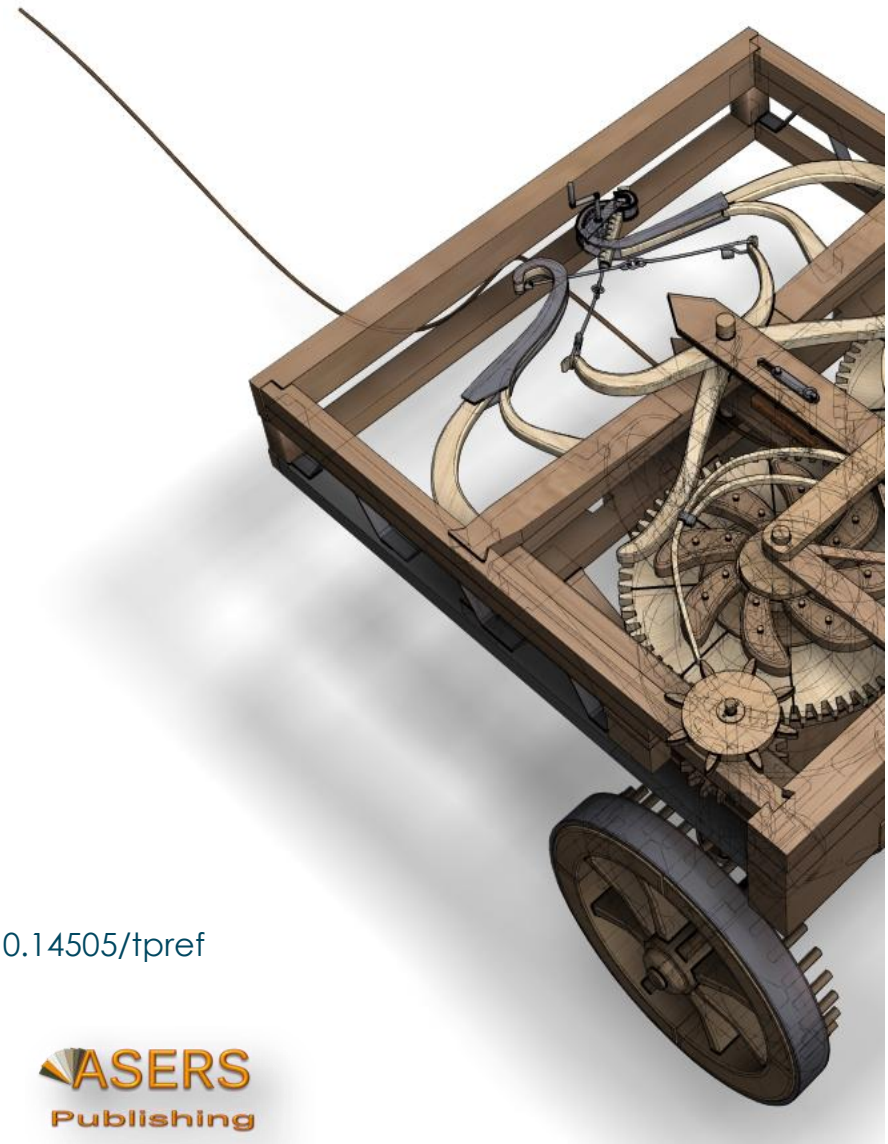
Theoretical and Practical Research in Economic Fields



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Theoretical and Practical Research in Economic Fields

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Unravelling the Export-Employment Nexus: Empirical Evidence from the Organization of Turkic States

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Abstract: This study explores the complex relationship between export dynamics and employment trends in the member states of the Organization of Turkic States (OTS). While existing literature presents varying findings on this relationship, this research utilizes panel data analysis covering the period from 2000 to 2023 to provide empirical insights. By employing employment and export data, the study applies the Hausman test to identify the most appropriate econometric model, ultimately opting for the Random Effects Model for estimation. The empirical findings indicate a positive and statistically significant relationship between export growth and employment expansion. Specifically, a 1% increase in exports is linked to a corresponding rise in employment levels, supporting the hypothesis that trade activities contribute to improvements in the labor market within OTS economies. However, the magnitude of this effect varies based on sectoral differences and macroeconomic conditions. The results highlight the critical importance of export-oriented policies in promoting employment opportunities while emphasizing the need for structural reforms to address potential imbalances in the labor market. This study adds to the broader discussion on trade and employment by providing policy recommendations for OTS countries to enhance their economic strategies.

Keywords: organization of Turkic States; export; employment; panel data model; Hausman test.

JEL Classification: E24; F10; C12.

Introduction

The relationship between exports and employment remains a complex and contested issue within economic discourse. The diversity of conclusions drawn from various empirical studies underscores this complexity. Theoretical foundations of this relationship are deeply rooted in classical and neoclassical trade theories, notably the Heckscher-Ohlin and Ricardian models, which emphasize factor endowments and comparative advantage. While these models offer valuable insights into sectoral labour demand shifts, they do not fully capture the broader employment effects of trade dynamics.

Export expansion can simultaneously induce job losses in import-competing industries while generating employment growth in export-oriented sectors. The net effect of exports on employment is influenced by multiple factors, including a country's macroeconomic conditions, industrial structure, and labour market flexibility. Empirical research presents divergent findings-some studies highlight export-driven job creation, while others emphasize that productivity gains may mitigate labour demand. Consequently, the extent to which exports contribute to employment growth depends on labour market adaptability, trade policies, and structural economic conditions.

In the globalized economy, nations strategically pursue export diversification to bolster economic resilience and achieve sustainable growth. Classical economic thought suggests that reliance on a narrow range of exports presents inherent risks, whereas economies with diversified export portfolios demonstrate greater stability.

Assessing the employment effects of export dynamics necessitates rigorous empirical analysis. Employment outcomes are shaped by factors such as demand elasticity and export responsiveness. While export expansion may elevate labour force participation rates, industries heavily dependent on foreign markets may also encounter significant employment challenges.

Employment is a fundamental driver of economic growth, facilitating the optimal utilization of production factors and reflecting advancements in technological sophistication. To maximize its potential, employment policies must be robust and forward-looking, addressing labour market mismatches while fostering economic stability. A well-calibrated policy framework promotes equitable income distribution and enhances societal welfare, mitigating challenges such as poverty and unemployment.

This research paper aims to empirically examine the intricate relationship between exports and employment within the member states of the Organization of Turkic States (OTS). Established in 2009, the OTS - formerly known as the Cooperation Council of Turkic-Speaking States - is pivotal in enhancing economic and trade cooperation among its members.

Between 2012 and 2018, the Organization of Turkic States (OTS) concentrated on implementing joint economic projects, cultural exchange programs, and educational initiatives to strengthen a collective identity and enhance cooperation among its member states. Since 2018, the organization has broadened its international relations, increasing its global visibility and influence. During this period, it has prioritized strategic collaborations in areas such as energy, transportation corridors, and security, thereby enhancing the OTS's regional and global impact (Salihi & Mehmetcik, 2025).

One of the most important reasons for the establishment of the OTS is that it acts as a unifying force, helping Turkic states navigate the complex geopolitical landscape of Central Asia and the Caucasus, where several great powers are competing for influence (Kocak, 2023). The Eurasian region, with its distinctive historical and cultural context, provides a compelling framework for this investigation. By employing robust econometric methodologies, this research seeks to generate novel insights into the employment implications of export expansion within the OTS economies, contributing to the broader discourse on trade and labour market dynamics.

It should be noted that Azerbaijani state institutions are increasingly prioritizing the monitoring of local product exports and the promotion of these products in both developed countries and the markets of the Organization of Turkic States (OTS). The state plays a direct role in facilitating the export of export-oriented goods and services to these markets, thereby contributing to the expansion of the country’s export potential through strengthened institutional support (Abasova & Hasanzade, 2025).

This research paper is one of the few empirical investigations that examines the relationship between exports and employment across the member states of the Organization of Turkic States using long-term panel data. The application of the Hausman test to determine the appropriate econometric model, along with the consideration of sectoral and macroeconomic heterogeneity, enhances the reliability and robustness of the findings. By empirically confirming the positive impact of exports on employment, the study not only contributes to the existing body of literature but also provides practical policy recommendations tailored to the specific context of the Turkic States. In doing so, it offers a valuable contribution to scientific discourse on regional labor market development and export-driven economic strategies.

1. Literature Review

This literature review aims to investigate existing studies on the relationship between exports and employment, with a particular focus on the Organization of Turkic States (OTS). The connection between exports and employment is widely recognized as a key driver of economic development, making it a central goal in the

economic policies of numerous countries. However, the nature and strength of this export-employment link remain subjects of ongoing debate.

As a key regional and global center of power, the OTS should achieve its objectives by integrating the economies of its member states, which will enhance its influence in the region. Therefore, prioritizing increased integration in the agricultural sector is essential (Fikretzade *et al.* 2024).

To provide a comprehensive understanding, the review will analyze various theoretical frameworks, methodologies, and findings from previous research, specifically highlighting how exports impact employment within the distinct economic, political, and social contexts of OTS countries. Different theoretical approaches may yield varied results regarding the impact of exports on different sectors of the economy and across various levels of development.

Moreover, special attention will be given to empirical studies that enhance our understanding of how exports influence the labor market, as well as research evaluating this relationship across different regions and stages of economic development.

In the subsequent sections, we will discuss the practical significance of the export-employment relationship for OTS countries and explore policy recommendations. This analysis will consider how exports can be leveraged as a tool to create jobs and promote economic growth.

Export-based theory suggests that a region's economic development is largely driven by external demand for its products and services. When exports increase, they generate income, create jobs, and stimulate local businesses, leading to overall economic growth. This theory emphasizes the crucial role of external markets in regional development, indicating that growth driven by exports can enhance productivity through benefits like economies of scale, the sharing of knowledge, and innovation. Additionally, a robust export sector can attract investment, improve infrastructure, and increase competitiveness. However, it's important for economic resilience to diversify; relying too heavily on exports can leave regions vulnerable to fluctuations in the global market (Leichenko, 2000)

According to compelling research by Sandrey *et al.* (2011), there is a robust positive relationship between employment and exports, highlighting how an increase in exports can drive job growth (Sandrey *et al.* 2011).

Research by Aswicahyono *et al.* (2011) examined the period from 1995 to 2005 in Indonesia and found a decline in job creation linked to exports in the manufacturing sector by 2005, compared to the period before the crisis. This decline was attributed to sluggish growth in manufacturing exports and a notable shift away from light industries. In contrast, employment in the services industry saw an increase, largely due to indirect connections to key export sectors. The study identified several supply-side obstacles to job growth through exports, including inadequate infrastructure, an uncertain investment climate, and strict labor regulations (Aswicahyono *et al.* 2011).

Aktakash *et al.* (2013) conducted a panel data analysis and found a positive and significant relationship between sectoral exports and sectoral employment. However, their dynamic analysis revealed a negative and significant relationship. Additionally, this dynamic analysis indicated that the influence of exports per employee on employment growth, as well as the effect of sectoral exports on sectoral employment growth, is both positive and significant (Aktakash *et al.* 2013).

Economic growth is a primary goal for governments, yet opinions on its determinants differ significantly. Neoclassical theories emphasize macroeconomic stability, proposing that policy shocks are temporary and that markets will naturally return to equilibrium. In contrast, structuralist economists contend that trade policies have a profound impact on employment and long-term economic outcomes. They point out that trade imbalances can persist and negatively influence labor markets and industrial development. While neoclassical economists focus on aggregate factors, such as capital accumulation and productivity, structuralists highlight the importance of sectoral dynamics and advocate for targeted policy interventions. Ultimately, achieving sustainable growth requires a balanced approach that integrates macroeconomic stability with strategies designed to address employment challenges and the structural transformations brought about by trade (Özdemir *et al.* 2014).

Dizaji and Badri (2014) conducted a study using the ARDL bounds testing approach to explore the relationship between various macroeconomic variables and employment in Iran, covering the period from 1976 to 2005. Their research revealed significant findings: in the long term, employment in Iran is positively influenced by several key economic factors, such as economic growth, capital accumulation, and prevailing labor market conditions (Dizaji & Badri, 2014).

The growth in exports is viewed as a key sign of improved competitiveness in the sector. An increase in exports is expected to result in higher levels of output and employment (Arora, 2015). However, the research by Rajesh Raj and Sasidharan (2015) presents a different perspective, questioning whether exports actually contribute positively to employment growth (Rajesh Raj & Sasidharan, 2015).

Nguyenin's (2015) research on input-output analysis highlights the significant impact of manufacturing exports on employment between 2000 and 2007. During this period, it is estimated that approximately seven million additional jobs were created, largely due to spillover effects across various sectors of the economy. Notably, export-oriented manufacturing was responsible for more than half of the overall increase in manufacturing employment from 2000 to 2007 (Nguyen, 2015).

Kiyota's (2016) study employs input-output analysis to explore the impact of exports on employment across several East Asian economies, specifically focusing on China, Indonesia, Japan, and Korea during the period from 1995 to 2009. By utilizing input-output analysis, Kiyota examines the interrelationships among industries within these economies and assesses how fluctuations in export demand affect domestic production and employment levels (Kiyota, 2016).

A study conducted by Bulmer (2016) used panel causality analysis to examine the impact of labor market expansion in Laos on export growth from 2009 to 2012. The findings revealed a slight positive correlation between employment - in total, skilled, and unskilled labor forces - and exports. Notably, the effect was more pronounced for unskilled workers. Additionally, the study indicated that wages in exporting businesses are on the rise (Bulmer & Hollweg, 2016).

Although many countries have seen improvements in trade performance, the impact on job creation and skill demand has varied. In emerging nations, an increase in exports - especially in the industrial sector - initially boosts the demand for low-skilled workers. This is particularly noticeable in industries like textiles, ready-made apparel, plastics, and processed foods. However, as manufacturing processes become more advanced and the production structure evolves, the need for low-skilled workers declines. As production shifts towards being more capital-intensive, the demand for skilled workers in the export industry increases (Tarjáni, 2017).

A study by Tacero *et al.* (2017) found that as Spain's export sector becomes more involved in global production chains, the number of new jobs created by exported products is likely to decrease (Tacero *et al.* 2017).

Altuntepe's (2018) research highlights a short-term positive relationship between exports and employment. However, it finds no significant long-term impact. Similarly, the study identifies a short-term positive connection between imports and employment, but again, no lasting relationship is observed (Altuntepe, 2018).

Traditional economic theory explains that trade liberalization impacts labor markets through two main channels. First, companies that face strong competition from imports may reduce their operations or even shut down entirely. This can result in job losses and displace workers, leading to structural unemployment. As a result, workers may need to change industries to find new employment. On the flip side, companies that gain access to international markets can experience growth. This growth often leads to increased production and the creation of new job opportunities. Additionally, it can result in higher wages, improved productivity, and the development of new skills among the workforces. Ultimately, the overall impact of trade liberalization on labor markets depends on various factors, including labor mobility, wage flexibility, and how easily displaced workers can transition to new sectors within the economy (Feenstra *et al.* 2019).

Policies related to employment have significant effects on both the economy and society. Countries that struggle to increase employment levels often face higher costs in various sectors. Therefore, initiatives aimed at improving job opportunities are crucial for these nations. Economists and policymakers are deeply concerned with finding effective ways to boost employment rates. Research indicates that a 1% increase in exports is linked to a 0.15% rise in employment (Tandoğan, 2019).

Liu *et al.* (2019) suggests that technological and manufacturing capabilities have a positive impact on export growth. This increase in exports, in turn, contributes to job creation. Moreover, export growth fully mediates the relationship between technological capability and job creation, while it partially mediates the relationship between manufacturing capability and job creation (Liu *et al.* 2019).

Exporting to foreign countries contributes significantly to job creation in the exporting nations (Sasahara, 2019).

As per Whang (2019), the findings of the research indicate that, primarily, changes in export composition are intricately linked to the reduced influence of exports. Additionally, an increase in exports contributes to job creation within the production sector; however, the relationship between exports and employment diminishes as capital intensity rises. Conversely, an increase in the share of export goods from small and medium-sized enterprises (SMEs) amplifies the effect of exports on employment (Whang, 2019).

According to the findings of Yilmaz (2021), there is a significant relationship between export growth and employment growth. Specifically, while an increase in exports can contribute to higher employment levels, a change in exports has a negative impact on employment changes. For instance, when export growth rises by 1%, employment growth declines by 0.04% (Yilmaz, 2021).

According to the important findings from Taşdemir *et al.* (2023), exporting significantly boosts employment within firms. This effect is especially strong among Turkish manufacturing companies in labor-intensive and low to medium-low technology sectors, particularly those that offer lower wages (Taşdemir *et al.* 2023).

Gasimli *et al.* (2024) argue that Azerbaijan has undertaken substantial initiatives to harness its green energy potential with the aim of promoting energy exports and ensuring a sustainable transition to the post-oil economy. A central component of this strategy is the Green Energy Corridor, in which Azerbaijan assumes a pivotal role. In its first phase, the project seeks to connect Azerbaijan to the European energy market, while in the subsequent phase, it aims to integrate Central Asian countries into this network through the export of zero-carbon electricity. This initiative is expected to enhance economic stability, support ecological sustainability, and foster broader regional energy cooperation. Furthermore, the realization of such large-scale green energy projects is likely to stimulate job creation and contribute to the country's socioeconomic development (Gasimli *et al.* 2024).

The empirical findings presented by Shaheen (2025) demonstrate that trade-related variables including trade volume, export diversification, and the terms of trade index exert a positive and statistically significant impact on wages, labor productivity, and unemployment outcomes. Furthermore, economic growth, as measured by GDP growth, is shown to positively influence both wages and labor productivity, while population growth has a negative effect on labor market outcomes. The study underscores the importance of promoting export-oriented economic policies as a means to enhance labor market performance and improve the income and productivity of the domestic workforce in developing countries. These findings offer valuable insights for policymakers aiming to foster a more inclusive and resilient labor market (Shaheen, 2025).

2. Research Methods and Materials

2.1. Research Methods

Economic research relies on various data formats, requiring models that are suitable for analyzing these different types of data. Econometric analysis integrates mathematical concepts, statistics, and economics to analyze data, aiming to compare reality and make forecasts. Both cross-sectional data, representing a single point in time, and panel data, which combines cross-sectional and time series data, are used to examine correlations between economic variables through statistical and econometric analyses. Utilizing time series and cross-sectional data in financial modeling is essential for comprehensive analysis. By transforming the data into a panel format, an array of factors for assets can be measured over specific periods. This organizational structure greatly facilitates the testing and analysis of complex data sets.

The study's structure was shaped by statistical data provided by the five member countries of the Organization of Turkic States. The study aimed to examine the influence of exports on employment in the member nations. For this purpose, a panel data analysis was conducted using employment (y) and export (x) for the years 2000–2023. This study uses E-Views 12 application data processing.

The main hypotheses of the model were determined as follows:
H0= There is no relationship between the independent variable and the dependent variable.
H1= There is a relationship between the independent variable and the dependent variable.

There are two main models used in panel data estimation: The Random Effects model and the Fixed Effects model. The choice between these models is often guided by econometric tests, such as the Haussmann test, which helps identify the best specification for the data. The Fixed Effects model assumes that individual-specific fixed terms account for variations across units. By introducing dummy variables for each unit, this model captures time-invariant characteristics, making it useful for examining relationships between entities over time. In contrast, the Random Effects model assumes that individual differences are random and uncorrelated with the explanatory variables. If this assumption holds true, it treats these variations as part of the error term, allowing for more accurate estimations. The Random Effects model is frequently used when analyzing broad trends across units, whereas the Fixed Effects model is better suited for capturing variations within units. Ultimately, the decision between the two models depends on which one provides the most objective and reliable findings. Fixed Effects Model. The fixed effects model estimation show as follows:

$$Yit=\alpha i+\beta Xit+\epsilon it \quad (1)$$

where:
Yit - Employment for entity i at time t
Xit - Export for entity i at time t

β0 - Intercept
β1 - Coefficient for exports
ϵit - Error term
αi: Entity-specific intercept, which captures the effect of unobserved variables that are constant over time.

Random Effects Model. Assumes that individual entity differences are random and uncorrelated with the independent variables.

$$Yit=\beta0+\beta1Xit+ui+\epsilon it \quad (2)$$

where:
ui - Random entity-specific effect

2.2. Materials

This research analyzes the information on employment to population ratio and exports of goods and services statistics for Azerbaijan from 2000 to 2023. The study utilized the EViews 12 software for the analysis. In this research, the employment-to-population ratio, exports of goods and services, foreign direct investment, and labor force participation rate are analyzed using data sourced from the official website of the World Bank. To ensure consistent representation of all variables, logarithmic values were calculated for each. Table 1 provides detailed descriptions of the variables.

Table 1. Variables

	Variables	Description	Unit
1	lnEMP	Employment to population ratio	Dependent variable
2	lnEXP	Exports of goods and services (billion USA dollars)	Independent variable

Member nations are committed to avoiding alarms to other regional powers and striving for peaceful communication to support regional peace and order. The OTS has played a pivotal role in shaping norms and fostering identity, especially within cultural and economic contexts. It has successfully instilled a sense of unity among member states and bolstered their shared consciousness and fraternal connections (Yesevi, 2022).

They will have the ability to collaborate across numerous domains, leveraging their shared history, culture, and ancestry. OTS has emerged as a catalyst for unity, bringing together the Turkic community and fostering impactful relationships and a collaborative ethos. The current member countries of the Organization of Turkic States are Azerbaijan, Kazakhstan, Kyrgyzstan, Uzbekistan, and Turkey. These countries, with a combined population of over 200 million, possess significant economic potential, energy resources, transportation routes, and modern military capabilities. They demonstrate mutual support, solidarity, and consideration of national interests. The member countries have established cooperative relationships in both multilateral and bilateral formats.

With its clearly defined strategic objectives, the Organization of Turkic States (OTS) possesses all the characteristics of a fully-fledged international organization representing the entire Turkic world. In terms of land area, the OTS is approximately one-fourth the size of Russia and half the size of China, accounting for around three percent of the world's total land mass (Cetinkaya & Demirel, 2024).

Table 2. Real GDP in OTS countries (billion dollar)

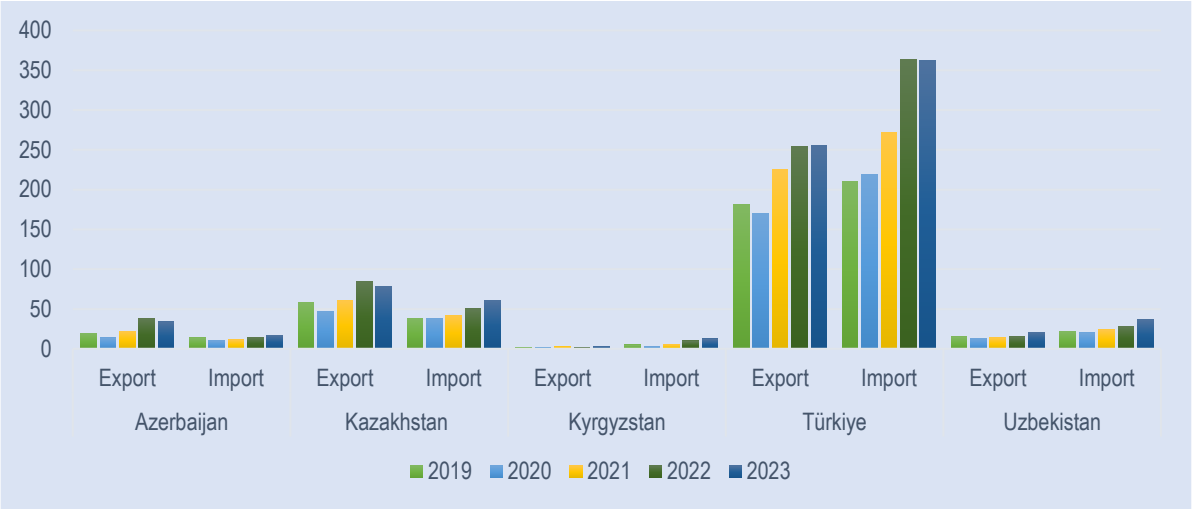
	2019	2020	2021	2022	2023
Azerbaijan	48.17	42.69	54.83	78.81	72.36
Kazakhstan	181.67	171.08	197.11	225.5	261.42
Kyrgyzstan	9.37	8.27	9.25	12.13	13.99
Türkiye	761.01	720.34	819.87	907.12	1108.02
Uzbekistan	60.28	60.22	69.6	81.14	90.89

Source: World Bank national accounts data, and OECD National Accounts data files (2024)

The data in Table 2 illustrates the GDP production of the countries that are part of the Organization of Turkic States from 2019 to 2023. The average annual GDP growth during this period was 10.7% in Azerbaijan, 9.5% in Kazakhstan, 10.5% in Kyrgyzstan, 9.8% in Turkey, and 10.8% in Uzbekistan. These tables demonstrate the impressive economic performance and growth potential of these nations. The combined GDP of the member

states exceeds $1.5 trillion, positioning them as the 13th largest in the world. Impressively, the OTS members' share of the global GDP stands at approximately 1.8%, a testament to their significant economic influence.

Figure 1. Exports and imports in OTS countries (billion dollar)



Source: World Bank national accounts data, and OECD National Accounts data files (2024)

In 2023, the total value of merchandise exports from Azerbaijan amounted to $33 billion, marking an 11.1% decrease from 2022. Specifically, merchandise exports decreased by $4.24 billion. Meanwhile, Kazakhstan's merchandise exports totaled $78 billion in 2023, indicating a 6.7% decrease compared to 2022, with merchandise exports declining by $5.65 billion. On the other hand, the Kyrgyz Republic saw its merchandise exports reaching $3.3 billion in 2023, reflecting a 46% increase from 2022, with merchandise exports growing by $1.05 billion. Turkey's merchandise exports totaled $255 billion in 2023, showing a 0.632% increase from 2022, with goods exports growing by $1.6 billion. Lastly, Uzbekistan's merchandise exports amounted to $21 billion in 2023, representing a 37% increase from 2022, with goods exports growing by $5.72 billion.

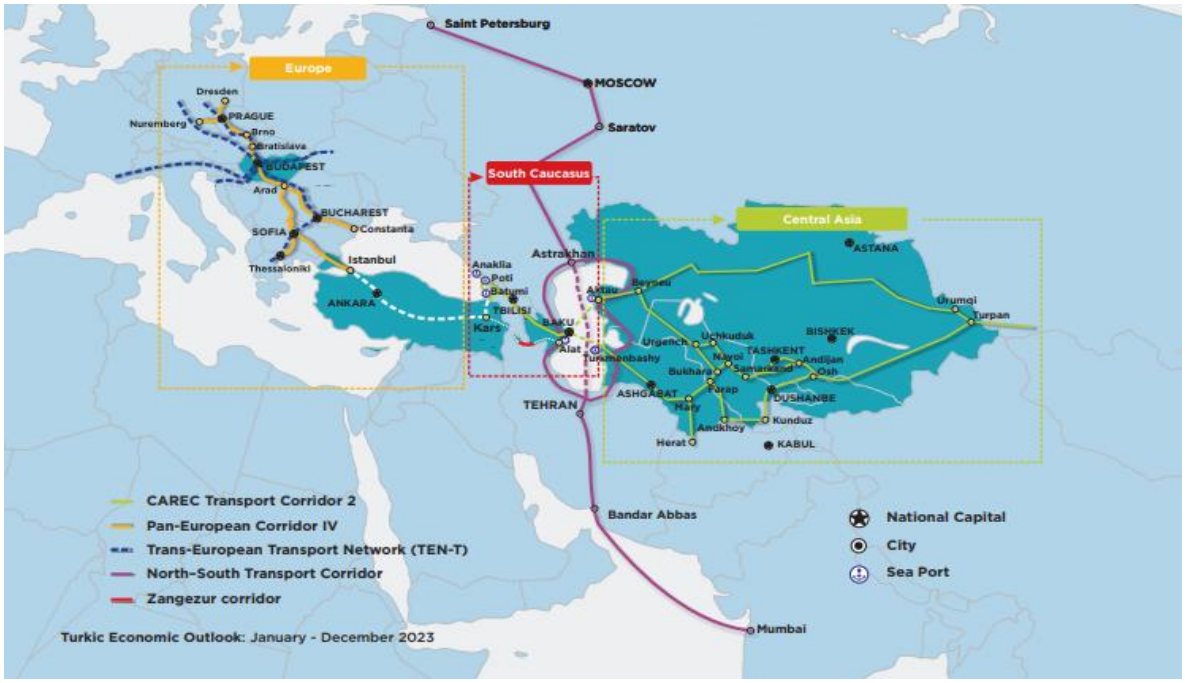
Figure 2. Unemployment, total (% of total labor force) in OTS countries

	2019	2020	2021	2022	2023
Uzbekistan	4.9	5.3	5.3	4.5	4.5
Türkiye	13.7	13.1	12.0	10.4	9.4
Kyrgyzstan	4.3	4.6	4.1	4.1	4.0
Kazakhstan	4.8	4.9	5.6	4.9	4.8
Azerbaijan	5.0	7.2	6.0	5.7	5.6

Source: World Bank national accounts data, and OECD National Accounts data files (2024)

In 2023, the average unemployment rate among member countries of the Organization of Turkic States (OTS) was an encouraging 5.7%. This figure emphasizes the vital link between real GDP growth and employment trends, illustrating the crucial role of sustainable economic policies in ensuring long-term labor market stability across OTS nations. By prioritizing these strategies, member states can foster resilience and prosperity for their workforces.

Figure 3. Conditional Schematic Transport Corridors of the Turkic World



Source: CAERC, Turkic Economic Outlook (2024)

Furthermore, the findings support the correlation between exports and employment in transitional economies, indicating that employment growth has a significant impact on export growth in numerous countries. This outcome indicates that these nations have relative strengths in industries that require a lot of manual labor. With this benefit, transitional countries can address their dual challenges of high unemployment rates and a shortage of foreign currency (Kadi, Osman & Filiz Kadi, 2016).

The global economy is at a pivotal moment, facing significant transformations driven by globalization, the rise of developing nations, technological advancements, and climate change. These dynamics have given rise to a new international economic order. It is imperative for developing countries to adapt to these changes and capitalize on the opportunities they present as the world navigates this evolving landscape.

3. Results and Discussion

The descriptive analysis measures the variation levels of export (EXP) and employment (EMP), including maximum, minimum, mean, and standard deviation.

Table 3. Descriptive Statistic Results

	EMP	EXP
Mean	13.28800	65.24400
Median	9.400000	22.20000
Maximum	58.70000	255.6000
Minimum	2.700000	1.800000
Std. Dev.	12.96753	82.44273
Observations	240	240

Source: Devised by the authors.

Table 3 provides an initial understanding of the relationships and interactions among key variables by presenting preliminary statistical insights. However, using the appropriate econometric methods is essential for thoroughly evaluating how export growth impacts employment growth within the model's parameters. Depending on the underlying assumptions and the type of data, these methods may include time-series approaches, panel data models, or regression analysis. By employing these econometric techniques, it becomes possible to separate causal effects, account for potential confounding variables, and generate more robust findings regarding the impact of export growth on employment dynamics.

Table 4. Correlation coefficient matrix

Covariance analysis:	Ordinary	
Date:	12/20/2024	
Time:	11:19	
Sample:	2019 2023	
Included observations:	240	
Correlation t-statistic Probability		
	EMP	EXP
EM	1.000000	

EX	0.854039	1.000000
	7.873429	----------
	0.000000	----------

Source: Devised by the authors.

The correlation coefficient matrix shows a strong connection between the dependent variables, employment (EMP) and the export factors (EXP), which indicates the presence of multicollinearity. This indicates that changes in a variable can be closely related to changes in the other, which could negatively influence the reliability of the regression analysis and the interpretation of the model.

Table 5. Panel Data Analysis Results with Fixed and Random Effects Model

Dependent variable: EM	Fixed effects			Random effects		
Independent variable	Coefficient	t-statistics	Prob.	Coefficient	t-statistics	Prob.
EXP	0.071583	1.073515	0.2965	0.127053	4.780135	0.0001
R-squared		0.834402		0.500295		
Adjusted R-squared		0.790823		0.478569		
Probability F-statistic		0.000001		0.000077		
Durbin-Watson		3.011227		2.432159		

Source: Devised by the authors.

According to the results of both fixed and random effects model of the Panel data analysis seen in Table 5, H0 hypothesis is rejected. In other export levels are effective on employment. Finally, by performing the Hausman Test, it is determined whether the fixed effects model or the random effects model will be used.

The hypotheses created for the test are as follows:

H0: There are random effects

H1: No random effects.

Table 6. Results of the Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.822728	1	0.3644

Source: Devised by the authors.

Hausman testing is used to determine the best model between Fixed Effect Model and Random Effect Model. If the chi-square cross- section value > 0.05 means using the Random Effect Model. If the chi-square cross-section value < 0.05, it means using the Fixed Effect Model. Based on the table above, the result of the chi-square cross-section in data processing is 0.3644> 0.05. That is, based on the results, the best model used in this study is the Random Effect Model. The following are the results of regression analysis using the REM model:

Table 7. Results of Balanced Panel Regression Analysis Method

Variable	Coefficient	Std. Error
C	4.523576	1.771588
Export (EX)	0.134333	0.017062

Source: Devised by the authors.

The table above shows the influence between independent variables, namely Export (EXP) on the dependent variable, namely Employment (EMP). Thus, the regression equation found:

$$EMP = 4.523576 + 0.134333*EXP$$

Table 8. Results of Partial Test (T-Test)

Variable	t-Statistic	Prob.
C	2.553402	0.0178
Export (EXP)	7.873429	0.0000
R-Squared	0.729383	
Adjusted R-squared	0.717617	

Source: Devised by the authors.

The table presented above illustrates the relationship between the dependent and independent variables, as explained through the results of the t-test analysis. The findings for Export (EXP) indicate that the significance value is less than α (0.0000 < 0.05), with a t-count coefficient of 7.873429 and a t-table value of 2.069. This implies that t-count > t-table, with degrees of freedom (df) equal to 23 (calculated as 25 - 1 - 1) and a significance level of 5% (0.05). Therefore, it can be concluded that Export (EXP) has a statistically significant impact on Employment (EMP). The Adjusted R-Squared value is 0.729383, or 72.93%, which suggests that the independent variable, Export (EXP), explains 72.93% of the variation in the dependent variable, Employment (EMP). The remaining 27.07% of the variation in Employment is attributable to other factors not included in the model.

Conclusion

Analyzing panel data can offer valuable insights into the correlation between employment and exports. Considering differences across sectors and changes over time helps to gain a comprehensive understanding of how exports affect employment and how this connection develops over time. The outcomes can provide insight into how well-focused export-focused growth strategies work, as well as the advantages and difficulties of participating in the global economy.

There is a mutual relationship between employment and exports. While it is typically believed that exports lead to more jobs, having more jobs can also have a positive impact on the performance of exports. An increased, more experienced labor force can enhance production capacity, innovation, and competitiveness, which are essential for promoting export expansion. Hence, measures aimed at boosting employment, enhancing skills, and fostering innovation can positively influence a nation's export competitiveness, ultimately boosting its economy.

As the number of people employed goes up, wages might also go up, resulting in increased production expenses. If expenses see a notable rise, it could result in a country's exports becoming pricier and less attractive in the international marketplace, leading to a possible decrease in export quantities.

Increased employment can result in higher levels of income, which can in turn boost domestic demand. If the demand for products within the country increases more than the ability to produce them, companies may choose to focus on selling domestically, causing a decrease in the number of products available for export.

Having a more proficient and larger labor force can result in improved products and services, ultimately boosting the appeal of a country's exports in the global market.

Increased employment and economic expansion can impact a nation's currency exchange rate. A more robust currency could lead to higher prices for exports, potentially lowering their competitiveness in the global market.

This study analyzed the impact of export change on employment in OTS (Organization of Turkic) member countries on a macro scale and using panel data techniques. The findings of this study reveal that export growth positively affects employment growth in 5 OTS (Organization of Turkic) countries in the years 2000-2023. The

estimation results obtained as a result of the empirical analysis mean that the hypothesis H1 (There is a relationship between the independent variable and the dependent variable) determined in the study is accepted.

Credit Authorship Contribution Statement

Latif Zeynalli: Conceptualization, Investigation, Methodology, Project administration, Software, Formal analysis, Writing – original draft, Supervision, Validation, Writing – review and editing, Visualization,
İlham Rustamov: Conceptualization, Methodology, Formal analysis, Writing – original draft, Validation, Writing – review and editing.
Elchin Abasov: Conceptualization, Investigation, Software, Writing – original draft, Validation, Writing – review and editing.
Murteza Hasanoglu: Investigation, Writing – original draft, Data curation, Writing – review and editing, Visualization**,**

Declaration of Competing Interest

No known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper have been declared by the authors of this study.

Declaration of Use of Generative AI and AI-assisted Technologies

The authors declare that they have not used generative AI and AI-assisted technologies during the preparation of this work.

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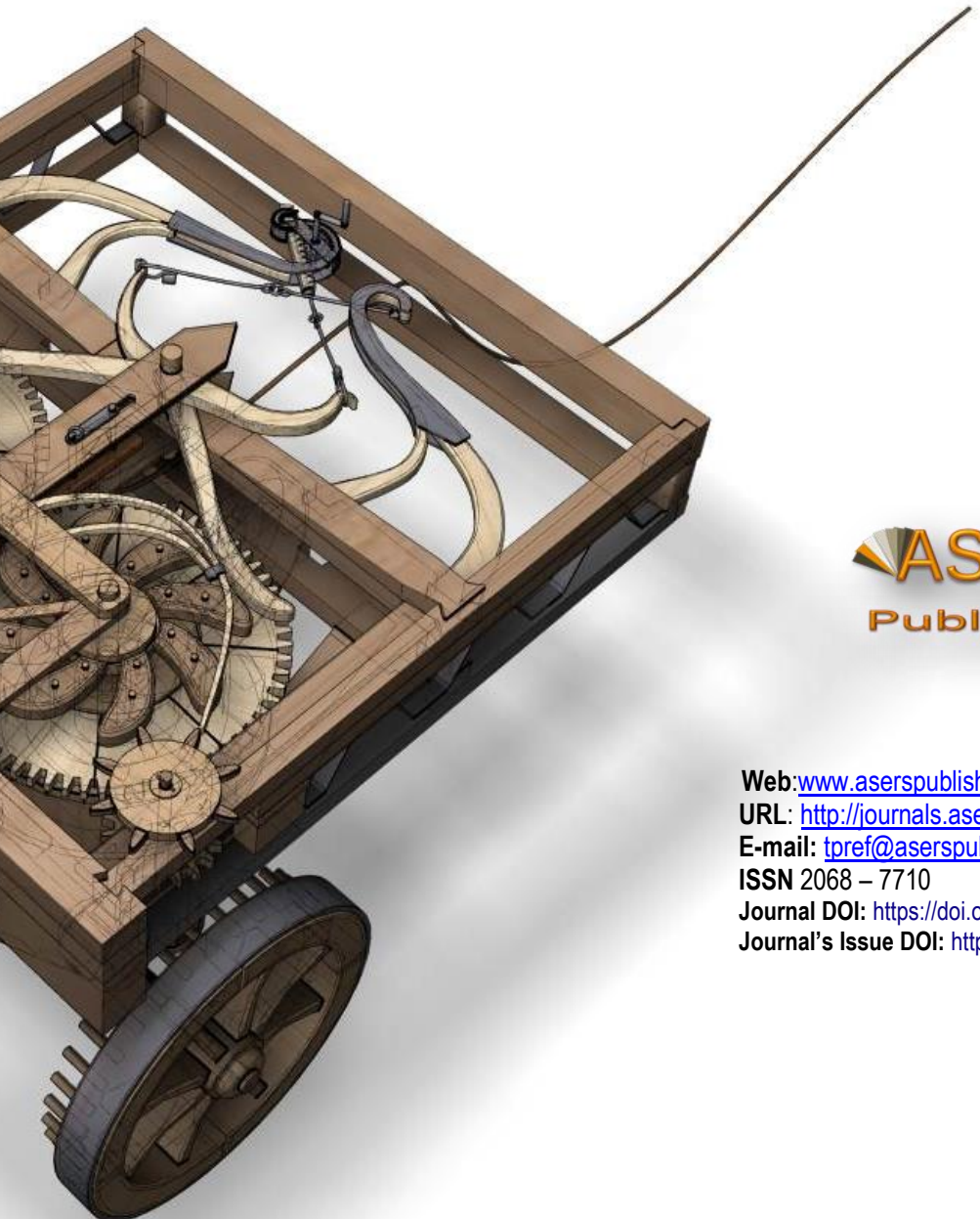

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