detail the current level of Uzbek agrarian trade competitiveness and competitiveness development. Using this applied approach, it is evident that the structure of Uzbek agrarian commodity trading has been significantly changing its character. The commodity structure is still looking for its optimal state (for details see tables 42 and 44 (global) and also tables 43 and 45 (for CIS countries)).

Table 40 Uzbek agrarian trade commodity structure in 2010 (traditional product mapping approach) in USD

All trade transactions worldwide 2010									
B-2010	Export	Share in export	Import	Share in import	A-2010	Export	Share in export	Import	Share in import
					HS03	5,384,700	0.74%	1,991,026	0.23%
					HS07	214,586,716	29.66%	17,011,514	1.97%
					HS08	344,494,681	47.62%	5,565,867	0.64%
					HS13	2,710,066	0.37%	2,154,418	0.25%
					HS14	17,903,138	2.47%	34,718	0.00%
					HS20	30,590,859	4.23%	6,316,406	0.73%
					HS22	11,019,425	1.52%	7,180,195	0.83%
					Total	626,689,585	86.63%	40,254,144	4.66%
D-2010	Export	Share in export	Import	Share in import	C-2010	Export	Share in export	Import	Share in import
HS01	3,411,291	0.47%	12,373,861	1.43%					
HS02	7,729	0.00%	19,036,987	2.20%					
HS04	806,266	0.11%	18,827,332	2.18%					
HS05	1,410,125	0.19%	1,905,018	0.22%					
HS06	1,803,815	0.25%	13,259,820	1.54%					
HS09	6,078,550	0.84%	33,996,309	3.94%					
HS10	25,085,090	3.47%	47,006,697	5.44%					
HS11	4,854,925	0.67%	253,712,272	29.38%					
HS12	20,302,492	2.81%	35,236,280	4.08%					
HS15	1,735,354	0.24%	195,352,510	22.62%					
HS16	53,295	0.01%	2,653,364	0.31%					
HS17	1,427,559	0.20%	75,979,918	8.80%					
HS18	10,449,972	1.44%	18,309,307	2.12%					
HS19	26,519	0.00%	22,133,485	2.56%					
HS21	291,449	0.04%	33,642,574	3.90%					
HS23	272	0.00%	13,954,299	1.62%					
HS24	18,961,351	2.62%	26,046,851	3.02%					
Total	96,706,054	13.37%	823,426,884	95.34%					

Source: own processing, 2021

Table 41 Uzbek agrarian trade commodity structure by CIS countries in 2010 (traditional product mapping approach) in USD

Trade transactions by CIS countries 2010									
B-2010	Export	Share in export	Import	Share in import	A-2010	Export	Share in export	Import	Share in import
					HS01	1,720,817	0.29%	1,552,849	0.28%
					HS05	36,480	0.01%	20,129	0.00%
					HS06	1,799,515	0.31%	343,624	0.06%
					HS07	182,969,423	31.31%	2,365,853	0.43%
					HS08	327,899,815	56.12%	1,050,616	0.19%
					HS09	2,068,590	0.35%	180,213	0.03%
					HS12	11,632,745	1.99%	3,821,259	0.70%
					HS13	37,613	0.01%	7,157	0.00%
					HS14	209,053	0.04%	13,868	0.00%
					HS16	1,427,559	0.24%	692,902	0.13%
					HS20	25,903,061	4.43%	2,737,428	0.50%
					HS22	10,455,913	1.79%	2,543,923	0.46%
					HS24	14,124,017	2.42%	3,811,413	0.70%
					Total	580,284,601	99.31%	19,141,234	3.50%
D-2010	Export	Share in export	Import	Share in import	C-2010	Export	Share in export	Import	Share in import
HS02			38,429	0.01%					
HS03	165,170	0.03%	226,544	0.04%					
HS04	751,595	0.13%	7,495,229	1.37%					
HS10	1,155,229	0.20%	45,784,802	8.37%					
HS11	8,348	0.00%	249,910,891	45.66%					
HS15	1,550,076	0.27%	151,841,353	27.74%					
HS17			29,127,068	5.32%					
HS18	85,541	0.01%	5,126,094	0.94%					
HS19	26,519	0.00%	16,260,685	2.97%					
HS21	270,305	0.05%	11,880,302	2.17%					
HS23			10,442,571	1.91%					
Total	4,012,783	0.69%	528,133,968	96.50%					

Source: own processing, 2021

Table 42 Uzbek agrarian trade commodity structure in 2019 (traditional product mapping approach) in USD

All trade transactions worldwide 2019									
B-2019	Export	Share in export	Import	Share in import	A-2019	Export	Share in export	Import	Share in import
HS13	1,330,162	0.30%	2,454,232	0.21%	HS05	2,396,108	0.54%	649,872	0.06%
HS24	8,773,568	1.97%	10,710,778	0.94%	HS07	131,433,934	29.53%	27,449,760	2.40%
					HS08	247,335,341	55.57%	12,267,523	1.07%
					HS09	17,278,624	3.88%	8,919,540	0.78%
					HS20	8,619,517	1.94%	6,490,796	0.57%
Total	10,103,730	2.27%	13,165,010	1.15%	Total	407,063,524	91.45%	55,777,491	4.87%
D-2019	Export	Share in export	Import	Share in import	C-2019	Export	Share in export	Import	Share in import
HS01	1,680,818	0.38%	146,355,165	12.78%					
HS02	9,898	0.00%	14,546,472	1.27%					
HS03	311,365	0.07%	3,502,478	0.31%					
HS04	144,728	0.03%	15,583,714	1.36%					
HS06	1,074,235	0.24%	21,189,234	1.85%					
HS10	640,751	0.14%	408,995,761	35.70%					
HS11	234,377	0.05%	90,595,649	7.91%					
HS12	13,935,734	3.13%	103,638,945	9.05%					
HS14	40,829	0.01%	344,304	0.03%					
HS15	306,451	0.07%	90,437,341	7.89%					
HS16	7,256	0.00%	3,362,941	0.29%					
HS17	2,134,614	0.48%	47,965,214	4.19%					
HS18	2,778,857	0.62%	14,380,174	1.26%					
HS19	1,051,740	0.24%	21,134,818	1.84%					
HS21	865,169	0.19%	45,547,269	3.98%					
HS22	2,580,999	0.58%	19,129,857	1.67%					
HS23	145,036	0.03%	29,879,711	2.61%					
Total	27,942,857	6.28%	1,076,589,047	94%					

Source: own processing, 2021

Table 43 Uzbek agrarian trade commodity structure by CIS countries in 2019

Trade transactions by CIS countries 2019									
B-2019	Export	Share in export	Import	Share in import	A-2019	Export	Share in export	Import	Share in import
HS22	2,381,309	0.76%	3,437,208	0.45%	HS05	80,927	0.03%	16,000	0.00%
					HS06	672,227	0.21%	38,342	0.00%
					HS07	96,049,037	30.60%	24,730,982	3.21%
					HS08	183,713,369	58.53%	902,318	0.12%
					HS09	3,295,531	1.05%	642,613	0.08%
					HS14	1,225	0.00%		0.00%
					HS18	2,759,074	0.88%	1,437,519	0.19%
					HS20	7,976,541	2.54%	1,233,983	0.16%
					HS24	8,121,920	2.59%	2,611,751	0.34%
Total	2,381,309	0.76%	3,437,208	0.45%	Total	302,669,851	96.44%	31,613,508	4.10%
D-2019	Export	Share in export	Import	Share in import	C-2019	Export	Share in export	Import	Share in import
HS01	700,200	0.22%	93,353,952	12.11%					
HS02			1,627,780	0.21%					
HS03	2,500	0.00%	521,672	0.07%					
HS04	5,443	0.00%	2,859,661	0.37%					
HS10	12,614	0.00%	403,633,953	52.36%					
HS11	74,041	0.02%	85,368,519	11.07%					
HS12	4,585,239	1.46%	82,058,944	10.64%					
HS13			22,589	0.00%					
HS15	11,244	0.00%	34,514,549	4.48%					
HS16	7,256	0.00%	253,354	0.03%					
HS17	2,129,664	0.68%	5,490,394	0.71%					
HS19	1,020,454	0.33%	5,002,295	0.65%					
HS21	252,575	0.08%	5488200	0.71%					
HS23			15,634,638	2.03%					
Total	8,801,230	2.80%	735,830,500	95.45%					

Source: own processing, 2021

As previously noted, Uzbek agricultural trade is concentrated on Asia, CIS and European countries. Throughout the scrutinized period (2010 - 2019), a substantial rise in the worth of exports and imports is discernible concerning all the key regions that embody the principal Uzbek trade associates in the agricultural field. As noted above, a negative feature of Uzbek agrarian trade is a much higher relative increase in the value of imports compared to the value of exports. This tendency was seen in several key areas under the analysis (CIS, EU28, Latin America, North America, and Other European countries). The only region – Asian countries (without CIS) recorded the growth of a positive export/import coverage ratio.

Uzbekistan grapples with the issue of somewhat constricted diversity in export competitiveness (with HS07 and HS08 aggregations forming the central support of agri-food export endeavors). An examination of relative strengths, as evidenced by the LFI index, validated the presence of such advantages at a two-sided level, particularly regarding former Soviet states (with the most crucial partners being the Russian Federation, Kazakhstan, and the CIS countries), but only concerning a finite array of traded goods. The outcomes depicted by the product mapping strategy render a more detailed depiction of the spread of Uzbekistan's agricultural export relative upper hand. The problem of Uzbek agrarian trade is its extreme commodity concentration. Just aggregations

included into quadrant A represent nearly 92% of the total export value. Uzbekistan has been suffering because of constantly decreasing competitiveness of individual trade items and the number of competitive aggregations is constantly decreasing as it could be demonstrated through the last two decades development (for details see Tables 46-47). Those changes can be considered as an evidence of an ongoing restructuring process. The commodity structure is still looking for the optimal state. The Republic of Uzbekistan is not competitive at the general level, but rather it has only bilateral comparative advantages, as previously mentioned. Comparative advantages exist, especially with regard to trading partners who apply restrictive trade policies in relation to the world market. Mutual trade is the result not of real price competitiveness, but of political deals.

Significant dynamics of commodity structure development can be seen in relation to both the LFI and TBI indices. The structure of agrarian trade has not yet been stabilized, and agricultural trade is still looking for the ideal state. Significant changes in the competitiveness of Uzbek agrarian trade in the period from 2010 to 2019 can be observed, especially in relation to Asian countries, other European countries, CIS countries, African countries and EU28 countries.

Table 44 Uzbek agrarian trade value commodity structure – modified product mapping approach (2019)

Value 2019 (in USD)	A		B		C		D		Total	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Asia	336,798,683	34,994,570			2,812,815	2,315,965	11,086,121	200,363,423	350,697,619	237,673,958
Africa	4,242,449	437,088						1,364,882	4,242,449	1,801,970
EU 28	39,403,932	2,542,433					5,756,140	179,998,491	45,160,072	182,540,924
Other European countries	2,357,505	61,427	9,699	13,036			126	9,332,519	2,357,631	9,406,982
CIS	302,669,851	31,613,508					8,801,230	735,830,500	311,471,081	767,444,008
North America	7,082,175	1,147,531					24,337	26,937,593	7,106,512	28,085,124
Latin America	949,032	129,433		625				15,860,870	949,032	15,990,928
Australia and Oceania										
World	693,503,627	70,925,990	9,699	13,661	2,812,815	2,315,965	25,667,954	1,169,688,278	721,984,396	1,242,943,894

Source: own processing, 2021

Table 45 Uzbek agrarian trade value commodity structure – modified product mapping approach (2010)

Value 2010 (in USD)	A		B		C		D		Total	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Asia	17,145,252	1,680,468	921,768	1,116,925			610,303	32,945,937	17,755,555	34,626,405
Africa	143,878				36,818	58,640	292,120	2,232,203	472,816	2,290,843
EU 28	21,704,099	11,082,806			3,635,828	15,256,844	3,498,298	144,400,886	28,838,225	170,740,536
Other European countries	5,086,938	35,197					160,732	6,125,794	5,247,670	6,160,991
CIS	580,284,601	19,141,234					4,012,783	528,133,968	584,297,384	547,275,202
North America	2,329,249				219,244	97,908	8,057	381,303	2,337,306	381,303
Latin America	346,469						29238	19,531,782	375,707	19,531,782
Australia and Oceania										
World	627,040,486	31,939,705	921,768	1,116,925	3,891,890	15,413,392	8,611,531	733,751,873	639,324,663	781,007,062

Source: own processing, 2021

During the analyzed period, the agrarian trade of Uzbekistan changed its structure. The share of agrarian exports realized under group A decreased by 2 percentage points (98% to 96%). The share of the A group in total imports changed from 4% to 5.7%. Group B decreased its share in total agrarian exports and imports from 0.14% to 0.001% and from 0.14% to 0.01%, respectively. The share of exports and imports realized under group C decreased from 0.61% to 0.39% and imports from 1.97% to 0.19%, respectively. Exports and imports realized under group D recorded the following changes: The share of exports in total agrarian exports increased from 1.35% to 3.56% and the share of realized imports increased from 93.95% to 94.11%. The conducted analysis also proved the dominant role of CIS and Asian countries as the main trade partners of the Republic of Uzbekistan. Their cumulative share in agrarian exports and imports is a dominant 86.5% respectively 79.2%. In 2010, their cumulative share in total exports and imports reached only 94.8%, respectively 76.5%.

5.1.5. Uzbek agrarian exports' concentration 1995-2018

This chapter is based on the author's following published article: Ortikov, A., Smutka, L., and Kontsevaya S. (2022). The agrarian potential of Uzbekistan in the post-soviet countries: The comparative advantages of various trade groups.

The agrarian trade of Uzbekistan is concentrated in CIS members, Central Asian and European countries (Table 48). The most influential part is enacted by CIS constituents, Asian nations, and EU members. However, throughout the evaluated time frame, the significance of specific collaborators altered. The aggregate worth of agricultural commerce achievement witnessed

substantial augmentation. The face value of exports surged from an estimated 48.8 mil. USD to roughly 1.1 bil. USD. The worth of imports observed an ascension from 339.7 mil. USD to 1.7 bil. USD. The collective worth of the negative agri-food trade deficit swelled from 284.6 mil. USD to approximately 582.9 mil. USD. The problem of Uzbek agrarian trade value development is connected to much lower inter-annual growth rate of export value in comparison to inter-annual growth of import value. Because of much higher imports dynamics in comparison to exports, Uzbekistan recorded a significant reduction of the export/import coverage ratio.

Table 46 Uzbek agrarian exports' concentration - by regional groups (HHI index)

Groups	1995		2018	
	Market share	HHI index	Market share	HHI index
Asia	23.8%	566.4	14.1%	198.8
Africa	0.2%	0.04	0.3%	0.09
EU 28	53.3%	2840.9	11.3%	127.7
Other European countries	2.7%	7.3	0.5%	0.3
CIS	18.3%	334.9	69.6%	4844.2
North America	0.3%	0.09	0.3%	0.09
Latin America	1.5%	2.3	3.9%	15.2
Australia and Oceania	0.0%	0.0	0.0%	0.0
World	100.0%	3751.9	100.0%	5186.3

Source: own processing, 2022

Throughout the scrutinized interval, the export/import coverage ratio markedly rose from 15% to 65%.

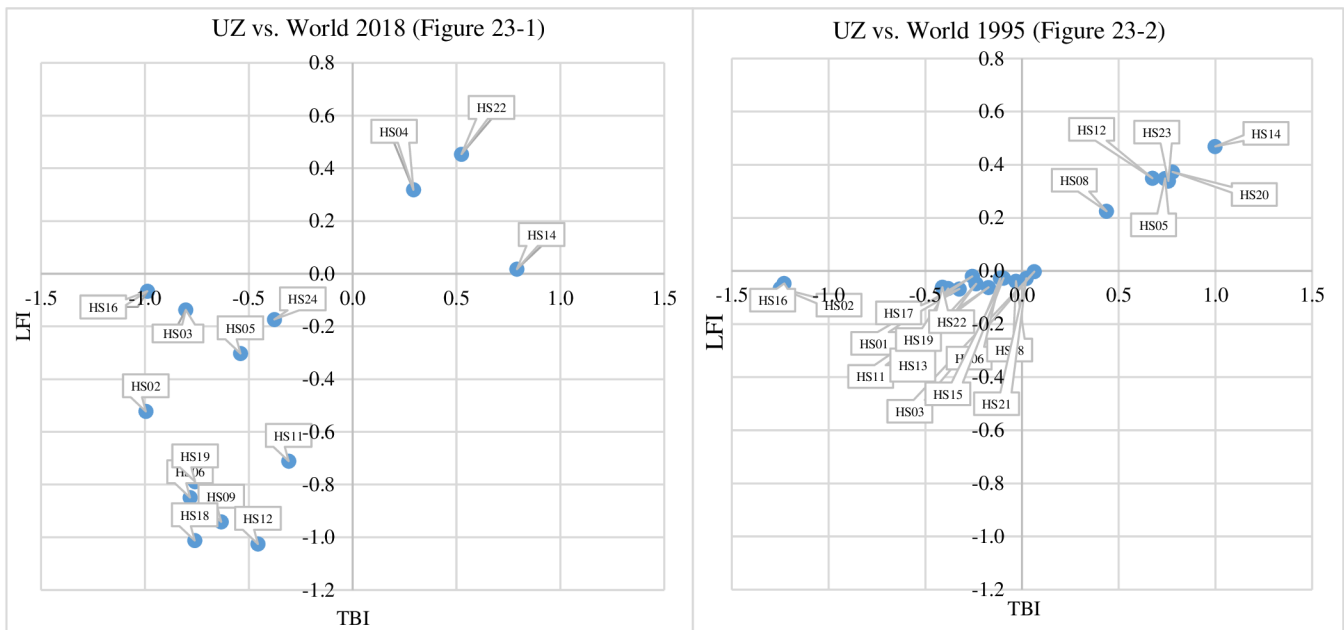
In 1995, the Asian share in Uzbek agricultural exports and imports reached about 23.8% and 14.1%, respectively. In the same year - the share of EU28 in agricultural exports and imports reached about 53.3% and 11.3%, respectively and the share of CIS members in agricultural exports and imports reached 18.3% and 69.6%, respectively (Table 48).

Table 47 Uzbek agrarian foreign trade value development between 1995 and 2018 in USD

1995	Asia	Africa	EU 28	Other European countries	CIS	North America	Latin America	Australia and Oceania	World total
Export	19,125,435	67,379	14,275,793	2,641	15,139,841	204,740			48,815,829
Import	80,859,051	636,358	180,904,505	9,072,518	62,152,922	851,335	5,227,238		339,703,927
Balance	-61,733,616	-568,979	-166,628,712	-9,069,877	-47,013,081	-646,595			-285,660,860
Balance/Export	-322.78%	-844.45%	-1167.21%	-343425.86%	-310.53%	-315.81%			-585.18%
2018	Asia	Africa	EU 28	Other European countries	CIS	North America	Latin America	Australia and Oceania	World total
Export	350,697,619	356,832	19,612,179	281,193	731,889,267	2,821,751	35,221		1,105,694,062
Import	237,673,958	5,131,002	190,393,528	7,901,691	1,174,946,324	5,291,454	66,130,720	1,180,138	1,688,648,815
Balance	113,023,661	-4,774,170	-170,781,349	-7,620,498	-443,057,057	-2,469,703	-66,095,499	-1,180,138	-582,954,753
Balance/Export	32.23%	-1337.93%	-870.79%	-2710.06%	-60.54%	-87.52%	-187659.35%	-3350.67%	-52.72%
Export Basic index 2018/1995	18.34	5.30	1.37	106.47	48.34	13.78			22.65
Import Basic index 2018/1995	2.94	8.06	1.05	0.87	18.90	6.22	12.65		4.97

Source: COMTRADE database, 2022 and own calculations.

Figure 23 Uzbek agrarian exports’ comparative advantages distribution – traditional and modified “Product mapping approach”



Source: own processing, 2022

Additional note on figure:

TBI - Trade balance index, LFI - Lafay index.

Table 48 The list of Harmonized commodity aggregations in the analysis (HS)

HS01	Live animals	HS13	Lac gums, resins and other vegetable saps and extracts
HS02	Meat and edible meat offal	HS14	Vegetable plaiting materials vegetable products not elsewhere specified or included
HS03	Fish and crustaceans, molluscs and other aquatic invertebrates	HS15	Animal or vegetable fats and oils and their cleavage products prepared edible fats animal or vegetable waxes
HS04	Dairy produce birds' eggs natural honey edible products of animal origin, not elsewhere specified or included	HS16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates
HS05	Products of animal origin, not elsewhere specified or included	HS17	Sugars and sugar confectionery
HS06	Live trees and other plants bulbs, roots and the like cut flowers and ornamental foliage	HS18	Cocoa and cocoa preparations
HS07	Edible vegetables and certain roots and tubers	HS19	Preparations of cereals, flour, starch or milk pastry cooks' products
HS08	Edible fruit and nuts peel of citrus fruit or melons	HS20	Preparations of vegetables, fruit, nuts or other parts of plants
HS09	Coffee, tea, mate and spices	HS21	Miscellaneous edible preparations
HS10	Cereals	HS22	Beverages, spirits and vinegar
HS11	Products of the milling industry malt starches inulin wheat gluten	HS23	Residues and waste from the food industries prepared animal fodder
HS12	Oil seeds and oleaginous fruits miscellaneous grains, seeds and fruit industrial or medicinal plants and fodder	HS24	Tobacco and manufactured tobacco substitutes

Source: COMTRADE database, 2019

As can be seen in tables 49 the current agricultural trade performance of Uzbekistan is heavily focused on CIS and Asian countries. Those partners represent nearly 97 % of export value and 83.7 % of import value in 2018. The key aspect of Uzbek agrarian trade is its competitiveness (especially low-price competitiveness). Based on volume (tons) and value (total value and unit value) analysis, bulk commodities (e.g. vegetables, fruits) could be considered the main driver of agricultural export growth. Another very specific feature of Uzbek agri-food trade is its concentration on post-Soviet countries. The markets of those countries represent the key territory for export-oriented activities. And mutual trade agreements (preferential trade agreements and free-trade zones) could be considered the key element supporting national export ambitions.

The existence of comparative advantages is proved through the application of LFI and TBI indices, taking into consideration only agricultural trade performance. The above-mentioned graphs provide an overview related to the global competitiveness of individual Uzbek agrarian trade items (Figure 23). The graphs provide a different overview of the modified product mapping approach. The results provided by the modified approach deliver a more accurate overview of the distribution of the comparative advantages of Uzbek agrarian exports. The number of items located in groups B and C

is significantly reduced, and the whole commodity structure is divided into two groups, A (with comparative advantages) and D (without comparative advantages). The modified approach is able to specify in more detail the current level of Uzbek agrarian trade competitiveness and competitiveness development. Using this applied approach, it is evident that the structure of Uzbek agrarian commodity trading has been significantly changing its character. The commodity structure is still looking for its optimal state (for details see tables 51 and 53 (global) and also tables 52 and 54 (for CIS countries)).

Table 49 Uzbek agrarian trade commodity structure in 1995 (traditional product mapping approach) in USD

All trade transactions worldwide 1995									
B-1995	Export	Share in export	Import	Share in import	A-1995	Export	Share in export	Import	Share in import
HS03	55,710	0.11%	403,256	0.12%	HS05	1,255,960	2.57%	364,572	0.11%
HS21	673,537	1.38%	8,406,785	2.47%	HS08	497,930	1.02%	415,735	0.12%
					HS12	1,606,879	3.29%	462,849	0.14%
					HS14	23,976,234	49.12%	16,570	0.00%
					HS20	7,902,184	16.19%	1,726,779	0.51%
					HS23	7,543,119	15.45%	2,418,849	0.71%
Total	729,247	1.49%	8,810,041	2.59%	Total	42,782,306	87.64%	5,405,354	1.59%
D-1995	Export	Share in export	Import	Share in import	C-1995	Export	Share in export	Import	Share in import
HS01	91,919	0.19%	951,082	0.28%	HS07	831,324	1.70%	3,886,531	1.14%
HS02	115,600	0.24%	28,926,790	8.52%					
HS04	78,534	0.16%	3,670,671	1.08%					
HS06	29,000	0.06%	351,980	0.10%					
HS09	67,399	0.14%	5,592,275	1.65%					
HS10	313,914	0.64%	108,039,941	31.80%					
HS11	15,199	0.03%	1,332,290	0.39%					
HS13	10,500	0.02%	281,100	0.08%					
HS15	1,209,296	2.48%	14,766,631	4.35%					
HS16	61,499	0.13%	1,540,656	0.45%					
HS17			52,689,536	15.51%					
HS18	1,339,799	2.74%	23,448,339	6.90%					
HS19	112,998	0.23%	39,048,226	11.49%					
HS22	427,496	0.88%	36,536,961	10.76%					
HS24	599,799	1.23%	4,425,523	1.30%					
Total	4,472,952	9.16%	321,602,001	94.67%	Total	831,324	1.70%	3,886,531	1.14%

Source: own processing, 2022

Table 50 Uzbek agrarian trade commodity structure by CIS countries in 1995 (traditional product mapping approach) in USD

Trade transactions by CIS countries 1995									
B-1995	Export	Share in export	Import	Share in import	A-1995	Export	Share in export	Import	Share in import
					HS05	2,699	0.02%	2,500	0.00%
					HS08	301,169	1.99%	12,400	0.02%
					HS12	1,066,543	7.04%	145,497	0.23%
					HS13	10,500	0.07%	4,600	0.01%
					HS14	6,012,298	39.71%	15,300	0.02%
					HS15	606,296	4.00%	76,599	0.12%
					HS18	1,339,799	8.85%	12,672	0.02%
					HS20	2,809,695	18.56%	171,399	0.28%
					HS21	487,897	3.22%	41,399	0.07%
					HS24	597,768	3.95%	384,289	0.62%
					Total	13,234,664	87.42%	866,655	1.39%
D-1995	Export	Share in export	Import	Share in import	C-1995	Export	Share in export	Import	Share in import
HS01	45,600	0.30%	769,196	1.24%	HS07	606,192	4.0%	1,405,799	2.26%
HS02	115,600	0.76%	2,117,098	3.41%	HS09	67,399	0.4%	101,497	0.16%
HS03		0.00%	91,799	0.15%	HS19	112,998	0.7%	213,597	0.34%
HS04	54,299	0.36%	262,899	0.42%					
HS10	277,498	1.83%	36,286,397	58.38%					
HS11	15,199	0.10%	1,148,696	1.85%					
HS16		0.00%	66,800	0.11%					
HS17	57,999	0.38%	14,639,305	23.55%					
HS22	414,496	2.74%	2,744,684	4.42%					
HS23	137,897	0.91%	1,438,500	2.31%					
Total	1,118,588	7.39%	59,565,374	95.84%	Total	786,589	5.2%	1,720,893	2.77%

Source: own processing, 2022

Table 51 Uzbek agrarian trade commodity structure in 2018 (traditional product mapping approach) in USD

All trade transactions worldwide 2018									
B-2018	Export	Share in export	Import	Share in import	A-2018	Export	Share in export	Import	Share in import
					HS04	11,519,642	1.04%	6,306,013	0.37%
					HS07	307,714,084	27.69%	46,876,707	2.76%
					HS08	543,935,423	48.95%	25,303,500	1.49%
					HS13	23,681,603	2.13%	2,297,119	0.14%
					HS14	432,113	0.04%	50,530	0.00%
					HS20	30,727,553	2.77%	14,786,471	0.87%
					HS22	13,253,219	1.19%	4,135,961	0.24%
					Total	931,263,637	83.80%	99,756,301	5.87%
D-2018	Export	Share in export	Import	Share in import	C-2018	Export	Share in export	Import	Share in import
HS01	2,603,732	0.23%	75,001,264	4.41%					
HS02	40,035	0.00%	18,641,325	1.10%					
HS03	638,303	0.06%	5,850,531	0.34%					
HS05	5,921,220	0.53%	19,823,595	1.17%					
HS06	4,520,133	0.41%	37,106,855	2.18%					
HS09	11,483,346	1.03%	51,046,497	3.00%					
HS10	20,569,994	1.85%	305,594,848	17.98%					
HS11	70,111,379	6.31%	132,548,155	7.80%					
HS12	31,814,015	2.86%	85,136,376	5.01%					
HS15	1,918,960	0.17%	238,216,058	14.01%					
HS16	13,480	0.00%	2,376,474	0.14%					
HS17	4,794,369	0.43%	347,426,508	20.44%					
HS18	6,182,092	0.56%	45,450,239	2.67%					
HS19	4,877,633	0.44%	35,507,175	2.09%					
HS21	764,354	0.07%	48,021,765	2.82%					
HS23	4,705,420	0.42%	132,538,363	7.80%					
HS24	9,047,084	0.81%	20,008,873	1.18%					
Total	180,005,549	16.20%	1,600,294,901	94.13%					

Source: own processing, 2022

Table 52 Uzbek agrarian trade commodity structure by CIS countries in 2018

Trade transactions by CIS countries 2018									
B-2018	Export	Share in export	Import	Share in import	A-2018	Export	Share in export	Import	Share in import
					HS05	967,509	0.13%	298,730	0.03%
					HS06	4,399,916	0.60%	181,054	0.02%
					HS07	159,678,854	21.82%	25,368,716	2.16%
					HS08	487,262,332	66.58%	1,054,224	0.09%
					HS09	5,837,989	0.80%	1,805,370	0.15%
					HS14	313,027	0.04%	2,529	0.00%
					HS20	20,893,587	2.85%	10,499,936	0.89%
					HS22	12,722,868	1.74%	1,336,916	0.11%
					HS24	4,815,777	0.66%	3,051,523	0.26%
					Total	696,891,859	95.22%	43,598,998	3.71%
D-2018	Export	Share in export	Import	Share in import	C-2018	Export	Share in export	Import	Share in import
HS01	995,059	0.14%	28,643,144	2.44%					
HS02			10,559,437	0.90%					
HS03	1,820		1,065,803	0.09%					
HS04	1,610,161	0.22%	12,027,581	1.02%					
HS10	420,697	0.06%	301,620,277	25.67%					
HS11	67,855	0.01%	128,502,892	10.94%					
HS12	13,967,112	1.91%	64,648,547	5.50%					
HS13			301,657	0.03%					
HS15	1,910,610	0.26%	192,952,729	16.42%					
HS16	10,556		1,262,824	0.11%					
HS17	4,196,115	0.57%	248,918,994	21.19%					
HS18	5,391,381	0.74%	27,232,210	2.32%					
HS19	4,011,230	0.55%	32,368,597	2.75%					
HS21	561,902	0.08%	33,261,013	2.83%					
HS23	1,852,910	0.25%	47,981,621	4.08%					
Total	34,997,408	4.78%	1,131,347,326	96.29%					

Source: own processing, 2022

As already mentioned, Uzbek agrarian trade is focused on Asia, CIS and Europe. In the analyzed time period (1995 - 2018), a significant increase in the value of exports and imports can be observed in relation to all the main territories representing the main Uzbek trading partners in the agricultural sector. As noted above, a negative feature of Uzbek agrarian trade is a much higher relative increase in the value of imports compared to the value of exports. This tendency was seen in several key areas under the analysis (EU28, CIS, Other European countries, North America, Latin America). The only region – Asian countries (without CIS) recorded the growth of a positive export/import coverage ratio.

Uzbekistan's problem is the rather limited heterogeneity of export competitiveness (aggregations HS07 and HS08 represent the key pillar of agri-food export activities). An analysis of comparative advantages based on the LFI index confirmed the existence of comparative advantages at the bilateral level, especially in relation to post-Soviet countries (the most important partners are the Russian Federation, Kazakhstan and the CIS countries), only in the case of a limited number of trade items. The results presented by the product mapping approach provide a more accurate overview of the distribution of the comparative advantages of Uzbekistan's agrarian exports. The problem of Uzbek agrarian trade is its extreme commodity concentration. Just aggregations included into

quadrant A represent nearly 92% of the total export value. Uzbekistan has been suffering because of the constantly decreasing competitiveness of individual trade items and the number of competitive aggregations is constantly decreasing as it could be demonstrated through the last two decades development (for details see Tables 53 - 51). Those changes can be considered as an evidence of an ongoing restructuring process. The commodity structure is still looking for the optimal state. The Republic of Uzbekistan is not competitive at the general level, but rather it has only bilateral comparative advantages, as previously mentioned. Comparative advantages exist, especially with regard to trading partners who apply restrictive trade policies in relation to the world market. Mutual trade is the result not of real price competitiveness, but of political deals.

Significant dynamics of commodity structure development can be seen in relation to both the LFI and TBI indices. The structure of agrarian trade has not yet been stabilized, and agricultural trade is still looking for the ideal state. Significant changes in the competitiveness of Uzbek agrarian trade in the period from 1995 to 2018 can be observed, especially in relation to the Asian countries, other European countries, CIS countries, African countries and EU28 countries.

Table 53 Uzbek agrarian trade value commodity structure – modified product mapping approach (2018)

Value 2018 (in USD)	A		B		C		D		Total	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Asia	336,798,683	34,994,570			2,812,815	2,315,965	11,086,121	200,363,423	350,697,619	237,673,958
Africa	229,802		89,163	122,136			37,867	5,007,847	356,832	5,129,983
EU 28	13,558,000	2,820,796			5,413,156	20,442,610	641,023	167,130,122	19,612,179	190,393,528
Other European countries	281,193			5,854		7,895,837			281,193	7,901,691
CIS	696,891,859	43,598,998					34,997,408	1,131,347,326	731,889,267	1,174,946,324
North America	2,641,564	262,718	179,209	326,247			978	4,702,489	2,821,751	5,291,454
Latin America			35,221	1,621,011				64,509,709	35,221	66,130,720
Australia and Oceania										
World	1,050,401,101	81,677,082	303,593	2,075,248	8,225,971	30,654,412	46,763,397	1,573,060,916	1,105,694,062	1,687,467,658

Source: own processing, 2022

Table 54 Uzbek agrarian trade value commodity structure – modified product mapping approach (1995)

Value 1995 (in USD)	A		B		C		D		Total	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
Asia	19,052,546	359,342					72,889	80,499,709	19,125,435	80,859,051
Africa										
EU 28	13,165,948	1,853,929			288,932	2,632,276	820,913	176,418,300	14,275,793	180,904,505
Other European countries										
CIS	13234664	866,655			786,589	1,720,893	1,118,588	59,565,374	15,139,841	62,152,922
North America										
Latin America										
Australia and Oceania										
World	45,453,158	3,079,926	0	0	1,075,521	4,353,169	2,012,390	316,483,383	48,541,069	323,916,478

Source: own processing, 2022

During the analyzed period, the agrarian trade of Uzbekistan changed its structure. The share of agrarian exports realized under group A decreased by 2 percentage points (93% to 95%). The share of the A group in total imports changed from 0.95% to 4.8%. The share of exports and imports realized under group C decreased from 2.2% to 1% and import increased from 1.3% to 2%, respectively. Exports and imports realized under group D recorded the following changes: The share of exports in total agrarian exports increased from 4.15% to 4.3% and the share of realized imports decreased from 97.7% to 93.2%. The conducted analysis also proved the dominant role of CIS and Asian countries as the main trade partners of the Republic of Uzbekistan. Their cumulative share in agrarian exports and imports is a dominant 97.9% respectively 83.7%. In 1995, their cumulative share in total exports and imports reached only 70.2%, respectively 42.1% (Tables 55 and 56).

5.2. The impact of state regulations on international trade in Uzbekistan from the perspective of firm owners and managers

Overall, the growth of a country's exports tends to have a beneficial impact on the development of both the entire economy and individual enterprises (Cavusgil, Nevin, 1981). Export activities hold significant economic value for trading nations and their local companies. Exports generate employment, enhance the trade balance, boost capacity utilization, and elevate profit margins (Barker and Kaynak, 1992). As per Gripsrud (1990), studies in this field have been motivated by the prevalent conviction that the escalating globalization of the world's economy and the surge in exports will bring about the most profound alterations in society. Currently, a shared objective among various nations is to identify strategies to amplify the proportion of exports within their economies. This goal can be attained either by encouraging export-oriented businesses to boost their export activities or by providing incentives to non-exporting enterprises to commence export operations (Ahmed, Z.U., Julian, C.C., Baalbaki, I.B., and Hadidian, T.V. 2004).

As with any firm, the firms engaging in international trade are obstructed by government regulations. Naturally, the biggest obstruction is the trade barriers. However, the business and political culture of the country may result in other obstructions, such as taxation and licensing, political environment or health, safety and environmental regulations to disproportionately affect the firms engaged in international trade. This chapter studies the subjective impact of state regulations on international trade in Uzbekistan. It concentrates on the relative importance of trade barriers, taxation and licensing, political environment, health safety and environmental regulations as an obstacle for the operation of the enterprise, from the point of view of employees of Uzbek firms 1239

firms operating in seven industries and 8 regions. The chapter relies on data collected in 2019 the firm-level representative The Enterprise Survey (ES) carried out in Uzbekistan from February to August 2019 was part of a collaborative effort involving the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), and the World Bank Group (WBG).

5.2.1. Hypotheses

The following hypotheses are tested:

H1.i the more the firm engages in international trade, the more of an obstacle it perceives in

- trade barriers (H1.1)
- taxation and licensing (H1.2)
- political environment (H1.3)
- health safety and environmental regulations (H1.4)

The ordinal regression analysis is employed to test hypotheses H1.1-4. The analysis controls for annual sales, the number of full-time employees, the year the firm began operation, the percentage of the firm owned by the same family, by government or by foreigners, the participation of women in management, the existence of a website, region, and industry.

5.2.2. Data and sample

The main sampling unit of the study is local enterprises. An enterprise is a place where business and industrial operations are carried out or services are provided by an individual or a legal entity. A firm may consist of one or more establishments. For example, a fruit processing plant may have multiple facilities for packaging and distributing multiple processed products. For the purposes of this study, a business must make its own financial decisions and have its own payroll. The enterprise must also have its own management and control of payroll and financial activities.

This estimation method was based on stratified sampling. The classification by number for the ES of Uzbekistan was defined as follows: small (from 5 to 19 employees), medium (from 20 to 99 employees) and large (100 or more employees). Sample for 2019, the sample for the ES of Uzbekistan was selected by randomized sampling. Three levels of classification were used in the Republic of Uzbekistan: enterprise size, region and industry. Industrial stratification develops as follows: The universe is divided into six layers. manufacturing and two service industries: textiles (ISIC 17), food and beverages (ISIC Rev. 3.1, code 15), other manufacturing (ISIC codes 16, 19-24, 27-37), clothing

(ISIC code 26), and retail. (ISIC code 52) and other services (ISIC codes 45, 50, 51, 55, 60-64 and 72).

The regional classification was carried out for nine separate regions: Fergana region, Andijan region, Samarkand region, Kashkadarya region, Republic of Karakalpakstan, Tashkent region, Surkhandarya region and Jizzakh region, Navoi region. The number of interviews in each declared and surveyed institution was 37.9%. This indicator is the result of the following two factors: the exact refusal to participate in the survey, the refusal rate (which includes screening and refusal from the main survey), and the quality of the sampling frame, which is represented by the presence of inappropriate units of measurement.

The percentage of refusals for each participation was 36.3%. The survey was conducted in a two-stage procedure. Typically, telephone surveys are used to determine eligibility and make appointments. Then a personal interview was conducted with the director/owner/manager of each institution. However, sometimes the telephone numbers were not in the sampling frame and therefore the enumerators made the selection in person. This thesis used the database of The World Bank (WB), the European Bank for Reconstruction and Development (EBRD), and the European Investment Bank (EIB), Enterprise Survey 2019.

5.2.3. Indicators

Table 55 How much of An obstacle: Transport?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No obstacle	954	77,0	78,6	78,6
	Minor obstacle	113	9,1	9,3	88,0
	Moderate obstacle	78	6,3	6,4	94,4
	Major obstacle	34	2,7	2,8	97,2
	Very severe obstacle	34	2,7	2,8	100,0
	Total	1213	97,9	100,0	
Missing	Don't know (spontaneous)	12	1,0		
	Does not apply	14	1,1		
	Total	26	2,1		
Total	1239	100,0			

Source: own calculations

The survey results show that from Table 57, at least 2.8% of firms believe that there is a very strong barrier, 78.6% believe that there is no barrier, and 9.3% of participants confirm the presence of small obstacles.

The Logistics Performance Index is derived from a worldwide evaluation conducted by logistics professionals, who may exhibit a biased perspective towards the logistics frameworks of various nations, thus influencing the potential ranking. As per the measurement utilized in the Republic of Uzbekistan in 2018, the index stands at 2.58 (Bazarov and Vatin, 2023). The analysis reveals that the highest Dimensionless Indicator (DL) of 20.0% was awarded for the efficient organization of timely goods delivery. Conversely, the lowest DL pertained to the assessment of customs authorities' operations, which was at 13.5%.

Table 56 How much of An obstacle: Customs and Trade Regulations?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No obstacle	902	72,8	87,1	87,1
	Minor obstacle	61	4,9	5,9	93,0
	Moderate obstacle	34	2,7	3,3	96,2
	Major obstacle	20	1,6	1,9	98,2
	Very severe obstacle	19	1,5	1,8	100,0
	Total	1036	83,6	100,0	
Missing	Don't know (spontaneous)	14	1,1		
	Does not apply	189	15,3		
	Total	203	16,4		
Total	1239	100,0			

Source: own calculations

The results of the survey in Table 58 show that at least 87.1% of the participating firms do not have any barriers to customs and trade regulations, 1.8% believe that there is a very serious barrier, and 5, 9% of participants confirm the presence of small obstacles.

Table 57 How much of an obstacle: Tax rates

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No obstacle	770	62,1	64,0	64,0
	Minor obstacle	153	12,3	12,7	76,7
	Moderate obstacle	177	14,3	14,7	91,4
	Major obstacle	58	4,7	4,8	96,2
	Very severe obstacle	46	3,7	3,8	100,0
	Total	1204	97,2	100,0	
Missing	Don't know (spontaneous)	27	2,2		
	Does not apply	8	,6		
	Total	35	2,8		
Total	1239	100,0			

Source: own calculations

Uzbekistan has one of the most forgiving tax regimes in the world (Lutfullaevich, 2020). Thus, income tax for residents is 12%, for non-residents - 20%, VAT rate - 15%, corporate tax rate - 20%, and dividends - 5% (10% if the payer or recipient of dividends is a foreign legal entity). The results of the survey in Table 59 indicate that 64% of the participating firms report that they have no tax rate barriers, while 3.8% confirm that there is a very serious tax rate barrier, and 14.7 % indicate that there are major obstacles.

Table 58 How much of an obstacle: Tax administrations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No obstacle	970	78,3	80,5	80,5
	Minor obstacle	101	8,2	8,4	88,9
	Moderate obstacle	83	6,7	6,9	95,8
	Major obstacle	29	2,3	2,4	98,2
	Very severe obstacle	22	1,8	1,8	100,0
	Total	1205	97,3	100,0	
Missing	Don't know (spontaneous)	23	1,9		
	Does not apply	11	,9		
	Total	34	2,7		
Total	1239	100,0			

Source: own calculations

The results of the survey in Table 60 show that 80.5% of participating firms report that they have no obstacles in tax administration, while 1.8% confirm that there is a very serious tax barrier, and 2.4% indicate that there are serious obstacles.

The primary challenge for tax bodies within the CIS countries continues to be their evolution into entities that are more accommodating to market demands, with a concentration on self-evaluation, taxpayer assistance, and regulatory enforcement - Uzbekistan being no different. It is widely acknowledged in tax administration that the fundamental aim of any tax authority should be to foster spontaneous adherence to tax regulations. The Uzbek government ought to facilitate and endorse this voluntary conformity among its taxpayers. Presently, the Government of Uzbekistan is prioritizing the reform of tax legislation, while issues related to tax administration and fostering taxpayer compliance are receiving less attention (Tadjibaeva, and Komilova, 2012).

Table 59 How much of an obstacle: Business licensing and permits

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No obstacle	1020	82,3	85,6	85,6
	Minor obstacle	81	6,5	6,8	92,4
	Moderate obstacle	47	3,8	3,9	96,4
	Major obstacle	24	1,9	2,0	98,4
	Very severe obstacle	19	1,5	1,6	100,0
	Total	1191	96,1	100,0	
Missing	Don't know (spontaneous)	30	2,4		
	Does not apply	18	1,5		
	Total	48	3,9		
Total		1239	100,0		

Source: own calculations

The results of the survey presented in Table 61 show that 85.6% of participating firms concluded that there are no obstacles related to business licensing and obtaining permits and 1.6% of participants stated that there are very serious obstacles, only 2% confirmed the presence of major obstacles.

Table 60 How much of an obstacle: Political instability

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No obstacle	1026	82,8	88,5	88,5
	Minor obstacle	37	3,0	3,2	91,7
	Moderate obstacle	45	3,6	3,9	95,6
	Major obstacle	30	2,4	2,6	98,2
	Very severe obstacle	21	1,7	1,8	100,0
	Total	1159	93,5	100,0	
Missing	Don't know (spontaneous)	32	2,6		
	Does not apply	48	3,9		
	Total	80	6,5		
Total	1239	100,0			

Source: own calculations

The results of the survey presented in Table 62 show that 88.5% of the participating firms concluded that they have no barriers related to political instability, 1.8% stated that there are very serious barriers, and 2.6% confirms the major barriers.

Table 61 How much of an obstacle: Corruption

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No obstacle	922	74,4	79,8	79,8
	Minor obstacle	75	6,1	6,5	86,3
	Moderate obstacle	63	5,1	5,5	91,8
	Major obstacle	49	4,0	4,2	96,0
	Very severe obstacle	46	3,7	4,0	100,0
	Total	1155	93,2	100,0	
Missing	Don't know (spontaneous)	37	3,0		
	Does not apply	47	3,8		
	Total	84	6,8		
Total	1239	100,0			

Source: own calculations

The results of the survey presented in Table 63 show that 79.8 % of the participating firms do not have any obstacles belonging to corruption, 4.0 % know that there are very serious obstacles, and 4.2 % are confirms major obstacles.

The 2021 Corruption Perceptions Index, published yearly by Transparency International, lists Uzbekistan as one of the top 30 nations experiencing high levels of corruption (TI, 2021). Furthermore, the World Bank Governance Studies' control of corruption indicator illustrates a marked enhancement in the Uzbek government's efforts to combat corruption, with a notable rise from 12%

in 2017 to 13% in 2018, 15.4% in 2019, 15.9% in 2020, and 23.4% in 2021 (Urinboyev, R., and Svensson, M., 2016).

Table 62 How much of an obstacle: Occupational safety regulations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No obstacle	1043	84,2	86,5	86,5
	Minor obstacle	95	7,7	7,9	94,4
	Moderate obstacle	42	3,4	3,5	97,8
	Major obstacle	19	1,5	1,6	99,4
	Very severe obstacle	7	6	6	100,0
	Total	1206	97,3	100,0	
Missing	Don't know (spontaneous)	24	1,9		
	Does not apply	9	,7		
	Total	33	2,7		
Total	1239	100,0			

Source: own calculations

The International Labour Organization (ILO) calculates that approximately two million women and men perish annually due to industrial mishaps and work-related illnesses. Globally, approximately 270 million industrial mishaps and 160 million professional ailments are reported each year. These incidents contribute to a 4% loss in the global gross domestic product due to accidents and subpar working conditions. In the Republic of Uzbekistan, key regulations mandated by the government encompass the establishment of rights and assurances for industrial workers aligned with labor protection (safety and health) standards (Abdurakhmanov, 2011). Data from the survey highlighted in Table 64 indicate that a significant majority (86.5%) of the surveyed companies encounter no impediments regarding workplace safety regulations. In contrast, 6% perceive these regulations as very serious hindrances, and 1.6% acknowledge them as major obstacles.

Table 63 How much of an obstacle: Health and hygiene regulations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No obstacle	1023	82,6	87,9	87,9
	Minor obstacle	79	6,4	6,8	94,7
	Moderate obstacle	42	3,4	3,6	98,3
	Major obstacle	14	1,1	1,2	99,5
	Very severe obstacle	6	5	5	100,0
	Total	1164	93,9	100,0	
Missing	Don't know (spontaneous)	31	2,5		
	Does not apply	44	3,6		
	Total	75	6,1		
Total	1239	100,0			

Source: own calculations 2023

In Uzbekistan, the public health system is characterized as distinctly hierarchical, relying mainly on policy enactment for regulatory purposes. Entities within the healthcare structure are required to adhere to the directives issued by their superior levels. Conventionally, neither financial incentives nor other types of inducements are employed to govern healthcare providers (Kohler, Stefan, et al., 2016). According to the survey results illustrated in Table 65, a vast majority (85.9%) of the businesses participating in the survey report encountering no challenges in compliance with Health and Hygiene regulations. However, 5% of the firms indicate the existence of very strong obstacles, and 1.2% acknowledge the presence of significant barriers.

Table 64 How much of an obstacle: Environmental regulations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No obstacle	1025	82,7	85,7	85,7
	Minor obstacle	84	6,8	7,0	92,7
	Moderate obstacle	63	5,1	5,3	98,0
	Major obstacle	13	1,0	1,1	99,1
	Very severe obstacle	11	9	9	100,0
	Total	1196	96,5	100,0	
Missing	Don't know (spontaneous)	29	2,3		
	Does not apply	14	1,1		
	Total	43	3,5		
Total	1239	100,0			

Source: own calculations

The results of the survey in Table 66 show that 85.7% of the participating firms stated that there were no obstacles from environmental regulations, 9% stated that there were very serious obstacles from environmental regulations, and 7% confirmed that there were major obstacles.

Table 65 How much of an obstacle: Courts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No obstacle	1013	81,8	88,0	88,0
	Minor obstacle	49	4,0	4,3	92,3
	Moderate obstacle	48	3,9	4,2	96,4
	Major obstacle	23	1,9	2,0	98,4
	Very severe obstacle	18	1,5	1,6	100,0
	Total	1151	92,9	100,0	
Missing	Don't know (spontaneous)	39	3,1		
	Does not apply	49	4,0		
	Total	88	7,1		
Total	1239	100,0			

Source: own calculations

The results of the survey in Table 67 show that 88% of the participating firms stated that there were no obstacles from the courts, 1.6% stated that there were very serious obstacles from the courts, and 2.4% confirmed the presence of serious obstacles.

Two indicators of international trade are employed: indicators of exports as a percentage of sales and indicators of imports as the percentage of inputs of foreign origin the firm employs.

The exports as a % share of total shares in the last fiscal year are computed from two variables

$$\text{Total export as \% of sales} = \% \text{ of Sales: Indirect Exports} + \% \text{ of Sales: Direct Exports} \quad (1)$$

The import indicator corresponds to

$$\% \text{ of Material Inputs And Supplies of Foreign origin In the Last Fiscal Year}$$

Table 66 Indicators of international trade. Descriptive statistics

Total exports as % of sales, last fiscal year			% of Material Inputs And Supplies of Foreign origin In the Last Fiscal Year		
N	Valid	1231	N	Valid	1206
	Missing	8		Missing	33
Mean		8,4208	Mean		13,16
Median		,0000	Median		,00
Std. Deviation		23,34642	Std. Deviation		26,793
Range		100,00	Range		100
Minimum		,00	Minimum		0
Maximum		100,00	Maximum		100

Source: own calculations

The survey results show that from Table 68, it follows, that at least 50% of the firms report zero exports and imports. However, the mean and standard deviation reflects sufficient variability in the sample. Both variables present a low number of missing values.

In the data analysis, all types of firms, i.e., non-export and non-import firms, were taken into account, which is the reason why the value of export and import is equal to zero. The second reason is the large share of state organizations in export and import.

Firm ownership structure

Share of the firm owned by the same family

Table 67 % share of the firm owned by the same family. Descriptive statistics

N	Valid	1224
	Missing	15
Mean		38,35
Median		,00
Std. Deviation		46,935
Range		100
Minimum		0
Maximum		100

Source: own calculations

Similarly to previous cases, results show that from Table 69, it follows, that at least the median reflects that at least 50% of the firms have zero shares of the firm belonging to the same family.

However, the mean and standard deviation reflects sufficient variability. The number of missing observations is also low.

Given that the family ownership structure is very important in Uzbekistan, the following graphs depict the relationships between the ownership structure, the size of the firm measured by the number of employees, and imports and exports as a percentage of sales.

Figure 24 Share of firm owned by the same family versus the number of employees

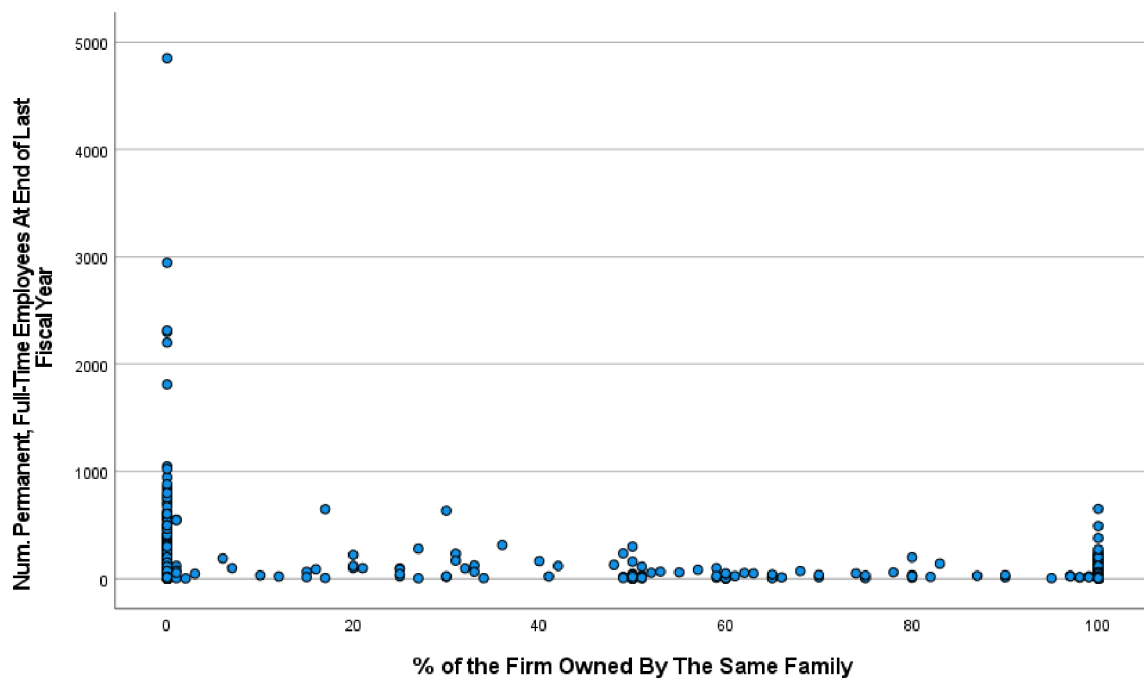
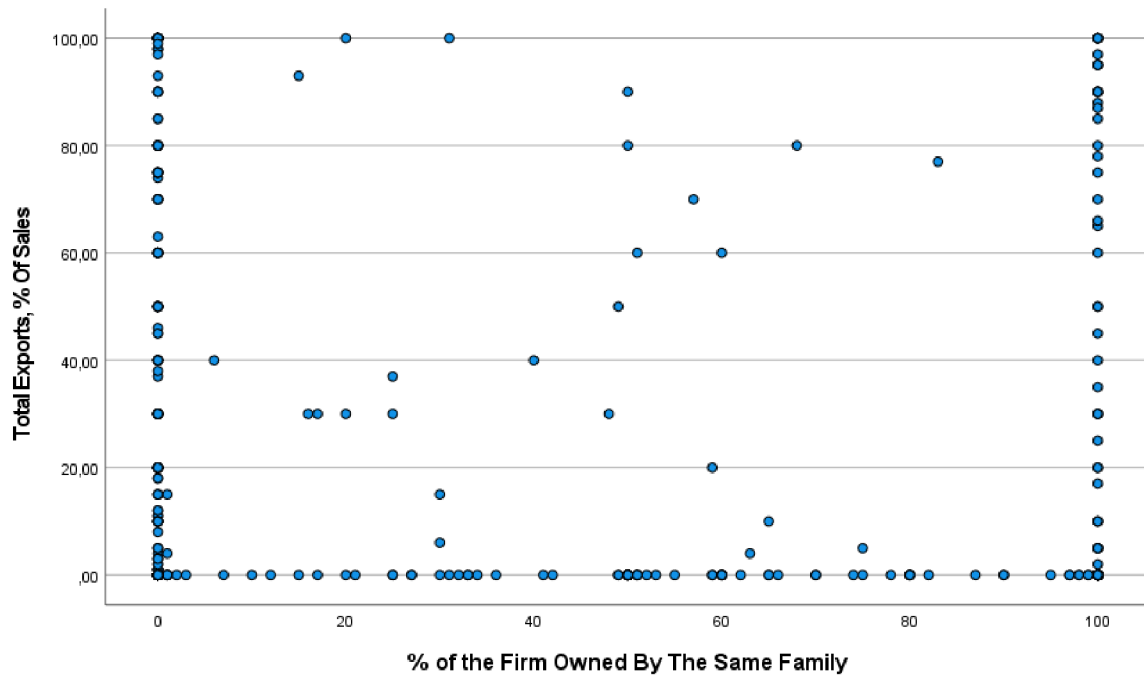


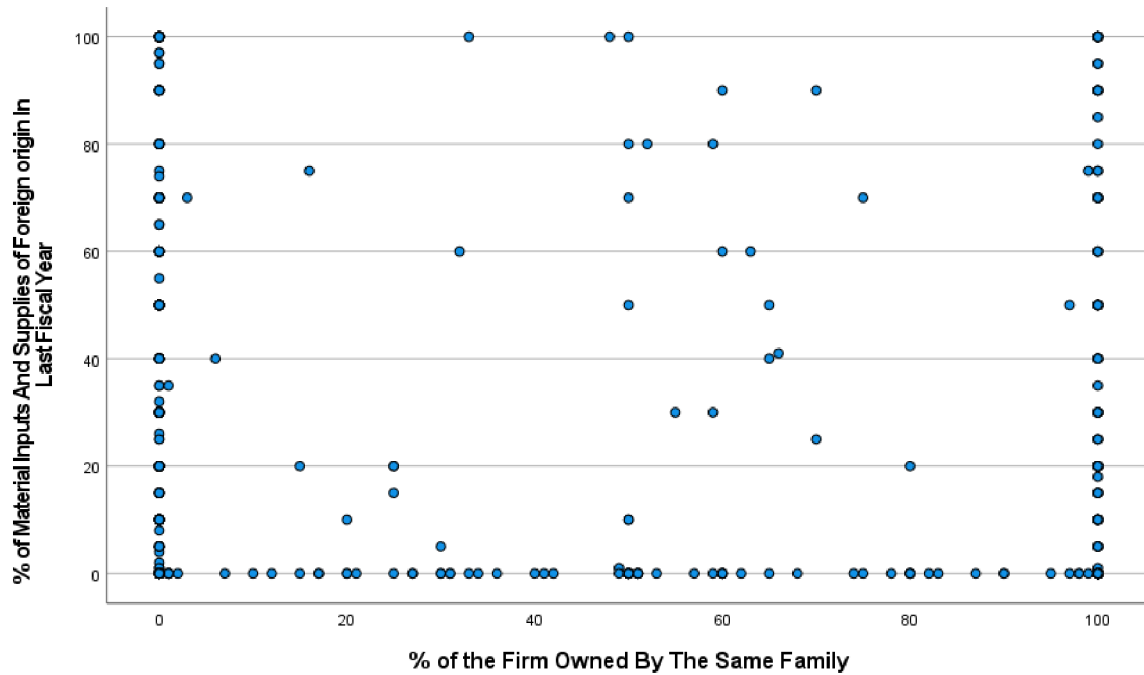
Figure 24 does not indicate any pattern between the ownership structure and the number of employees.

Figure 25 Share of firm owned by the same family versus total exports



Similarly, to Figure 24, Figure 25 presents significant variability with some polarization.

Figure 26 Share of firm owned by the same family versus % of Material Inputs And Supplies of Foreign origin In Last Fiscal Year



Again, figure 26 depicts some polarization but sufficient variability.

Figure 27 Share of firm owned by the same family versus the year the firm began operations

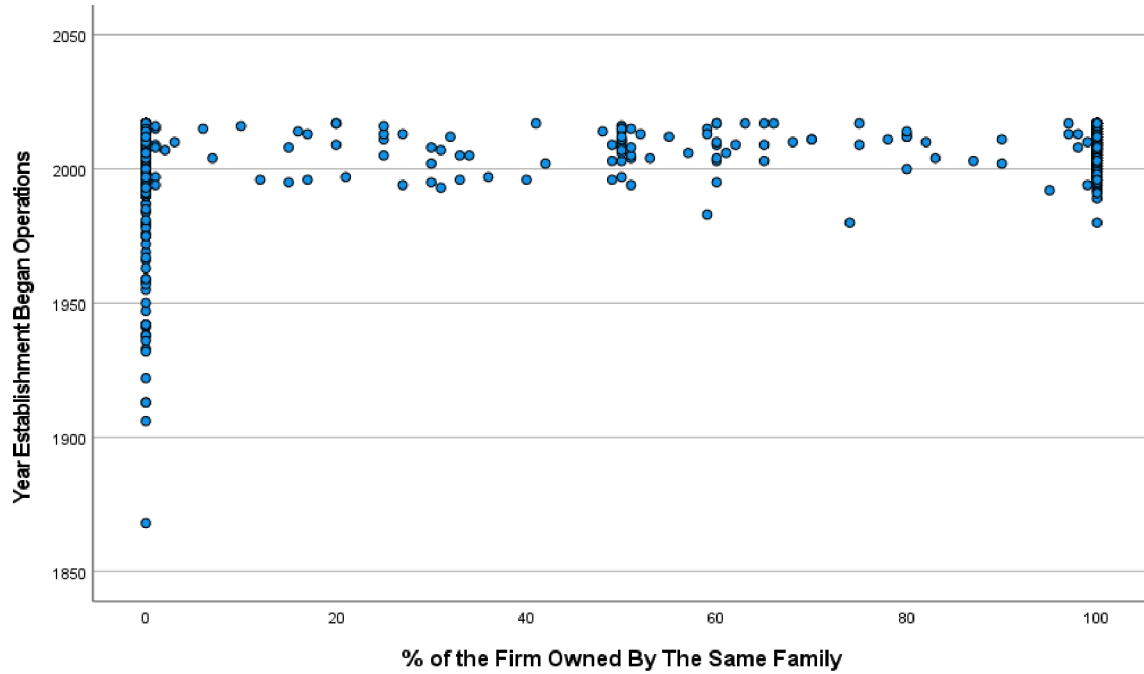


Figure 27 follows, that most of the firms were founded in 2000. The variability of the ownership structures of these firms is large. The firms founded before 1990 in all cases are not family owned.

To sum it up, the share of the firm owned by the same family presents some polarization, at least 50% of the firms report zero shares of ownership belonging to the same family, though the variability seems to be sufficient for further analysis.

Share of firms owned by the Government and Foreigners

Table 68 Share of firms owned by foreign individuals or organisations and owned by the local government. The descriptive statistics

% Owned By Government/State			% Owned By Private Foreign Individuals, Companies or organizations		
N	Valid	1235	N	Valid	1234
	Missing	4		Missing	5
Mean		3,09	Mean		6,04
Median		,00	Median		,00
Std. Deviation		13,402	Std. Deviation		20,726
Range		96	Range		100
Minimum		0	Minimum		0
Maximum		96	Maximum		100

Source: own calculations

From Table 70 it follows, that very few firms are owned by the state or by private foreign individuals, companies or organisations. The data also present low a number of missing observations.

Women as firm owners or top managers

Females in ownership structure and in top management bring different management cultures. This chapter controls for the existence of female managers and owners according to the following indicators (see tables 71 and 72)

Table 69 Females in the ownership structure

Amongst The Owners of The Firm, Are There Any Females?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	311	25,1	25,2	25,2
	No	924	74,6	74,8	100,0
	Total	1235	99,7	100,0	
Missing	Don't know (spontaneous)	4	3		
Total		1239	100,0		

Source: own calculations

Table 70 Females as top managers

		Is The Top Manager Female?			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	119	9,6	9,6	9,6
	No	1119	90,3	90,4	100,0
	Total	1238	99,9	100,0	
Missing	Don't know (spontaneous)	1	1		
Total		1239	100,0		

Source: own calculations

Tables 71 and 72 present a low number of missing observations, though the variability of the indicators is also relatively low. Only 9.6% of firms report females as top managers and 25.5% of females as ownership structure. As of January 1, 2020, the share of women in national parliaments reached 24.9 % (22.3 % in 2015).

In the span of the last 15 years, there has been a noticeable rise in the involvement of women in governmental administration within Uzbekistan. Specifically, the period from 2006 to 2020 saw women's representation in the Legislative Chamber of the Oliy Majlis ascend from 18% to 32%, and in the Regional, City, and District Councils of People's Deputies, it increased from 14% to 25%.

In 2020, the percentage of women holding positions at the ministerial level (equivalent to ministers) within the ministries and state committees of Uzbekistan was a mere 3.03%. Likewise, at the level of higher education, gender disparity is evident; in the older-than-25 population segment, only 40% partaking in the higher education system are women. Additionally, women holding a Doctor of Philosophy degree comprise 37%, those with the title of associate professor make up 31.5%, Doctor of Science holders are at 24.3%, and women professors account for 22.7%, as reported by the State Statistics Committee of the Republic of Uzbekistan.

The firm size and age

The analysis takes into account factors such as the size of the company (measured by annual sales and the number of permanent full-time staff) as well as the company's age (determined by the year the business commenced operations). The descriptive statistics pertaining to these measures are provided in table 73.

Table 71 The firm size and age. Descriptive statistics

In the Last Fiscal Year, What Were This Establishments Total Annual Sales?		Number of Permanent, Full-Time Employees At End of Last Fiscal Year		Year Establishment Began Operations			
Valid	1101		Valid	1230	N	Valid	1223
Missing	138		Missing	9		Missing	16
Mean	42593878636,42	Mean		79,71	Mean		2006,47
Median	1300000000,00	Median		19,00	Median		2010,00
Std. Deviation	675301389375,708	Std. Deviation		239,915	Std. Deviation		13,075
Range	20999999459986	Range		4848	Range		149
Minimum	540014	Minimum		2	Minimum		1868
Maximum	21000000000000	Maximum		4850	Maximum		2017

Source: own calculations

Website

The existence of the website is highly beneficial for international trade. However, it also makes the company more visible to local authorities. Although in most European countries the existence of the web page is indispensable, in Uzbekistan it is not always the case. The chapter includes the existence of the web page in the analysis below.

Table 72 The existence of the web page of the establishment. The distribution of the respondents

Establishment Has Its Own Website					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	370	29,9	30,2	30,2
	No	857	69,2	69,8	100,0
	Total	1227	99,0	100,0	
Missing	Don't know (spontaneous)	12	1,0		
Total		1239	100,0		

Source: own calculations

As indicated by table 74, a mere 30% of the firms sampled possess their own web pages. With the emergence of Web 2.0, information and communication technologies (ICT) have become integral in many individuals' daily routines and can significantly enhance personal independence and quality of life. Roughly one-third of the global population has access to the internet. Despite numerous initiatives aimed at promoting internet accessibility, the adoption of accessible features by the private

sector is still nascent. Social incentives alone are insufficient to motivate private entities to offer accessible websites; these efforts need to be supported by tangible evidence of a potential (and positive) business impact (Leitner, M. L., Strauss, C., and Stummer, C., 2016).

Region of the establishment

The regional distribution of the establishments was one of the criteria for stratified sample selection. The resulting distribution of establishments is presented in table 75.

Table 73 The regions the establishments are located in. The distribution of the respondents

Region of The Establishment					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Andijan Region	133	10,7	10,7	10,7
	Fergana Region	123	9,9	9,9	20,7
	Qashqadaryo Region	124	10,0	10,0	30,7
	Samarqand Region	147	11,9	11,9	42,5
	Tashkent Region	155	12,5	12,5	55,0
	Tashkent	205	16,5	16,5	71,6
	Karakalpakstan	113	9,1	9,1	80,7
	Navoiy and Jizzakh Region	115	9,3	9,3	90,0
	Surxondaryo Region	124	10,0	10,0	100,0
	Total	1239	100,0	100,0	

Source: own calculations

Industry of the establishment

Similarly, to region, the industry sector was one of the stratification parameters for firm selection. The resulting distribution of the respondents is presented in table 76.

Table 74 Industry sector of the establishment

Industry Sector					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Food	162	13,1	13,1	13,1
	Textiles	121	9,8	9,8	22,8
	Garments	127	10,3	10,3	33,1
	Rubber and Plastics Products	126	10,2	10,2	43,3
	Non-Metallic Mineral Products	142	11,5	11,5	54,7
	Other Manufacturing	166	13,4	13,4	68,1
	Retail	160	12,9	12,9	81,0
	Other Services	235	19,0	19,0	100,0
	Total	1239	100,0	100,0	

Source: own calculations

Table 75 Correlations between all the ordinal and continuous indicators included in ordinal regression (formula 2)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total Exports % of Sales (1)	Corr	1	,094*	-0,027	-,065*	,263**	0,02	,190**	,073*
	Sig.		0,002	0,347	0,024	<,001	0,474	<,001	0,012
	N	1231	1097	1216	1217	1227	1228	1223	1202
Total Annual Sales (2)	Corr	,094*	1	-0,016	0,015	0,036	0,021	0,049	0,028
	Sig.	0,002		0,594	0,629	0,23	0,487	0,106	0,363
	N	1097	1101	1093	1089	1098	1098	1096	1077
Year Establishment Began Operations (3)	Corr	-	-	1	,138**	0,017	-	-	0,031
	Sig.	0,027	0,016		<,001	0,552	,314**	,293**	0,278
	N	1216	1093	1223	1208	1220	1220	1218	1192
% of the Firm Owned By The Same Family (4)	Corr	-	0,015	,138**	1	-	-	-	-
	Sig.	,065*	0,024	<,001		,129**	,165**	,154**	,100**
	N	1217	1089	1208	1224	1219	1220	1215	1192
% Owned By Private Foreign Individuals, or organizations (5)	Corr	,263*	0,036	0,017	-	1	-0,01	,097**	,194**
	Sig.	<,001	0,23	0,552	<,001		0,739	<,001	<,001
	N	1227	1098	1220	1219	1234	1234	1226	1202
% Owned By Government/State (6)	Corr	0,02	0,021	-	-	-0,01	1	,299**	-,062*
	Sig.	0,474	0,487	,314**	,165**	0,739		<,001	0,031
	N	1228	1098	1220	1220	1234	1235	1227	1203
Num. Permanent, Full-Time Employees (7)	Corr	,190*	0,049	-	-	,097**	,299**	1	0,016
	Sig.	<,001	0,106	,293**	,154**	<,001	<,001		0,573
	N	1223	1096	1218	1215	1226	1227	1230	1198
% of Material Inputs And Supplies of Foreign origin (8)	Corr	,073*	0,028	0,031	-	,194**	-,062*	0,016	1
	Sig.	0,012	0,363	0,278	,100**	<,001	<,001	0,031	0,573
	N	1202	1077	1192	1192	1202	1203	1198	1206

Pearson correlations. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

5.2.4. The model

This chapter aims to test the following hypotheses:

H1.i the more the firm engage in international trade, the more of an obstacle it perceives in	trade barriers (H1.1)
	taxation and licensing (H1.2)
	political environment (H1.3)
	health safety and environmental regulations (H1.4)

I rely on original regression analysis. The ordinal regression is computed according to the following formula:

$$\begin{aligned}
 \text{Regulations} = \text{logit} (a_0 + a_{1-2} \text{trade} + a_{3-4} \text{women} + a_{5-11} \text{firm characteristics} + a_{12-19} \text{region} + \\
 + a_{20-27} \text{industry} + e) \quad (6)
 \end{aligned}$$

Where

Regulations – indicators of state regulations and obstacles for business. Namely, How Much of An Obstacle:

- Health and hygiene regulations;
- Occupational safety regulations
- Environmental regulations
- Political Instability
- Corruption
- Courts
- Tax Rates
- Tax Administrations
- Business Licensing And Permits
- Transport
- Customs And Trade Regulations

trade – exports as % of sales, % of inputs of foreign origin

women – presence of women in (1) ownership structure, (2) top management

firm characteristics - sales (annual, last fiscal year), employees (full time, number end of the last fiscal year), year the establishment began operation, % of establishment Owned By The

Same Family, % Owned By Government, % Owned By Foreigners, the existence of establishment website

region – 8 regional dummies (Andijan Region, Fergana Region, Qashqadaryo Region, Samarqand Region, Tashkent Region, Tashkent, Karakalpakstan, Navoiy and Jizzakh Region)

industry – 7 dummies for industries (Food, Textiles, Garments, Rubber and Plastics Products, Non-Metallic Mineral Products, Other Manufacturing, Retail)

e – error term

5.2.5. Results

The results of ordinal regression analysis are presented in the tables below.

Table 76 How Much of An Obstacle: Trade Barriers. The results of ordinal regression analysis (0 – no obstacle, 4 – very severe obstacle)

	Trade barriers			
	How Much of An Obstacle: Customs And Trade Regulations?		How Much of An Obstacle: Transport?	
	Estimate	Sig.(P value)	Estimate	Sig.
Threshold=1	55,986	0,063	4,684	0,728
Threshold=2	56,677	0,059	5,454	0,685
Threshold=3	57,418	0,056	6,288	0,640
Threshold=4	58,203	0,053	6,954	0,605
International trade				
Exports (% of sales)	0,013**	0,001	0,005	0,158
% inputs of foreign origin	0,019***	<,001	0,005	0,141
Women owners and managers				
Owner female	0,303	0,296	0,067	0,753
Top Manager Female	-0,515	0,240	-0,397	0,226
Firm description				
Sales (annual)	0,000	0,630	0,000	0,664
Employees (full-time, number)	-0,001	0,252	0,000	0,846
year began operation	0,026	0,078	0,001	0,835
% Owned By The Same Family	0,005*	0,034	0,002	0,325
% Owned By Government	0,005	0,680	0,008	0,217
% Owned By Foreigners	0,003	0,580	-0,013*	0,011
Website	0,286	0,235	-0,224	0,244

Region				
Andijan Region	-0,554	0,383	-0,368	0,331
Fergana Region	-0,477	0,460	0,281	0,427
Qashqadaryo Region	-0,210	0,720	0,119	0,722
Samarqand Region	1,009	0,053	0,885**	0,009
Tashkent Region	-0,307	0,601	-0,647	0,119
Tashkent	0,027	0,960	0,813*	0,013
Karakalpakstan	-1,046	0,164	0,381	0,279
Navoiy and Jizzakh Region (trade zone)	0,530	0,318	0,683*	0,042
Industry				
Food	0,138	0,753	0,289	0,315
Textiles	0,831	0,055	0,289	0,372
Garments	0,536	0,221	0,594	0,061
Rubber and Plastics Products	0,673	0,115	0,146	0,657
Non-Metallic Mineral Products	-0,289	0,599	-0,051	0,875
Other Manufacturing	-0,032	0,940	0,345	0,229
Retail	0,291	0,547	0,413	0,155
Pseudo R-Square				
Cox and Snell	0,119		0,059	
Nagelkerke	0,177		0,073	
McFadden	0,114		0,038	
Sig (P valyu)		<,001		<,001
N number of observations	855		1021	

Link function: Logit., reference variables: women, higher education, a small village. *** significant at the 0.001 level (2-tailed). ** significant at the 0.01 level (2-tailed). * significant at the 0.05 level (2-tailed). Reference variables: region - Surxondaryo Region, industry - Other Services, no website, The Top Manager Female=No, No females Amongst the Owners of The Firm. Source: own computations.

The table 78 follows that customs and trade regulations are an important obstacle to international trade – the larger the share of sales and inputs traded internationally, the more obstructing the customs and trade regulations. Transportation did not show to be disproportionately obstructing the firms engaging in international trade. Firms with foreign ownership proved to solve the problem of transport more effectively than domestic firms and perceived transportation as less of a problem. The regions with the largest cities (Samarqand Region, Tashkent, Navoiy and Jizzakh Region) proved to perceive transport as less obstructing for conducting business.

It is a paradox that the greater the proportion of the firm's ownership held by a singular family, the more customs and trade regulations are perceived as obstacles. This finding goes against the

traditional opinion, that social networks of particular families help to go through the customs and trade regulations. On the contrary, it suggests, that competing clans or families create more severe conditions for each other.

Taxation and licensing

The results of ordinal regression analysis for taxation and licensing are presented in table 79.

Table 77 How Much of An Obstacle: Taxation and Licensing (0 – no obstacle, 4 – very severe obstacle). The results of ordinal regression analysis

	Taxation and licensing					
	How Much of An Obstacle: Tax Rates		How Much of An Obstacle: Tax Administrations		How Much of An Obstacle: Business Licensing And Permits	
	Estimate	Sig.	Estimate	Sig.	Estimate	Sig.
Threshold1	-16,371	0,161	2,398	0,875	16,337	0,389
Threshold2	-15,713	0,178	3,073	0,841	17,106	0,367
Threshold3	-14,496	0,214	4,189	0,784	17,910	0,345
Threshold4	-13,577	0,245	5,037	0,742	18,924	0,318
International trade						
Exports (% of sales)	0,004	0,166	0,003	0,362	-0,001	0,826
% inputs of foreign origin	0,005	0,088	0,004	0,248	0,009*	0,019
Women owners and managers						
Owner female	-0,040	0,825	-0,154	0,500	0,259	0,294
Top Manager Female	0,089	0,733	-0,099	0,769	-0,408	0,270
Firm description						
Sales (annual)	0,000	0,180	0,000	0,516	0,000	0,140
Employees (full-time, number)	0,000	0,900	0,000	0,525	0,001	0,418
year began operation	-0,009	0,141	0,000	0,959	0,007	0,453
% Owned By The Same Family	0,004**	0,007	0,002	0,213	0,007**	0,001
% Owned By Government	-0,006	0,321	-0,005	0,498	0,007	0,387
% Owned By Foreigners	-0,005	0,180	-0,006	0,186	-0,012	0,076
Website	0,383*	0,013	0,098	0,612	0,078	0,730
Region						
Andijan Region	-0,746*	0,013	-0,587	0,134	-0,304	0,475
Fergana Region	-0,469	0,102	-0,517	0,170	-0,186	0,651
Qashqadaryo Region	-0,358	0,173	0,222	0,476	0,031	0,931

Samarqand Region	0,071	0,802	0,391	0,249	0,612	0,107
Tashkent Region	0,100	0,716	-0,027	0,939	-0,205	0,631
Tashkent	-0,029	0,913	-0,235	0,494	-0,250	0,531
Karakalpakstan	-0,841**	0,007	-0,685	0,097	-0,323	0,466
Navoiy and Jizzakh Region	0,212	0,438	0,632*	0,048	0,605	0,097
Industry						
Food	0,016	0,948	0,188	0,528	0,026	0,936
Textiles	-0,098	0,722	0,124	0,708	-0,192	0,619
Garments	0,484	0,064	0,526	0,095	0,459	0,173
Rubber and Plastics Products	0,562*	0,025	0,198	0,537	-0,626	0,132
Non-Metallic Mineral Products	0,314	0,209	0,118	0,705	-0,203	0,560
Other Manufacturing	0,077	0,749	0,027	0,930	-0,138	0,677
Retail	0,264	0,274	-0,036	0,909	-0,529	0,153
Pseudo R-Square						
Cox and Snell	0,063		0,041		0,055	
Nagelkerke	0,070		0,053		0,078	
McFadden	0,028		0,028		0,047	
Sig		<,001		0,022		<,001
N	1011		1012		1001	

Link function: Logit., reference variables: women, higher education, a small village. *** significant at the 0.001 level (2-tailed). ** significant at the 0.01 level (2-tailed). * Significant at the 0.05 level (2-tailed). Reference variables: region - Surxondaryo Region, industry - Other Services, no website, The Top Manager Female = No, No females Amongst The Owners of The Firm. Source: own computations.

Out of the three indicators for taxation and licensing, only Business Licensing and Permits as an obstacle was related to international trade on the side of imports. The larger the share of inputs of foreign origin, the more business licensing and permits are perceived as an obstacle. Similarly, to trade barriers, the share of the firm owned by one family proved to be positively related to obstacles manifested by tax rates and business licensing and permits. Interestingly, the existence of the firm's web page positively predicted tax rates as an obstacle, possibly reflecting larger transparency of the firm. Firms located in Andijan and Karakalpakstan regions reported less obstacles of the tax rates, while firms located in Navoiy and Jizzakh Region regions reported more obstacles related to tax administration.

Political environment

The results of ordinal regression analysis for the political environment are presented in table 80.

Table 78 How Much of An Obstacle: Political Environment (0 – no obstacle, 4 – very severe obstacle). The results of ordinal regression analysis

	Political environment					
	How Much of An Obstacle: Political Instability		How Much of An Obstacle: Corruption		How Much of An Obstacle: Courts	
	Estimate	Sig.	Estimate	Sig.	Estimate	Sig.
Threshold1	32,855	0,114	4,230	0,780	-4,832	0,790
Threshold2	33,241	0,110	4,730	0,755	-4,261	0,814
Threshold3	33,959	0,103	5,331	0,725	-3,443	0,850
Threshold4	34,891	0,094	6,107	0,687	-2,567	0,888
International trade						
Exports (% of sales)	0,006	0,158	0,008*	0,023	0,004	0,335
% inputs of foreign origin	-0,002	0,583	0,003	0,420	0,006	0,099
Women owners and managers						
Owner female	0,602*	0,024	0,293	0,176	0,386	0,129
Top Manager Female	-0,403	0,322	-0,080	0,802	-0,466	0,245
Firm description						
Sales (annual)	0,000	0,659	0,000	0,495	0,000	0,372
Employees (full time, number)	0,001	0,524	0,000	0,911	0,000	0,828
year began operation	0,015	0,158	0,001	0,859	-0,004	0,680
% Owned By The Same Family	0,002	0,329	0,000	0,867	0,002	0,295
% Owned By Government	0,010	0,200	0,005	0,453	0,004	0,656
% Owned By Foregners	-0,010	0,136	-0,006	0,192	0,006	0,207
Website	0,171	0,486	-0,035	0,858	0,244	0,289
Region						
Andijan Region	1,424**	0,009	0,359	0,302	0,258	0,574
Fergana Region	0,763	0,209	-0,378	0,338	-0,173	0,742
Qashqadaryo Region	1,105*	0,041	0,186	0,567	0,699	0,085
Samarqand Region	2,386***	<,001	0,809*	0,016	0,558	0,217
Tashkent Region	0,532	0,389	-0,558	0,145	-0,186	0,705
Tashkent	1,096*	0,050	0,085	0,802	0,432	0,317
Karakalpakstan	0,239	0,717	-1,484**	0,005	-1,043	0,125
Navoiy and Jizzakh Region	1,087	0,054	0,726*	0,028	0,884*	0,035
Industry						
Food	0,065	0,866	-0,310	0,329	-0,730	0,096

Textiles	-0,154	0,732	-0,076	0,817	0,377	0,321
Garments	0,499	0,199	0,152	0,630	0,489	0,191
Rubber and Plastics Products	0,509	0,202	0,378	0,217	0,274	0,476
Non-Metallic Mineral Products	-0,180	0,678	-0,334	0,313	0,180	0,639
Other Manufacturing	0,497	0,175	0,211	0,464	-0,149	0,686
Retail	-0,313	0,469	0,162	0,583	-0,173	0,671
Pseudo R-Square						
Cox and Snell	0,067		0,065		0,055	
Nagelkerke	0,102		0,081		0,082	
McFadden	0,065		0,041		0,051	
Sig		<,001		<,001		<,001
N	972		972		969	

Link function: Logit., reference variables: women, higher education, a small village. *** significant at the 0.001 level (2-tailed). ** significant at the 0.01 level (2-tailed). * significant at the 0.05 level (2-tailed). Reference variables: region - Surxondaryo Region, industry - Other Services, no website, The Top Manager Female = No, No females Amongst The Owners of The Firm. Source: own computations.

The results presented in table R3 suggest, that firms with higher exports as a percentage of sales report more obstacles with corruption disproportionately to other firms. Surprisingly, managers of firms with women as owners report higher political instability disproportionately to other firms. More political instability as an obstacle to international trade was reported by firms located in Andijan Region, Qashqadaryo Region, Samarqand Region and, Tashkent. More obstacles with corruption were reported in Samarqand Region, Navoiy and Jizzakh Regions. The latter two regions also report more obstacles with courts. On the other hand, firms located in Karakalpakstan regions report corruption to be less of an obstacle.

Health, safety and environmental regulations

The results of ordinal regression analysis for health, safety and environmental regulations are presented in table 81.

Table 79 How Much of An Obstacle: Health, safety and environmental regulations (0 – no obstacle, 4 – very severe obstacle). The results of ordinal regression analysis

	Health, safety and environmental regulations					
	How Much of An Obstacle: Occupational safety regulations		How Much of An Obstacle: Health and hygiene regulations		How Much of An Obstacle: Environmental regulations	
	Estimate	Sig.	Estimate	Sig.	Estimate	Sig.
Threshold1	2,854	0,873	4,343	0,810	-4,082	0,794
Threshold2	3,853	0,829	5,325	0,769	-3,253	0,835
Threshold3	4,788	0,789	6,607	0,715	-2,028	0,897
Threshold4	6,250	0,727	7,788	0,667	-1,176	0,940
International trade						
Exports (% of sales)	0,010*	0,015	0,008	0,058	0,008*	0,029
% inputs of foreign origin	0,009*	0,019	0,011**	0,005	0,005	0,139
Women owners and managers						
Owner female	0,028	0,916	0,336	0,208	0,195	0,431
Top Manager Female	0,013	0,974	-0,292	0,473	-0,503	0,224
Firm description						
Sales (annual)	0,000	0,686	0,000	0,744	0,000	0,715
Employees (full-time, number)	0,000	0,916	0,001*	0,026	0,000	0,641
year began operation	0,001	0,953	0,001	0,908	-0,003	0,684
% Owned By The Same Family	0,005*	0,025	0,006*	0,013	0,004	0,058
% Owned By Government	0,007	0,414	0,008	0,297	0,002	0,853
% Owned By Foreigners	0,005	0,268	0,009	0,068	-0,001	0,862
Website	-0,365	0,123	-0,604*	0,019	0,046	0,835
Region						
Andijan Region	-0,755	0,120	-0,552	0,246	-0,457	0,302
Fergana Region	0,067	0,869	0,026	0,951	0,281	0,467
Qashqadaryo Region	0,336	0,354	0,121	0,749	0,006	0,987
Samarqand Region	0,418	0,293	0,300	0,469	0,269	0,500
Tashkent Region	-0,793	0,106	-0,447	0,354	-1,042*	0,040
Tashkent	-0,466	0,266	-0,533	0,231	-0,111	0,778
Karakalpakstan	-0,686	0,183	-0,850	0,121	-0,588	0,225
Navoiy and Jizzakh Region	0,980**	0,007	0,941*	0,013	0,788*	0,029

Industry						
Food	-0,414	0,212	-0,219	0,540	0,125	0,724
Textiles	-0,218	0,543	-0,259	0,523	-0,023	0,953
Garments	-0,315	0,379	-0,413	0,306	0,283	0,453
Rubber and Plastics Products	-0,412	0,279	-0,089	0,826	0,758*	0,031
Non-Metallic Mineral Products	-0,706	0,056	-0,638	0,120	0,205	0,571
Other 2	-0,644	0,066	-0,441	0,248	0,166	0,634
Retail	-0,991*	0,017	0,159	0,654	-0,311	0,452
Pseudo R-Square						
Cox and Snell	0,067		0,062		0,056	
Nagelkerke	0,100		0,097		0,082	
McFadden	0,062		0,062		0,050	
Sig	<,001		<,001		<,001	
N	1012		974		1003	

Link function: Logit., reference variables: women, higher education, a small village. *** significant at the 0.001 level (2-tailed). ** significant at the 0.01 level (2-tailed). * significant at the 0.05 level (2-tailed). Reference variables: region - Surxondaryo Region, industry - Other Services, no website, The Top Manager Female = No, No females Amongst The Owners of The Firm. Source: own computations.

Among governmental regulations, health, environment and safety regulations proved to affect firms engaging in international trade disproportionately more than other firms. Occupational safety regulations and environmental regulations showed to be seen as more of an obstacle for exporting firms, while occupational safety, health and hygiene regulations were reported to be more of an obstacle for the firms, importing larger parts of their inputs.

Firms with a higher number of employees perceive health and hygiene regulations as more of an obstacle. The bigger the share of the firm owned by one family, the more the management perceives occupational safety and health and hygiene regulations obstructing to their business. Firms that had a website showed to perceive health and hygiene regulations to be less of an obstacle. Possibly it is because these firms more frequently operate in online mode.

Firms located in Navoiy and Jizzakh Region showed to perceive all three regulations (Occupational safety regulations, Health and hygiene regulations, and Environmental regulations) to be more obstructing for their businesses. Firms located in the Tashkent region proved to perceive environmental regulations to be less obstructing.

Firms manufacturing Rubber and plastic products perceive environmental regulations to be more obstructing, while firms engaging in retain activities perceived occupational safety regulations to be less of a problem.

The results suggest that managers and owners of exporting firms perceive customs and trade regulations, corruption, occupational, safety and environmental regulations disproportionately more of an obstacle. Managers and owners of the firms with a higher percentage of inputs of foreign origin perceive customs and trade regulations, business licensing and permits, and occupational safety, health and hygiene regulations as disproportionately more of an obstacle. Despite multiple revisions to Uzbekistan's taxation framework, lingering issues with tax administration—including audits, reporting, and the expertise of tax inspectors—complicate compliance without rule violations. For tax reforms to be both effective and successful, they must occur in tandem with institutional and structural reforms throughout the economy. Uzbekistan's government is aiming to establish a socially driven market economy and bolster industrial and productive capabilities, particularly within the agricultural sector, employing fundamental and direct centralized control (Gemayel and Grigorian, 2005). The tax infrastructure in Uzbekistan has evolved in sync with the progressive reforms, methodically fortifying components of a modern tax system along with administrative and institutional capacities. The small business sector is a significant contributor to the nation's economic framework. Data from the State Statistics Committee indicates that, in 2008, small businesses accounted for 48.2% of the GDP and 76% of total employment (Statcom). The primary objective of the tax legislation reforms is to cultivate an environment conducive to the continued expansion of small businesses (Tadjibaeva, D., and Komilova, I., 2012).

5.2.6. Discussion

The purpose of this chapter was to assess the perceived impact of state regulations of the firms engaging in international trade. The summary of the results is presented in the table below.

Table 80 The summary of the results for the association between the engagement in international trade and government regulations as obstacles for business operations (ordinal regression model, formula 8).

Hi the more the firm engage in international trade (export or import), the more of an obstacle it perceives in	Indicators	Result for exporting firms	Result for importing firms
trade barriers (H1)	Customs And Trade Regulations	+	+
	Transport	No association	No association
taxation and licensing (H2)	Tax Rates	No association	No association
	Tax Administrations	No association	No association
	Business Licensing And Permits	No association	+
political environment (H3)	Political Instability	No association	No association
	Corruption	+	No association
	Courts	No association	No association
health safety and environmental regulations (H4)	Occupational safety regulations	+	+
	Health and hygiene regulations	No association	+
	Environmental regulations	+	No association

Note: + positive statistically significant association, - negative statistically significant association

The results presented in the table above suggests, that firms engaging in export or import operations are disproportionately more obstructed by customs and trade regulations. This result is expected, as these regulations are primarily meant as explicit barriers for international trade. The implicit barriers for trade such as occupational safety regulations, health and hygiene regulations and environmental regulations proved to obstruct more the firms engaging in international trade of various types (exports or import) more too. Surprisingly, business licensing and permits were obstructing primarily the importing firms using inputs of foreign origin for sale or their operations. According to the results presented in table 82, corruption obstructs more the exporting firms.

The disproportionately higher obstruction of some governmental regulations reported by the importing firms might correspond to the import regulations presented in the chapter 4.6.6. Import tariffs and requirements.

The exporting firms also have to deal with the regulations of both the Uzbek government and the importing country. One of the main obstacles for agricultural export is the necessity to comply with the international standards of production and food quality and environmental safety. Moreover, the country failed to be accepted to the international trade association particularly due to occupational regulations, for example the use of child labor. As was stated above in the chapter 4.6.8.

5.3. The factors affecting international trade flows of Uzbekistan - geographical distance and economic power of trading countries.

According to the UNCTAD report, there are positive economic trends in developing countries, especially in Asia. In 2019, the growth of foreign investment in the countries of Central Asia averaged 8-10 percent. In Uzbekistan, this indicator increased by 3.2 times (15.9 billion US dollars) compared to 2018 (4.5 billion US dollars), which made the Republic of Uzbekistan a leader among the countries of the region (Lutfullaevich Yu.G. 2020). The convenient geographical position of Uzbekistan connects all the CIS countries, which reduces the cost of logistics. The strategic position between China and Europe increases the importance of the country's geographical location.

The strategic location of the country reduces transportation costs, that are especially important for agricultural products as many of them have limited storage periods. The aim of this chapter is to estimate impact of the geographical distance between Uzbekistan and its trading partners on the bilateral international trade flows in agrarian production and the economic performance of Uzbekistan and the trading countries over the period of 2016-2021.

5.3.1. Hypotheses

H1: The higher is the geographical distance between the two countries, the lower in the bilateral international trade flows.

H2: the higher are the GDPs of the two countries, the higher are the bilateral international trade flows.

5.3.2. The data

The model relies on the yearly data (2016-2021) of international trade of Uzbekistan with 22 main trading partner countries (export from the country to Uzbekistan). The whole amount of agricultural trade flow from/to Uzbekistan covers 90% of the total Uzbek trade flow.

Table 81 Data descriptive statistics

```
. summarize exp imp gdp_uz gdp_w dist
```

Variable	Obs	Mean	Std. dev.	Min	Max
imp	110	74870.93	183051.8	0	1031410
exp	110	49711.67	100939.8	0	486915.4
gdp_uz	110	291.1777	25.07626	252.3043	328.8778
gdp_w	110	3710.842	6459.662	30.99862	27580.49
dist	110	3604.735	3106.009	307	13409.7

Where: Exp – export from Uzbekistan to the trading country, imp – import to Uzbekistan from trading country, gdp_uz – GDP of Uzbekistan, gdp_w - GDP of the trading partner country, dist – geographical distance between the capitals of Uzbekistan and the trading partner countries (Table 83).

Number of years is 5, number of countries is 22. All of these 22 countries cover almost 90% of all agricultural trade flow. Due to some missing values the total number of observations was 104. The data were used from the following sources:

- Bilateral agrarian export/import country to Uzbekistan and back, bill. USD (real values), source of the UNCOM trade
- Distance between capitals of countries and Uzbekistan in km, source of the data www.distance.com
- GDP of Uzbekistan and trading partner countries in bil. USD, real values, source of the data World bank

The real values were computed form the nominal values by dividing by local CPI (source of the data World bank).

5.3.3. The Gravity model

Gravity models are, probably, the most frequently used technique to analyse the trade flows between the countries. There are several types of gravity models. One aims to study the importance of the major factors impacting the bilateral trade flows. The other concentrates on the effects of the trade blocks, agreements or national or international regulations on international trade flows. Some analyses concentrate on a particular perproducts or on the trade flow to/from a particular country or groups of countries. The most common variables affecting the trade flows include GDPs of the trading countries as indicators of supply and demand and the geographical distance between the countries as indicators of transportation costs. (Kepaptsoglou et al, 2010) This thesis follows this line in the literature and estimates the classical gravity model on panel data taking into account the effects of the GDPs of the trading partners and geographical distances between them.

Gravity model of bilateral international trade of Uzbekistan and its trading partners was estimated over the period of 2016-2021 according to the following formula:

$$\ln \widetilde{Y}_{ct} = \beta_0 + \beta_1 \ln GDP_{UZ_t} + \beta_2 \ln GDP_{partner_{ct}} + \beta_3 \ln dist_c + \varepsilon \quad (8)$$

where

\widetilde{Y}_{ct} - agricultural export (import) from country c to Uzbekistan and back at time t , real bill. USD;

c - trading partner country;

$dist_c$ - distance between capitals of country c and Uzbekistan in km;

GDP_{UZ_t} - Uzbekistan real GDP in real bill. USD;

$\beta_2 GDP_{partner_{ct}}$ - GDP of trading partner in constant bill. UDS;

β_i - regression coefficients;

ε - error term.

Given the panel nature of the data, the regression (8) was estimated via Generalize list square random effects model.

5.3.4. Results

The results of the Gravity model estimation (equation 8) are presented in the tables below.

Table 84 Results of GLS random effect estimation of the gravity model for international trade of Uzbekistan (formula 8). Summary. The β coefficients and standard errors.

VARIABLES	Import	Export
Ln GDP Uzbekistan, β coefficients (standard error)	5.356*** (0.868)	2.710** (1.213)
Ln GDP partner country, β coefficients (standard error)	0.250 (0.357)	0.609* (0.363)
Ln Distance between Uzbekistan and Partner country, β coefficients (standard error)	0.210 (0.699)	-2.186*** (0.707)
Constant (standard error)	-24.19*** (6.753)	6.581 (8.293)
Observations (N)	102	102

Note: Standard errors in parentheses, Statistical significance: *** significant on 1% level ($p < 0.01$), ** significant on 5% level ($p < 0.05$), * significant on 10% level ($p < 0.1$).

From the tables above it follows that

1. The overall predictive values of the models is rather small, but statistically significant. The R-square of the export model suggest, that he model predicts only 28% of the variability of the dependent variable. The predictive power of model for import is even smaller. According to the R-square it is able to predict only 11% of the variability in the dependent variable. The relatively low predictive capacity suggests that there are many other variables interfering, which were not taken into account.
2. The Ln GDP of Uzbekistan positively predicted the bilateral international trade flows in both cases – exports and imports as the relevant β coefficients were positive and statistically significant on conventional levels. In absolute value, the impact of Ln GDP of Uzbekistan on import was twice larger than the impact of Uzbek GDP on exports. This might indicate the larger elasticity of the financial value of the imported goods compared to the exported good and might indicate significant price sensitivity of the consumers of imported goods in the country. This result could also reflect the relatively large proportion of agricultural sector in the economy of Uzbekistan comparing to other sectors. The GDP structure (2021) of Uzbekistan encountered Agriculture, forestry, fishery (26.9%), Services (38%), Industry (27%), Construction (6.7%) Source: Word Bank (2023). On the other hand, this result might also indicate that, in the line with overall increase of GDP in Uzbekistan, one could predict that the import potential will be increasing more than the export potential leading to the negative balance of trade in agricultural products and decreasing food self-sufficiency.

3. According to the figures above, 1% increase of Ln GDP leads to 5% increase in Ln Imports, and only 2,7% in Ln exports, emphasizing the importance of the imported goods for the economy, but also the existing exporting potential of the country.
4. Surprisingly the GDP of the trading partner country did not show up statistically significant for Import and was on the edge of significance (10% significance levels) for exports. This may correspond to particular composition of the trading partners and reflect relatively low contribution of agricultural sector to the GDPs of them.
5. The distance between the trading countries was statistically significant in predicting Export only. Import of Uzbekistan did not show to be related to the geographical distance. The larger in the geographical distance between the countries the lower in the export from Uzbekistan to the trading country. This result may suggest low participation of Uzbekistan in international trade organization and high reliance on geographical close partners for international trade in terms of exports. Uzbekistan stands out in Central Asia for its significant strides in creating an environment that eases the processes of trade. It is the sole nation from the CIS to have joined all seven conventions designed to simplify transportation and transit operations, conventions that were initially established in Western Europe (Megoran, et. al., 2005).

6. Summary of findings and discussion

6.1. Uzbek Agricultural Trade: A 23-Year Analysis

Over the past 23 years, Uzbekistan has witnessed significant developments in the dynamics of international trade in agricultural products. The analysis, presented in this study, reveals a significant increase in both the commodity structure and territorial dimension. However, there is a persistent challenge - a negative trade balance attributed in large part to the low value added of Uzbek exports compared to higher value added of imports.

The international trade in agricultural products in Uzbekistan has been growing steadily over the past twenty-three years. However, the relative value of exports grew 3.2 times faster than that of imports. This growth represents the country's growing role in the global agricultural market, which presents opportunities for economic development and international cooperation. Besides growth in trade, there was a shift in the commodity and territorial structure of trade. Understanding these changes is critical to assessing a nation's position in the global agricultural market and designing growth strategies.

Despite the positive trends, the main problem is a persistently negative trade balance. This challenge is rooted in the growing difference between the value added of Uzbek exports and imports. Though exports are growing, low value-added presents obstacles to achieving a trade surplus. Therefore, closer examination of the factors influencing the value chain of Uzbek agricultural products is necessary.

It is also necessary to mention, that export potential is reduced by growing domestic demand, which is growing in the context of general population growth and growing demand for agricultural and food production as a result of rising population incomes. In addition, this development also determines growing imports, which are naturally pushed up both in terms of mass and unit prices as a result of the import of processed products in order to satisfy the constantly growing demand.

6.2. Analyzing competitiveness in Uzbek agricultural trade: a global perspective

The results presented in this study suggests that Uzbekistan has established itself as a player in agricultural trade especially in commodities like cotton and grain in international markets, coffee,

tea, tobacco in Commonwealth of Independent States (CIS), and vegetable crops such as cabbage, carrots and onions., particularly in Asian countries. Although competitiveness in these regions is strong, challenges remain in competing with European countries and emerging markets in Latin and North America. Among other things, competitiveness is negatively affected by the country's location, which has the status of a "landlocked country" with limited quality of land infrastructure, and neighboring countries with often limited market potential. To take advantage of current opportunities and penetrate promising future markets, it is necessary for Uzbekistan to strategically increase the volume of its agricultural production, and design new transportation routes.

Uzbekistan's agricultural trade is mainly concentrated to Asia and the CIS regions. The main trade partners are Kazakhstan, Russia, Tajikistan, China and Belarus. The country's proximity, cultural ties and trade agreements have fostered a competitive advantage that has enabled it to secure a strong position in these markets. The success in these regions reflects the effectiveness of trade networks established over the years.

Despite its successes in Asia and the CIS, Uzbekistan faces serious limitations in competitiveness with European countries and Latin and North American markets. The suggested reasons are strict quality standards, complex business regulations and established competition. To overcome these obstacles, Uzbekistan must strategically position itself by strengthening its manufacturing capabilities and addressing key factors that limit its competitiveness on the global stage.

One of the key strategies for improving competitiveness is a substantial increase in the volume of agricultural production. The research suggests, that this requires a multiple measure: (1) Investments in modern agricultural technologies that can significantly increase production efficiency - precision agriculture, intelligent irrigation systems and mechanization can increase output while minimizing resource use.; (2) more research aimed to improve crop yields, disease resistance and overall quality is essential - . cooperation with international research institutions can bring expertise and insights; (3) modernization of transport, storage and processing facilities that will ensure that agricultural products meet global standards - efficient logistics reduce post-harvest losses and increase overall export quality; (4) expanding the range of agricultural products to adopt to climate change and open doors to new markets - it is essential to understand the requirements of target regions and adapt production accordingly. (5) Meeting and exceeding international quality standards is necessary. Obtaining certifications for compliance with global regulations builds confidence and

facilitates entry into new markets; (6) One of the key strategies for improving competitiveness is a substantial increase in the volume of agricultural production. This requires a multi-pronged approach including research and development, adaptation of new technologies, infrastructure development, selection of products suitable for the locality; (7) Identifying the promising markets will increase the competitiveness.

Besides that, the country needs to work on more detailed sources of competitiveness such as low price, better quality, modernization of food processing industry and cotton processing industry to rise value added of Uzbek Agricultural export. In addition, the country need to work on transportation infrastructure. Since Uzbekistan in a land- locked country, new transportation agreements with neighboring countries possessing the access to the sea of other developed routes of commodities transportation might be one of the ways to go.

6.3. The macroeconomic Dynamics of International Trade in Uzbekistan

The agricultural sectors accounts for 18% of GDP with the annual growth rate amounting to 1.7% per year (World Bank, 2022). The share of employees in the agricultural sector is 33% of the population (ibid). In 2017 the share of agriculture in country's trade earnings was round 10 %.

The relationship between international trade and macroeconomic indicators is complex and dynamic. This study found, in the case of Uzbekistan, the positive association between GDP growth and both imports and exports. This emphasizes the role of international trade in supporting economic development. Interestingly, the result of this study suggests, that while geographic distance appears to affect exports, it does not show a similar effect on imports. This discussion will delve into the macroeconomic perspective of Uzbekistan's international trade dynamics and the overarching impact on economic growth.

The positive correlation between Uzbekistan's GDP growth and both imports and exports underscore the symbiotic relationship between international trade and overall economic performance. As a landlocked country, Uzbekistan relies heavily on foreign trade to access global markets, obtain basic resources, and stimulate economic activity. Steady growth in imports means a country's growing demand for goods and services, which contributes to domestic consumption and investment.

An interesting aspect of the relationship lies in the differential impact of geographic distance on exports and imports. Although geographical distance appears to reduce exports, it does not show a similar effect on imports. This phenomenon suggests that Uzbekistan has been successful in

navigating and mitigating the challenges posed by distance in importing goods and services. The development of efficient trade routes, logistics infrastructure and trade agreements can contribute to this resilience to geographic constraints.

The broader global economic literature consistently demonstrates a positive correlation between international trade and economic growth. Engaging in trade allows countries to enjoy comparative advantages, benefit from specialization and access a wider market for their products. In the context of Uzbekistan, a proactive approach to international trade has the potential to drive economic growth by fostering innovation, fostering competition and creating opportunities for investment and employment.

Recognizing the role of international trade as a catalyst for economic growth, policymakers in Uzbekistan should focus on strategies that increase trade efficiency, diversify export markets, and promote a favorable business environment. Investments in infrastructure, trade facilitation measures and diplomatic efforts to establish new trade partnerships can help maintain and strengthen the positive correlation between international trade and GDP growth.

6.4. The value of this study, policy suggestions

The findings reveal a distinct difference in the challenges faced by firms involved in international trade compared to those operating exclusively domestically. Customs and trade regulations, trade licenses and permits, corruption, and occupational safety, health and hygiene regulations are emerging as significant barriers for international traders.

Customs and trade regulations create a huge hurdle for businesses. Delays at customs checkpoints, complex paperwork and different regulations across borders can significantly hinder the efficiency of international business operations. Addressing these challenges is critical to streamlining business processes and promoting a more favorable environment for businesses operating in global markets.

The requirement for business licenses and permits showed to provide another layer of obstructions for international traders. Obtaining the necessary documentation can be time-consuming and resource-intensive, impacting the speed and flexibility required in the fast-paced world of international trade. Simplifying and standardizing the licensing process can make business easier for companies involved in international trade.

Compliance with safety, health and hygiene regulations is essential to maintaining the well-being of workers and ensuring the quality and safety of products. However, these regulations can present challenges, especially for businesses involved in international trade. Harmonizing and standardizing these regulations domestically and internationally can ease the burden on businesses and contribute to the resilience of the global supply chain.

In addition, the following procedures are recommended:

- Accession to the WTO and conclusion of bilateral agreements with trading partners of Uzbekistan.
- Reduction of import barriers for technologies for storing and processing agricultural and food products.
- Improve logistics
- Improvement of legislation and certification of domestic and imported products.
- Increasing the number of local laboratories capable of certifying agricultural products.
- Introduction of equipment and technologies that allow longer storage of agricultural products during transportation, the possibility of greater storage in Uzbekistan.
- Increase the volume of production and processing of agricultural products.
- Adaptation of crops to climate change.

Individual findings manifest the need for proactive government intervention to address the challenges facing firms in international trade. Government plays a key role in creating an enabling environment that facilitates rather than hinders international business activities. Governments should review and revise existing trade-related legislation to simplify processes, reduce bureaucratic barriers and improve the overall ease of doing business for international traders. Strengthening and standardizing the certification process for both domestic and imported products is essential. This ensures compliance with quality, safety and hygiene standards and inspires the confidence of consumers and business partners.

7. Conclusion

These findings are combined with the author's published scientific articles.

This thesis analyzed the international trade of Uzbekistan in agricultural products from three perspectives: comparative advantages in traded agricultural products, effect of economic performance and transportation, the impacts of institutional regulatory environment including trade barriers. The findings indicate that Uzbekistan's agrarian trade is consistently increasing its value and changing both commodity and territorial structure. The relative value of exports has risen at a pace three times faster in comparison to the value of imports. However, the trade balance remains in deficit. A particular issue is the disproportionately low added value of Uzbekistan's exports compared to the significantly higher added value of its imports. Additionally, there is a concerning trend of declining food self-sufficiency in the country.

The territorial structure of agrarian trade is becoming more and more concentrated. This concentration exposes Uzbek agricultural trade to heightened vulnerability and dependency on a restricted group of trading partners (especially CIS). The development of the product structure is the opposite (the trend of diversification has been confirmed). The composition of commodity exports primarily hinges on a range of low-added-value items that hold comparative advantages, particularly when it comes to bilateral trade relationships. Although Uzbek trade exhibits a considerable degree of competitiveness, particularly in relation to CIS and other Asian countries, its competitive edge varies when considering other territories. (Especially developing countries, North and Latin America, European countries) is limited. The combination of the TBI, LFI and product mapping approaches confirmed the comparative advantage for a specific collection of aggregates/trade items: plants, fish, cereals, vegetable oils, meat products, vegetable juices, live animals, dairy products, juices, sugar and products shredding, weaving materials, alcohol and drinks.

Thus, the comparative advantages approach suggests substantial possibilities of Uzbekistan in terms of the exports of agricultural products. The more global overview, presented in Gravity model suggests the positive associations between economic performance in terms of GDP of Uzbekistan and international trade (both exports and imports). However, the absolute value of the impact of GDP on the financial value of import was twice larger than that of the export. Thus, in the line with overall increase of Uzbek GDP one could predict that the import potential will be increasing more than the export potential leading to the negative balance of trade in agricultural products and decreasing food self-sufficiency. The significant positive association of geographical distance

(between Uzbekistan and the trading country) and export and the lack of this association to import might highlight the disproportionately large reliance of the country on the export to the neighboring countries and significant exclusion from the global trade organizations such as WTO.

However, the largest obstacle to international trade proved to be governmental regulations. Besides the explicate trade barriers such as custom duties, Uzbek firms engaged in international trade disproportionately more suffer from implicit barriers of trade such as various certifications, environmental regulations, health and occupational regulations etc. The literature suggest that Uzbekistan inherited a large set of certifications and standards from the USSR and other sources, which it applies to the imported products, thus limiting the imports. The statistical analysis of the perceptions of firm owners and managers supported the idea that these regulations impact disproportionately more the firms engaged in international trade than the local firms. Thus, I might conclude, that these regulations serve as implicit trade barrier for imported goods. Similarly, the occupational and environmental regulations proved to be disproportionately more binding for exporting firms, suggesting that these firms have to deal with international standards of production. This conclusion was supported, for example, by the arguments of the international trade associations do not include Uzbekistan to the trade agreement due to the child and forced labor existing in the country.

Overall, the thesis suggests that Uzbekistan possesses the unexplored sufficiently potential in (agricultural) international trade. In addition, to determine a suitable market partner for the Republic of Uzbekistan, we consider it appropriate to create a department or a separate research institution to study the commodity map of imports and exports of agricultural products to the international market under the relevant ministry. However, the country will have to deal both with the structural discrepancies and regulatory prerequisites.

8. Limitations and suggestions for further research

One major limitation comes from limitations of data available for analysis, particularly during the initial period on 1990th. The lack of comprehensive data in these years hindered the ability to perform thorough calculations and draw clear conclusions. This limitation can be attributed to various factors, including changes in data collection methodology, political transitions, or incomplete record keeping systems during the time frame. The lack of data for these key years affects the overall depth and completeness of the study, limiting the ability to provide a comprehensive historical perspective. Researchers and policy makers should exercise caution when interpreting results from this period, as the conclusions drawn may be affected by data limitations within the time frame.

Another significant limitation is related to challenges one can encounter during the interview process. In this process the respondents often show reluctance to provide accurate information. The reasons for this concern can vary, including privacy concerns, mistrust, or fear of possible consequences. This is particularly valid in Uzbekistan the reluctance of respondents to provide honest and accurate answers introduces a degree of response bias, which impacts the reliability and validity of the information collected during the interviews.

To address these limitations, it can be recommended that:

1. Researchers should explore other data sources, archival records, or alternative methodologies to supplement the limited data available for certain periods, as far as it is available in trusted data sources.

2. Using a combination of quantitative and qualitative data collection methods can provide a more comprehensive understanding of the research subject. This approach may include surveys, interviews and archival research.

3. In order to deal with the data limitations that occurred during the study, I recommend the researcher to continue to support the cooperation with the State Statistical Committee of the Republic of Uzbekistan. Establishing a strong partnership with this official institution can facilitate access to reliable and comprehensive data and ensure the accuracy and completeness of future research efforts. Yet, this cooperation is difficult to achieve.

4. Future research should include interviews with employees of both private and public organizations responsible for monitoring the hygienic quality of agricultural and food products. These conversations should delve into issues related to government regulation, existing monitoring mechanisms and the establishment of hygiene laboratories. By obtaining insights directly from those

involved in the field, the researcher can gain a more detailed understanding of challenges, successes, and potential areas for improvement.

5. Understanding the perspectives of stakeholders directly involved in sanitary quality monitoring is essential. Interviewing relevant experts and officials can provide valuable insights into their views and suggestions regarding existing regulations and practices. This qualitative approach can offer a deeper understanding of the challenges we face in ensuring hygiene standards and potential avenues for improvement.

6. For informed decision-making, it is essential to examine the barriers that prevent the expansion of hygiene laboratories. The researcher should examine the economic, political, and investment challenges that may prevent the establishment of multiple laboratories. This examination can contribute to the formulation of targeted policies and strategies to overcome these barriers and support the growth of basic infrastructure for hygiene quality monitoring.

9. References

1. Abdurakhmanov, O. (2011). State management of occupational safety and health at the modern stage in Uzbekistan.
2. Ahmed, Z. U., Julian, C. C., Baalbaki, I., and Hadidian, T. V. (2004). Export barriers and firm internationalisation: a study of Lebanese entrepreneurs. *Journal of Management and World Business Research*, 1(1), 11-22.
3. Bagherzadeh, M. (2007). Agricultural policies in non-OECD countries.
4. Balassa, B. (1965). Trade liberalisation and “revealed” comparative advantage 1. *The manchester school*, 33(2), 99-123.
5. Balassa, B. (1977). ‘Revealed’ comparative advantage revisited: An analysis of relative export shares of the industrial countries, 1953–1971. *The Manchester School*, 45(4), 327-344.
6. Balassa, B. (1991) “Comparative Advantage”, Trade Policy and Economic Development, *New York University Press*
7. Balassa, B. A. (1979). Intra-industry trade and the integration of developing countries in the world economy.
8. Barker, A. T., and Kaynak, E. (1992). An empirical investigation of the differences between initiating and continuing exporters. *European journal of marketing*, 26(3), 27-36.
9. Bates, W. (1990). Strategic trade policies: respectable interventionism?. *Policy (St Leonards, NSW)*, 6(4), 2-4.
10. Bazarov, D., and Vatin, N. (Eds.). (2023, March). Preface: Construction Mechanics, Hydraulics and Water Resources Engineering (CONMECHYDRO 2021 AS). In *AIP Conference Proceedings* (Vol. 2612, No. 1, p. 010001). AIP Publishing LLC.
11. Benešová, I., Novotná, Z., Šánová, P., and Laputková, A. (2016). Economic Comparison of Agricultural Sector of Eurasian Countries–Is There Any Potential for Development Through Economic Cooperation?. *AGRIS on-line Papers in Economics and Informatics*, 8(665-2016-45116), 19-31.
12. Benešová, I., Novotná, Z., Šánová, P., and Laputková, A. (2016a). Economic Comparison of Agricultural Sector of Eurasian Countries–Is There Any Potential for Development Through Economic Cooperation?. *AGRIS on-line Papers in Economics and Informatics*, 8(665-2016-45116), 19-31.
13. Benešová, I., Novotná, Z., Šánová, P., and Laputková, A. (2016b). Agriculture of the post-Soviet countries. In *Agrarian Perspectives XXV. Global and European Challenges for Food Production, Agribusiness and the Rural Economy, Proceedings of the 25th International Scientific Conference, 14-16 September 2016, Prague, Czech Republic* (pp. 41-50). Czech University of Life Sciences Prague, Faculty of Economics and Management.
14. Bielik, P., Smutka, L., Svatoš, M., and Hupkova, D. (2013). Czech and Slovak agricultural foreign trade-two decades after the dissolution. *Agricultural economics*, 59(10), 441-453.
15. Bilan, Y., Lyeonov, S., Stoyanets, N., and Vysochyna, A. (2018). The impact of environmental determinants of sustainable agriculture on country food security. *International Journal of Environmental Technology and Management*, 21(5-6), 289-305.
16. Bohr, A. (2004). Regionalism in Central Asia: new geopolitics, old regional order. *International affairs*, 80(3), 485-502.

17. Borák, J., and Vacek, T. (2018). Czech foreign wine trade—Comparative Advantages Distribution in relation to the European Union. *AGRIS on-line Papers in Economics and Informatics*, 10(3), 31-43.
18. Bose, N. (2005). Endogenous growth and the emergence of equity finance. *Journal of Development Economics*, 77(1), 173-188.
19. Braha, K., Rajčániová, M., Qineti, A., Pokrivčák, J., and Lazorčáková, E. (2019). Evidence of Spatial Price Transmission in the Case of Kosovo. *Agris On-Line Papers in Economics and Informatics*, 11(1).
20. Cameron, D. R., and Orenstein, M. A. (2012). Post-Soviet Authoritarianism: The Influence of Russia in Its "Near Abroad". *Post-Soviet Affairs*, 28(1), 1-44.
21. Cavusgil, S. T., and Nevin, J. R. (1981). Internal determinants of export marketing behavior: An empirical investigation. *Journal of marketing Research*, 18(1), 114-119.
22. Cheng, L. K., Qiu, L. D., and Wong, K. P. (2001). Anti-dumping measures as a tool of protectionism: A mechanism design approach. *Canadian Journal of Economics/Revue canadienne d'économique*, 34(3), 639-660.
23. Chiaruttini, M. S. (2014, August). EU, Russia and the reshaping of the post-Soviet space: An international trade analysis. In *54th ERSA Conference Papers*.
24. Chipman, J. S. (1970). External economies of scale and competitive equilibrium. *The Quarterly Journal of Economics*, 84(3), 347-385.
25. Ciešlik, A., Qu, Y., & Qu, T. (2018). Innovations and Export Performance: Firm Level Evidence from China. *Entrepreneurial Business and Economics Review*, 6(4), 27-47.
26. Ciešlik, A., Qu, Y., and Qu, T. (2018). Innovations and export performance: Firm level evidence from China. *Entrepreneurial Business and Economics Review*, 6(4), 27.
27. Cobanli, O. (2014). Central Asian gas in Eurasian power game. *Energy Policy*, 68, 348-370.
28. Connolly, R. (2015). Economic modernisation in Russia: the role of the world trade organization. *European Politics and Society*, 16(1), 27-44.
29. Coote, C., Gordon, A., and Marter, A. (2000). *International trade in agricultural commodities: liberalization and its implications for development and poverty reduction in the ACP states*. Natural Resources Institute, University of Greenwich.
30. Csáki, C. (Ed.). (2002). *Food and agricultural policy in Russia: Progress to date and the road forward* (Vol. 523). World Bank Publications.
31. Csáki, C., and Nash, J. (Eds.). (1999). *Regional and international trade policy: lessons for the EU accession in the rural sector--World Bank/FAO workshop, June 20-23, 1998* (Vol. 434). World Bank Publications.
32. Dalum, B., Laursen, K., and Villumsen, G. (1998). Structural change in OECD export specialisation patterns: de-specialisation and 'stickiness'. *International Review of Applied Economics*, 12(3), 423-443.
33. Dee, P., Francois, J., Manchin, M., Norberg, H., Nordås, H., and van Tongeren, F. (2011). The Impact of Trade Liberalisation on Jobs and Growth. *Document de Travail de l'OCDE Sur La Politique Commerciale*, (107).
34. Dixit, A. (2011). International trade, foreign direct investment, and security. *Annu. Rev. Econ.*, 3(1), 191-213.
35. Dunay, P. (2003). Subregional Co-operation in East-Central Europe: the Visegrád Group and the Central European Free Trade Agreement. *Österreichische Zeitschrift für Politikwissenschaft*, 32(1), 45-56.

36. EBRD. (2012). Diversifying Russia: Harnessing Regional Diversity. *European Bank for Reconstruction and Development*.
37. Edwards, S. (1998). Openness, productivity and growth: what do we really know?. *The economic journal*, 108(447), 383-398.
38. ERBD. (2012). Regional Trade Integration and Eurasian Economic Union. *The European Bank for Reconstruction and Development*. Transition Report
39. European Commission. (2008). High Prices on Agricultural Commodity Markets: Situation and Prospects—A Review of Causes of High Prices and Outlook for World Agricultural Markets.
40. FAO WFP, I. F. A. D. (2012). The state of food insecurity in the world 2012. *Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition*. Rome, FAO.
41. Fertő, I. (2017). Economic crisis and the fragility of world wine export. *AGRIS on-line Papers in Economics and Informatics*, 9(4), 25-32.
42. Fertő, I. (2018). Global agri-food trade competitiveness. *AGRIS on-line Papers in Economics and Informatics*, 10(4), 39-47.
43. Fertő, I., and Hubbard, L. J. (2003). Revealed comparative advantage and competitiveness in Hungarian agri-food sectors. *World Economy*, 26(2), 247-259.
44. Food and Agriculture Organization of the United Nations. (1988). *Agricultural Policies, Protectionism and Trade: Selected Working Papers, 1985-1987: FAO Commodities and Trade Division*. Fao.
45. Fugazza, M. (2004). Export performance and its determinants: supply and demand constraints. *Policy issues in international trade and commodities study series*, (26).
46. Furusawa, T., and Konishi, H. (2007). Free trade networks. *Journal of International Economics*, 72(2), 310-335.
47. Gemayel, E., and Grigorian, D. (2005). How Tight is Too Tight?: A Look at Welfare Implications of Distortionary Policies in Uzbekistan.
48. Golub, S. S., and Hsieh, C. T. (2000). Classical Ricardian theory of comparative advantage revisited. *Review of international economics*, 8(2), 221-234.
49. Gripsrud, G. (1990). The determinants of export decisions and attitudes to a distant market: Norwegian fishery exports to Japan. *Journal of International Business Studies*, 21, 469-485.
50. Gunawardana, P. J., and Khorchurklang, S. (2007). An analysis of Comparative advantage and competitiveness in dairy products: Australia and other selected countries. *Journal of International Business Strategy*, 7(1).
51. Hartwell, C. A. (2013). A Eurasian (or a Soviet) Union? Consequences of further economic integration in the Commonwealth of Independent States. *Business Horizons*, 56(4), 411-420.
52. Head, K., Mayer, T., and Ries, J. (2010). The erosion of colonial trade linkages after independence. *Journal of international Economics*, 81(1), 1-14.
53. Helpman, E., and Krugman, P. (1987). *Market structure and foreign trade: Increasing returns, imperfect competition, and the international economy*. MIT press.
54. Ilyina, D. (2016). “Review of the agro-food trade policy in the post-Soviet countries 2014-15” FAO. 143-158.
55. Ishchukova, N., and Smutka, L. (2013). Comparative advantage: products mapping of the Russian agricultural exports. *Agris on-line Papers in Economics and Informatics*, 5(665-2016-44954), 13-24.

56. Ishchukova, N., and Smutka, L. (2014). The formation of Russian agrarian trade structure: Inter-industry vs. Intra-industry trade activities. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 62(6), 1293-1299.
57. Jambor, A., Toth, A. T., and Koroshegyi, D. (2017). Agris on-line Papers in Economics and Informatics The Export Competitiveness of Global Cocoa Traders. *AGRIS on-line Pap Econ Informatics*, 9, 27-37.
58. Japan International Research Center for Agricultural Sciences | JIRCAS (2024) [Online]. <https://www.jircas.go.jp/en/program/proc/blog/20220411>
59. Kepaptsoglou, K., Karlaftis, M. G., and Tsamboulas, D. (2010). The gravity model specification for modeling international trade flows and free trade agreement effects: a 10-year review of empirical studies. *The open economics journal*, 3(1).
60. Kohler, S., Asadov, D. A., Bründer, A., Healy, S., Khamraev, A. K., Sergeeva, N., and Tinnemann, P. (2016). Health system support and health system strengthening: two key facilitators to the implementation of ambulatory tuberculosis treatment in Uzbekistan. *Health Economics Review*, 6(1), 1-11.
61. Koo, W., and Kennedy, P. L. (2005). International trade and agriculture. *Management of Environmental Quality: An International Journal*, 16(5), 566-567.
62. Korosteleva, E. A. (2016). The European Union and Belarus: democracy promotion by technocratic means?. *Democratization*, 23(4), 678-698.
63. Kostecki, M. (2001). *The Political Economy of the World Trading System: WTO and Beyond*. Oxford Scholarship Online.
64. Kowalczyk, C., and Wonnacott, R. J. (1992). Hubs and spokes, and free trade in the Americas.
65. Kozlovskiy, S., Baidala, V., Tkachuk, O., and Kozyrskaya, T. (2018). Management of the sustainable development of the agrarian sector of the regions of Ukraine. *Montenegrin Journal of Economics*, 14(4), 175-190.
66. Krugman, P. (2008). Trade and geography: Economies of scale, differentiated products and transport costs. *Science background on the Sveriges Riksbank Prize in Economics Science in Memory of Alfred Nobel*.
67. Krugman, P. R. (1979). Increasing returns, monopolistic competition, and international trade. *Journal of international Economics*, 9(4), 469-479.
68. Krugman, P. R. (1979a). Increasing returns, monopolistic competition, and international trade. *Journal of international Economics*, 9(4), 469-479.
69. Krugman, P. R. (1981). Intraindustry specialization and the gains from trade. *Journal of political Economy*, 89(5), 959-973.
70. Krugman, P. R., and Obstfeld, M. (2009). *International economics: Theory and policy*. Pearson Education.
71. Krugman, P. R., Obstfeld, M., and Melitz, M. J. (2012). *International Economics: Theory and Policy*: (The Pearson Series in Economics).
72. Lafay, G. (1992). The measurement of revealed comparative advantages. In *International trade modelling* (pp. 209-234). Springer US.
73. Lancaster, K. (1980). Intra-industry trade under perfect monopolistic competition. *Journal of international Economics*, 10(2), 151-175.

74. Laursen, K. (1998). Revealed comparative advantage and the alternatives as measures of international specification (DRUID Working Paper No. 98–30). Retrieved from Danish Research Unit For Industrial Dynamics website <http://www3.druid.dk/wp/19980030.pdf>.
75. Leitner, M. L., Strauss, C., and Stummer, C. (2016). Web accessibility implementation in private sector organizations: motivations and business impact. *Universal Access in the Information Society*, 15, 249-260.
76. Linn, J. (2012). Central Asian regional integration and cooperation: reality or mirage?. *EDB Eurasian Integration Yearbook*, 2012, 96.
77. Love, P., and Lattimore, R. (2009). Protectionism? Tariffs and other barriers to trade. *International trade: Free, fair and open*, 54-57.
78. Lutfullaevich, Y. G. (2020). Risk analysis of foreign direct investments in innovative projects: case of Uzbekistan. *Asia Pacific Journal of Business Review*, 5(1), 11-19.
79. Maitah, M., Řezbová, H., Smutka, L., and Tomšík, K. (2016). European sugar production and its control in the world market. *Sugar Tech*, 18, 236-241.
80. Matthews, R. C. (1949). Reciprocal demand and increasing returns. *The Review of Economic Studies*, 17(2), 149-158.
81. Mazhikeyev, A., and Edwards, T. H. (2013). Central Asian Trade Relations in the Post-Soviet Era. Retrieved on April, 5, 2017.
82. Mazhikeyev, A., Edwards, T. H., and Rizov, M. (2015). Openness and isolation: The trade performance of the former Soviet Central Asian countries. *International Business Review*, 24(6), 935-947.
83. Megoan, N., Raballand, G., and Bouyjou, J. (2005). Performance, representation and the economics of border control in Uzbekistan. *Geopolitics*, 10(4), 712-740.
84. Melitz, M. J. (2005). When and how should infant industries be protected?. *Journal of International Economics*, 66(1), 177-196.
85. Melvin, J. R. (1969). Increasing returns to scale as a determinant of trade. *The Canadian Journal of Economics/Revue canadienne d'Economie*, 2(3), 389-402.
86. Müller, A., Schmidhuber, J., Hoogeveen, J., and Steduto, P. (2008). Some insights in the effect of growing bio-energy demand on global food security and natural resources. *Water Policy*, 10(S1), 83-94.
87. Mutti, J., Sampson, R., and Yeung, B. (2000). The effects of the Uruguay Round: Empirical evidence from US industry. *Contemporary Economic Policy*, 18(1), 59-69.
88. Myant, M., and Drahokoupil, J. (2008). International integration and the structure of exports in Central Asian republics. *Eurasian Geography and Economics*, 49(5), 604-622.
89. Negishi, T. (1969). The customs union and the theory of second best. *International Economic Review*, 10(3), 391-398.
90. Norling, N., and Swanström, N. (2007). The virtues and potential gains of continental trade in Eurasia. *Asian Survey*, 47(3), 351-373.
91. Obstfeld, M., Melitz, M., and Krugman, P. (2014). *International economics: theory and policy*.
92. OECD, P. (2008). OECD-FAO agricultural outlook 2008-2017.
93. OECD, P. (2009). OECD-FAO agricultural outlook 2009-2018: highlights.
94. OECD, P. (2010). OECD-FAO agricultural outlook 2010-2019.
95. OECD, P. (2011). OECD-FAO agricultural outlook 2011-2020.

96. OECD. (2000). *Agricultural policies in OECD countries: Monitoring and evaluation 2000*. OECD (Organisation for Economic Co-Operation and Dev.
97. Official website of Common Market for Eastern and Southern Africa <http://www.comesa.int/>
98. Organisation for Economic Co-operation and Development. (2000). *OECD Agricultural Outlook: 2000-2005-2000 Edition*. Organisation for Economic Co-operation and Development.
99. Ortikov, A. and Smutka, L. (2021). Re-product mapping of Uzbek agri-food products in the world market and determine their competitiveness in different trade blocs. In *Agrarian Perspectives XXVII. Food Safety-Food Security, Proceedings of the 30th International Scientific Conference, 19-20 September 2021, Prague, Czech Republic* (pp. 195-208). Czech University of Life Sciences Prague, Faculty of Economics and Management.
100. Ortikov, A., and Vacek, T. (2018). Comparative advantage: products mapping of Uzbekistan's agricultural exports. In *Agrarian Perspectives XXVII. Food Safety-Food Security, Proceedings of the 27th International Scientific Conference, 19-20 September 2018, Prague, Czech Republic* (pp. 203-209). Czech University of Life Sciences Prague, Faculty of Economics and Management.
101. Ortikov, A., Smutka, L., and Benešová, I. (2019). Competitiveness of Uzbek agrarian foreign trade—different regional trade blocs and the most significant trade partners. *Journal of International Studies*, 12(4).
102. Ortikov, A. (2017). Changes in the character and competitiveness of Uzbekistan's agrarian foreign trade. In *Agrarian Perspectives XXVI. Food Safety-Food Security, Proceedings of the 26th International Scientific Conference, 14-15 September, 2017, Prague, Czech Republic* (pp. 264-271). Czech University of Life Sciences Prague, Faculty of Economics and Management.
- 103.
104. Ortikov, A., Smutka, L., and Kontsevaya S. (2022). The agrarian potential of Uzbekistan in the post-soviet countries: The comparative advantages of various trade groups. In *Agrarian Perspectives XXXI. Food Safety-Food Security, Proceedings of the 31th International Scientific Conference, 14-15 September, 2022, Prague, Czech Republic* (pp. 174-187). Czech University of Life Sciences Prague, Faculty of Economics and Management.
105. Outlook, A. A. (2008). OECD-F.
106. Puga, D. (2001). *European regional policies in light of recent location theories*, Centre for Economic Policy Research (No. 2767). Discussion paper series.
107. Razumkov, O. (2002). Eurasian economic community: the principles of activity and prospects of development. *National security and defence*, (12), 8.
108. 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*, 14(3), 83-94.
109. Reynolds, C. A., Jackson, T. J., and Rawls, W. J. (2000). Estimating soil water-holding capacities by linking the Food and Agriculture Organization soil map of the world with global pedon databases and continuous pedotransfer functions. *Water Resources Research*, 36(12), 3653-3662.
110. Rezbova, H., Smutka, L., Pulkrábek, J., and Benesová, I. (2014). European sugar factories, sugar companies and their alliances: Who is in control of European sugar market?. *Listy cukrovarnicke a reparske*, 130(11), 365.
111. Rittenberg, L., and Tregarthen, T. (2009). Principles of Micro Economics, Flat World Knowledge.
112. Roberts, M., and Wehrheim, P. (2001). Regional trade agreements and WTO accession of CIS countries. *Intereconomics*, 36(6), 315-323.

113. Sarris, A. (2009, June). Evolving structure of world agricultural trade and requirements for new world trade rules. In *12th Annual Conference on Global Economic Analysis, Santiago, Chile*.
114. Scott, M. F. G. (1975). Intra-Industry Trade: The Theory and Measurement of International Trade in Differentiated Products. *The Economic Journal*, 85(339), 646-648.
115. Sheppard, R. L., and Atkins, C. (1994). Dumping, protectionism and free trade.
116. Smutka, L., Benešová, I., and Laputková, A. (2015a). Agricultural market of post-Soviet countries and its comparison with selected group of countries. In *Agrarian Perspectives XXIV. Global Agribusiness and the Rural Economy, Proceedings of the 24th International Scientific Conference, 16-18 September 2015, Prague, Czech Republic* (pp. 376-384). Czech University of Life Sciences Prague, Faculty of Economics and Management.
117. Smutka, L., Steininger, M., Maitah, M., and Škubna, O. (2015b). The Czech agrarian foreign trade—ten years after the EU accession. In *Agrarian Perspectives XXIV. Global Agribusiness and the Rural Economy, Proceedings of the 24th International Scientific Conference, 16-18 September 2015, Prague, Czech Republic* (pp. 385-392). Czech University of Life Sciences Prague, Faculty of Economics and Management.
118. Spechler, M. C., and Spechler, D. R. (2013). Russia's lost position in Central Eurasia. *Journal of Eurasian Studies*, 4(1), 1-7.
119. State Statistics Committee of the Republic of Uzbekistan (2022). Source: <https://nsdg.stat.uz/uz/goal/8>
120. STATISTICS AGENCY UNDER THE PRESIDENT OF THE REPUBLIC OF UZBEKISTAN (2023) [Online]. Available: <https://stat.uz/en>
121. Stryk, D. M. (2000). *Study Guide and Workbook to Accompany the Textbook International Economics, by Robert M. Dunn Jr. and John H. Mutti*. Routledge.
122. Suranovic, S. (2010). *International trade: Theory and policy*.
123. Suranovic, S. M. (2004). *International Trade Theory and Policy Analysis, 2000*.
124. Svatoš, M., & Smutka, L. (2010). Development of agricultural foreign trade in the countries of Central Europe. *Agricultural Economics*, 56(4), 163-175. doi: 10.17221/22/2010-AGRICECON.
125. Svatoš, M., and Smutka, L. (2010). Development of agricultural foreign trade in the countries of Central Europe. *Agricultural Economics*, 56(4), 163-175.
126. Svatoš, M., and Smutka, L. (2012). Development of agricultural trade and competitiveness of the commodity structures of individual countries of the Visegrad Group. *Agricultural Economics*, 58(5), 222-238.
127. Swinnen, J. F. (1994). A positive theory of agricultural protection. *American journal of agricultural economics*, 76(1), 1-14.
128. Tadjibaeva, D., and Komilova, I. (2012). The influence of tax reforms on the prosperity of micro-firms and small businesses in Uzbekistan. *Asia-Pacific Development Journal*, 16(2), 31-64.
129. The World Bank (WB). (2020). the European Bank for Reconstruction and Development (EBRD), and the European Investment Bank (EIB), (Enterprise Survey 2019). <https://microdata.worldbank.org/index.php/catalog/3723> , Accessed 28.11.2022
130. Trostle, R. (2008). Global agricultural supply and demand: Factors contributing to the recent increase. *Food Commodity Prices Outlook Report WRS-0801, ERS, USDA, Washington DC*.
131. Trostle, R. (2010). *Global agricultural supply and demand: factors contributing to the recent increase in food commodity prices* (rev. Diane Publishing).

132. Urinboyev, R., and Svensson, M. (2016). Corruption in a culture of money: Understanding social norms in post-Soviet Uzbekistan. In *Social and legal norms* (pp. 267-284). Routledge.
133. Veebel, V., and Markus, R. (2018). The bust, the boom and the sanctions in trade relations with Russia. *Journal of International Studies*, 9-20.
134. Von Witzke, H., Noleppa, S., and Schwarz, G. (2008). *Global agricultural market trends and their impacts on European Union agriculture* (No. 897-2016-65397).
135. Wajda-Lichy, M., and Kawa, P. (2018). Trade-finance nexus: Was it distorted in the aftermath of the global financial crisis?. *Entrepreneurial Business and Economics Review*, 6(3), 11-27.
136. Westin, P. (1998). Comparative Advantage and Characteristics of Russia's Trade with the European Union. Bank of Finland. *Institute for Economies in Transition*.
137. Widodo, T. (2008). "Products Mapping" and Dynamic Shift in the Patterns of Comparative Advantage: Could India catch up China?.
138. Widodo, T. (2009). Comparative advantage: theory, empirical measures and case studies. *Review of Economic and Business Studies (REBS)*, (4), 57-82.
139. Wise, T. A. (2009). The limited promise of agricultural trade liberalization. *RIS Discussion Papers*, (152).
140. World Bank, (2023) [Online]. Available: <https://data.worldbank.org/indicator/AG.LND.AGRI.ZS?end=2020andlocations=UZandstart=1961andview=chart>. Accessed. 27.10.2023
141. Yun, Y., and Park, K. (2012). An Analysis of the Multilateral Cooperation and Competition between Russia and China in the Shanghai Cooperation Organization: Issues and Prospects. *Pacific Focus*, 27(1), 62-85.
142. Zaghini, A. (2003). Trade advantages and specialisation dynamics in acceding countries. Available at SSRN 440923.