

Araştırma Makalesi / Research Article

# Diplomatic Impact of Economic and Financial Relations: An Analysis of the Turkestan States and China\*

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## Abstract

This study analyses the impact of China's economic and financial relations with the Turkestan States – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan – on voting alignment of these five states with China in the United Nations General Assembly (UNGA). Data from the 2000–2021 period covers variables such as imports, exports, external debt, number of projects, commitment amounts and economic freedom index. The voting alignment ratio was used as the dependent variable. Due to the failure to meet parametric assumptions and the lack of significant results from panel models, the Theil-Sen regression method was preferred. The results reveal that economic and financial relations have varying effects on political alignment depending on the country. Economic variables show a significant effect in Kyrgyzstan and Uzbekistan, while explanatory power is quite limited in the cases of Kazakhstan, Tajikistan and Turkmenistan. The study demonstrates that the potential of economic incentives to increase political alignment can only be effective when combined with internal political structure, institutional capacity and foreign policy orientations.

## Keywords

Voting Alignment, economy, China, Turkestan, Theil-Sen Regression.

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# Ekonomik ve Mali İlişkilerin Diplomatik Etkisi: Türkistan Devletleri ile Çin Üzerine Bir Analiz\*

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## Öz

Bu çalışma, Çin'in Türkistan Devletleri – Kazakistan, Kırgızistan, Tacikistan, Türkmenistan ve Özbekistan – ile geliştirdiği iktisadi ve mali ilişkilerin, bu ülkelerin Birleşmiş Milletler Genel Kurulu'nda (BMGK) Çin ile olan oy uyumu üzerindeki etkisini analiz etmektedir. 2000–2021 dönemine ilişkin veriler ithalat, ihracat, dış borç, proje sayısı, taahhüt miktarı ve ekonomik özgürlük endeksi gibi değişkenleri kapsamaktadır. Bağımlı değişken olarak oy uyumu oranı kullanılmıştır. Verilerin parametrik varsayımları sağlamaması ve panel sonuçlarının anlamlı olmaması nedeniyle Theil-Sen regresyon yöntemi tercih edilmiştir. Sonuçlar, ekonomik ve mali ilişkilerin siyasi uyum üzerinde ülkelere göre değişen etkiler yarattığını ortaya koymaktadır. Kırgızistan ve Özbekistan'da ekonomik değişkenler anlamlı etki gösterirken; Kazakistan, Tacikistan ve Türkmenistan örneklerinde açıklayıcılık oldukça sınırlıdır. Çalışma, ekonomik teşviklerin siyasi uyumu artırma potansiyelinin ancak iç siyasal yapı, kurumsal kapasite ve dış politika yönelimleriyle birleştiğinde etkili olabileceğini göstermektedir.

## Anahtar Kelimeler

Oy Uyumu, ekonomi, Çin, Türkistan, Theil-Sen Regresyonu.

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## Introduction

The Turkestan region has become an increasingly important arena of Chinese economic and diplomatic engagement, shaped by shifting power dynamics involving Russia, the United States, the European Union and other external actors. After the collapse of the Soviet Union, the regional states lost their priority status in Russian foreign policy, while China's engagement with the region remained limited due to Beijing's security-oriented perceptions. In contrast, the US maintained its presence as a dominant power in the region during the post-Cold War period; however, due to recent internal and external developments, it has been forced to reduce its influence. In the same period, Russia became economically destabilized with the Ukraine crisis and, through foreign policy choices that undermined its legitimacy in Central Asia, caused a crisis of confidence among the regional states. This situation created a new opportunities for China to increase its economic weight in the region.

This study aims to analyze the impact of China's economic and financial relations with the Turkestan states<sup>1</sup> on the UNGA voting behavior of those states. The international relations literature contains strong evidence that major powers attempt to secure diplomatic alignment through economic tools (aid, loans, investment and trade). In particular, there are many empirical studies indicating that the US and China seek to garner the support of allied states in international votes through foreign aid and economic engagement. In this context, the main research question of the study is formulated as follows: "How do economic and financial relations with China affect the voting alignment of the Turkestan states with China in the UNGA?"

The study first analyzes the voting alignment of the Turkestan states with China. In the second stage, the effect of China's economic engagement on voting alignment is empirically examined using the nonparametric Theil-Sen regression method. In doing so, the study seeks to explain how economic and financial relations are reflected in foreign policy behavior.

The first section of the study presents a literature review and conceptual framework. The second section introduces the methodology and dataset,

while the third section evaluates the empirical analysis results. The final section offers a general assessment and interpretation of the findings.

## **Literature Review**

The study first addresses the theoretical foundations of the concept of political alignment and presents definitions proposed by various authors. Subsequently, it summarizes the methods used to measure political alignment, particularly the theoretical basis of analyses conducted through UNGA voting patterns. In the second stage, the study reviews empirical research examining the relationship between UNGA voting and political-economic factors, detailing classical studies that analyze how U.S. foreign aid, IMF loans and strategic alliances influence countries' voting behavior. Finally, the study discusses the growing body of literature on China's rising global influence, summarizing how China affects countries' UN voting behavior through its foreign aid, trade, debt policies and diplomatic strategies.

Morgenthau (198) defined political alignment as “a community of interests necessary for common policies and actions.” Snyder (6) described it as “the expectations of states as to whether they will be supported by other states in future interactions.” Ward (393) defined political alignment as “a broader phenomenon extending beyond security commitments.”

Poole and Rosenthal's (5) analysis of voting patterns in the U.S. Congress laid the foundation of modern voting alignment analysis. Votes cast in the UNGA are an important indicator of states' foreign policy preferences and their stances on international issues. In this context, numerous academic studies have used UNGA voting to analyze foreign policy similarities, levels of political alignment and the diplomatic influence of major powers. In particular, the ways in which economic and strategic factors-such as financial aid, trade and security relations-are reflected in voting behavior have been extensively examined in the international political economy literature (Bailey and Voeten 34).

The following table lists the main studies that investigate how foreign policy preferences are analyzed through UNGA voting patterns.

**Table 1**  
Studies on Voting Behavior in the UN General Assembly

| Author(s)                 | Research Question                                                         | Methodology                                                                         | Findings                                                                                                                                              |
|---------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Thacker (1999)            | Does political alignment with the U.S. affect IMF lending?                | Panel data analysis, UN votes                                                       | Political alignment with the U.S. increases the likelihood of receiving IMF loans.                                                                    |
| Alesina and Dollar (2000) | Why is foreign aid provided to certain countries?                         | Panel and regression analysis using democracy index, UN voting records and aid data | Foreign aid depends on strategic and political factors; democratic reforms are rewarded.                                                              |
| Reed et al. (2008)        | To what extent do UN votes reflect countries' foreign policy preferences? | Regression analysis using UN voting data, COW and MID datasets                      | Causes of war depend not only on power distribution but also on satisfaction with the status quo. Voting alignment is explained by bargaining theory. |
| Wolford (2014)            | What role do coalitions play in international conflicts?                  | Preference similarity analysis using UN voting data                                 | Foreign policy alignment is linked to coalition stability and conflict likelihood.                                                                    |
| Carter and Stone (2015)   | Do U.S. foreign aid allocations influence UN votes?                       | UN voting records, regime types and aid data                                        | Although democracies tend to vote against the U.S. more, they show higher overall alignment; aid distribution reflects voting patterns.               |
| Liao and McDowell (2016)  | Can RMB reserve currency preferences be explained solely by economics?    | Analysis of RMB reserve adoption and UN voting distance (2010–2014)                 | RMB preference carries a diplomatic message signaling political alignment.                                                                            |

|                        |                                                                                                          |                                                                                 |                                                                                                                                  |
|------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Girod and Tobin (2016) | How does political alignment affect responses to aid conditionality violations?                          | World Bank and UN voting data (1964–2010)                                       | Strategically important countries are not penalized despite violations, while others show high alignment.                        |
| Davis and Wilf (2017)  | What factors affect GATT/WTO membership?                                                                 | Regression analysis with UN voting alignment, democracy and economic indicators | Countries with high UN voting alignment and democratic regimes have a higher likelihood of membership.                           |
| Davydov (2023)         | Do countries receiving U.S. aid behave more aligned in the UN?                                           | UN voting and aid data (1996–2021, 58 countries)                                | Countries receiving U.S. aid exhibit higher voting alignment compared to others.                                                 |
| Çalık Topuz (2023)     | What are the political closeness of Tajikistan, Kyrgyzstan and Turkmenistan to China, Russia and the US? | UN Voting Alignment                                                             | The countries are positioned closer to China and Russia. Political closeness to China has increased, especially since the 2000s. |

In the literature, it is generally observed that U.S. aid and trade tend to lead other UN member states to support the U.S. positions in the UN General Assembly. On the other hand, recent research shows that China’s growing share in the global market has fostered foreign policy alignment among its trading partners. In this context, various studies examining China’s influence are summarized in the table below.

**Table 2**  
Studies Examining China's Influence

| Author(s)                      | Research Question                                                 | Methodology                                                    | Findings                                                                                               |
|--------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Dreher et al. (2011)           | Are new donors (non-DAC) different from traditional donors?       | PLAID, Probit/Tobit regression                                 | New donors also act strategically; no virtuous difference.                                             |
| Flores-Macías and Kreps (2013) | Does trade with China foster alignment in the UN?                 | 1992–2006, trade + UNGA votes                                  | Increased trade raises pro-China voting, especially on human rights issues.                            |
| Foot (2014)                    | How does the UN fit into China's global power strategy?           | Qualitative analysis, contributions and institutional strategy | China uses the UN as a field combining hard and soft power strategies.                                 |
| Strüver (2014)                 | How does diplomatic alignment with China emerge in South America? | 45 human rights votes, dyadic data                             | Alignment on human rights votes explained by ideological proximity.                                    |
| Dreher and Fuchs (2015)        | Is Chinese aid political or 'rogue' aid?                          | 1956–2006, aid types and UNGA votes                            | Political effects exist but not very different from Western donors; 'rogue aid' narrative exaggerated. |
| Wu et al. (2016)               | Does China's economic power influence UN voting?                  | UN votes and comparison of China-US positions                  | Countries with high economic ties to China are more likely to vote with China.                         |
| Strüver (2016)                 | What factors determine diplomatic alignment with China?           | UNGA votes, panel logistic regression                          | Regime similarity and aid/military ties with China increase alignment.                                 |

|                             |                                                            |                                                  |                                                                                                                               |
|-----------------------------|------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Kastner (2016)              | Does trade dependence generate support for China?          | Trade dependence and non-UN positions            | Support grows on economic issues but is ineffective on sensitive political issues.                                            |
| Brazys and Dukalskis (2017) | How does China affect diplomatic alignment?                | UNGA repeated resolutions, panel regression      | China's diplomatic and economic incentives normatively influence foreign policy positions.                                    |
| Broich (2017)               | Does Chinese development finance vary by political regime? | Pooled OLS, African data                         | Aid depends more on strategic and economic variables than regime type.                                                        |
| Pang and Shuai (2018)       | Does Chinese aid reduce U.S. influence in the UN?          | 2000–2012, panel analysis with UNGA data         | Chinese aid weakens U.S. influence on voting through three mechanisms.                                                        |
| Fuchs and Rudyak (2019)     | How can China's aid motivations be explained?              | AidData + UN voting alignment, panel analysis    | Political alignment, economic interest and humanitarian motives coexist, with emphasis on One-China policy.                   |
| Zeng (2019)                 | What is China's global political-economic strategy?        | Theoretical and case studies, multi-methodology  | China's economic activities conceptually analyzed in terms of political impact.                                               |
| Dreher et al. (2022)        | Do Chinese aid projects impact development and diplomacy?  | AidData, 2000–2017, 138 countries, 4500 projects | Projects contribute to growth but entail environmental risks; aid correlates with diplomatic proximity.                       |
| Raess et al. (2022)         | Does Chinese financing affect UNGA voting alignment?       | AidData (2000–2014), panel data analysis         | Democracies align with China more quickly, while no effect is observed in autocracies; Chinese aid influences foreign policy. |

## Research Expectations

Drawing on the literature on economic statecraft, this study expects that deeper economic and financial engagement with China—captured by trade flows (imports/exports), Chinese financial commitments and the number of projects—may be associated with higher voting alignment with China in the UNGA. However, the strength of this association is expected to vary across countries, reflecting the idea that economic ties do not translate automatically into diplomatic alignment.

Importantly, this study expects the political effect of China's economic engagement to depend on the recipient state's vulnerability and autonomy. Higher exposure to Chinese lending and asymmetric trade dependence may increase alignment by tightening constraints on policy choice, whereas greater institutional and economic autonomy—proxied by higher economic freedom—may weaken the leverage effect of external economic instruments. Accordingly, external debt to China and the Economic Freedom Index are included to assess whether economic dependence strengthens, and institutional autonomy dampens, the link between economic engagement and UNGA alignment.

## Methodology

The methodology section of this study first explains the variables used. Since the main research question focuses on analyzing the effect of China's economic and financial assistance on voting alignment, voting alignment is used as the dependent variable. The independent variables consist of import and export data, external debt to China, China's financial commitments, the number of projects under these commitments, and the economic freedom index. In the second stage, preliminary and empirical analyses were conducted and interpreted.

### Variables

**Voting alignment:** Voting alignment is used to explain the coordinated actions of states in the international arena for various reasons. In this regard, the common method is to examine states' joint voting behavior during supranational or international organization ballots. The UN General Assembly voting data used in this study were obtained from the UN Digital Library platform. The data were collected by systematically crawling the

web pages and analyzing the text contents of each resolution. A web scraper developed in Python 3.12.2 and built using the Selenium and BeautifulSoup libraries was employed. The collected data were then transformed into a dataframe using the pandas library and exported to an Excel file.

Financial commitments and number of projects: The literature shows that U.S. aid and loans, in particular, influence voting behavior in the UN General Assembly (Wu et al. 11). In this context, to examine the impact of project budgets and numbers on voting alignment within the sample, data were used from the *Georeferenced Global Chinese Development Finance Dataset, Version 3.0* of AidData, which contains project-based grant and loan agreements provided by China to the Turkestan countries (Goodman et al.).

Imports and Exports: Import and export data are important as they indicate a country's dependency relationship, particularly with major powers. Accordingly, the dataset *International Trade in Goods (by partner country) – IMTS (IMF)* was used to analyze trade in the context of this study.

External Debt to China: External debt is one of the strategic factors that directly affect a country's economic, political and diplomatic autonomy. Especially in developing countries, the size and structure of external debt can shape both domestic and foreign policy decisions. To examine whether such a relationship exists, data on the selected countries' external debt to China were obtained from the World Bank's (*International Debt Statistics, External Debt stocks, Total (DOD, Current US\$)*) dataset.

Economic Freedom Score: The final independent variable in the dataset is the Economic Freedom Index scores compiled by the Heritage Foundation. These scores are calculated as the overall average of property rights, government integrity, judicial effectiveness, tax burden, government spending, fiscal health, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom and financial freedom indicators. The Economic Freedom Index is included as a proxy for domestic institutional and economic autonomy, capturing differences in market openness, regulatory environments, and state intervention. Its inclusion allows the analysis to assess whether domestic institutional contexts condition the political effects of external economic engagement. At the same time, the index has limitations, as it aggregates diverse institutional dimensions into

a single score and may not fully capture informal political constraints or regime-specific dynamics. Accordingly, it is used as an indicative rather than exhaustive measure of domestic institutional conditions.

## Preliminary Analyses

**Voting Alignment Analysis:** Voting alignment is calculated by comparing the votes of two countries over a specified time period. If both countries cast the same vote, they are considered aligned; if they vote differently, they are considered not aligned. This approach has been referred to in the literature under various names, such as *Observed Agreement* (Krippendorff 250), *Proportion of Observed Agreement* (Cohen 40), *Simple Agreement Rate* (Neuendorf 149), *Voting Alignment* (Voeten 187) and *Dyadic Voting Similarity* (Bailey et al. 437). Although the terminology differs, all measures are fundamentally based on calculating the proportion of identical votes between two countries. This study follows the formulation defined by Neuendorf (149). Voting alignment is calculated as the proportion of identical votes cast by a country and China in the UNGA. Abstentions are treated as a distinct voting category and are counted as aligned only when both parties abstain. Votes in which either country is absent are excluded from the denominator, ensuring that the alignment score reflects only comparable voting behavior. Accordingly, the UNGA voting data-one of the study's key variables-includes 'yes', 'no' and 'abstain' categories.

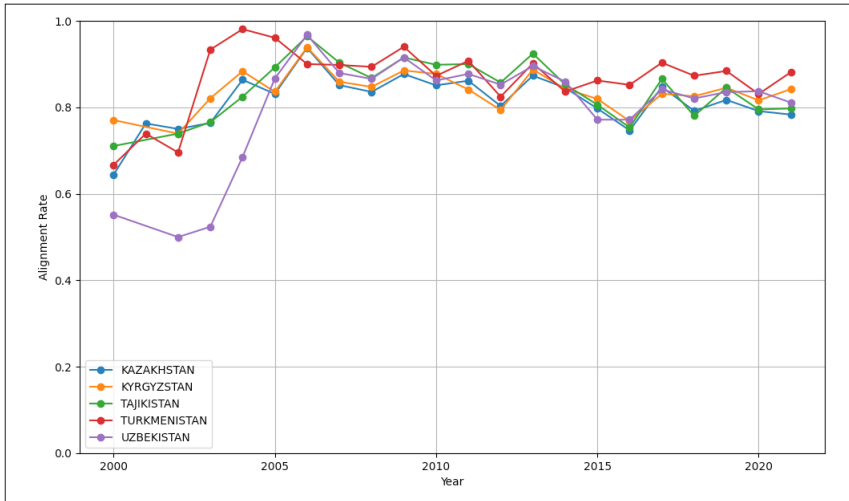
For the calculation and visualization of the voting alignment score, the *pandas* and *matplotlib* libraries in Python version 3.12.2 were used.

### *Voting Alignment Score*

$$= \frac{\text{Number of votes where the country voted the same as China/}}{\text{Total number of votes where both countries cast a vote}}$$

### **Formula 1.** Voting Alignment Score

A total of 2,559 UNGA resolutions between 1992 and 2024-where at least one of the relevant states cast a vote-were collected. Alignment scores were calculated for each year. However, due to the temporal limitations of the available independent variable data, only the annual alignment scores for the years 2000-2021 were calculated and included in the dataset.



**Figure 1.** Results of the Analysis of Countries' Voting Alignment with China by Year (Source: Created by the authors using data from the UN Digital Library).

An examination of the figure shows that the voting behavior of the Turkestan states in the UN General Assembly is largely aligned with China. The overall average alignment is around 80%. Increasing alignment indicates closer political relations and strengthened foreign policy coordination. The initial levels of alignment vary across countries. In particular, Uzbekistan and Turkmenistan had relatively low voting alignment in the early 2000s. In contrast, Kyrgyzstan, Kazakhstan and Tajikistan started from a higher level of alignment. In 2005, a marked increase in voting alignment is observed for all countries except Turkmenistan.

**Table 3**  
Comparative Assessment of Countries

| Country      | Initial Alignment | Highest Alignment | Trend                       |
|--------------|-------------------|-------------------|-----------------------------|
| Kazakhstan   | Low               | 90%+              | Steady and high             |
| Kyrgyzstan   | Relatively high   | 90%               | Stable                      |
| Tajikistan   | Moderate          | 95%               | Fastest increase            |
| Turkmenistan | Low               | 90%               | Sharp rise then stable      |
| Uzbekistan   | Lowest initial    | 90%               | Steep increase, then stable |

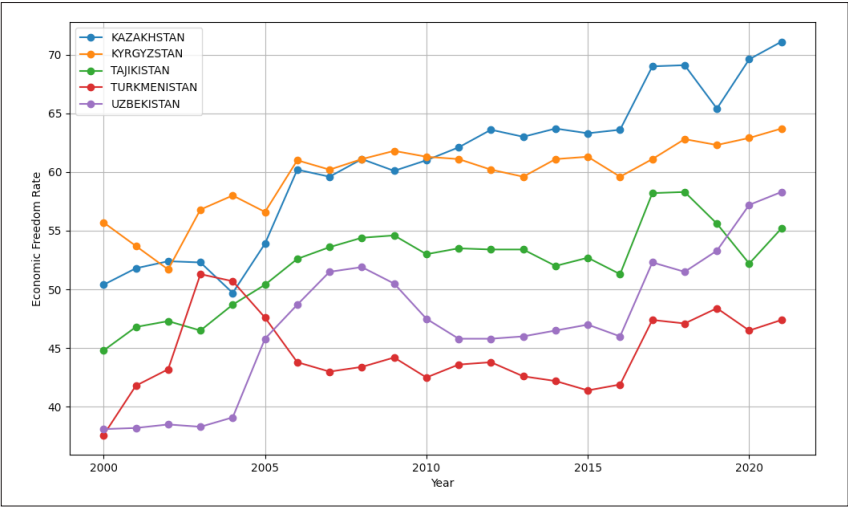
Between 2006 and 2015, all five countries maintained voting alignment with China in the range of 85-90%. The long-term persistence of high alignment suggests the possibility of a structural foreign policy alignment. After 2015, a temporary decline in voting alignment was observed for Kyrgyzstan and Uzbekistan. This coincides with the period when China's policies in the Xinjiang Autonomous Region became widely known internationally and faced criticism. However, this decline was limited and the following year alignment levels rose again, returning to the general trend.

Financial Commitments and Economic Freedom Index: In international relations, economic instruments are not limited to trade alone. External debt, credit and grant programs are strategic tools frequently used by major powers to increase their influence over smaller or developing countries. Since the early 2000s, China has actively employed these tools in Central Asia, Africa and Southeast Asia to advance its foreign policy objectives (Dreher and Fuchs 989). The Heritage Foundation's *Economic Freedom Index*, on the other hand, reflects factors such as the level of state intervention in the economy, the security of property rights and the institutional quality of the market economy (Hall and Lawson 1). Accordingly, in order to test how external economic ties with China influence political orientations, it is important to control for the institutional environment of the countries. Therefore, the economic freedom score serves as a meaningful indicator in this study to assess the impact of domestic factors.

**Table 4**  
Loans and Grants Received by Countries by Period (2000-2021)

| Country      | 2000–2004       |                  | 2005–2009       |                  | 2010–2014       |                  | 2015–2019       |                  | 2020–2021       |                  |
|--------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|
|              | No. of Projects | Commitment Value | No. of Projects | Commitment Value | No. of Projects | Commitment Value | No. of Projects | Commitment Value | No. of Projects | Commitment Value |
| Kyrgyzstan   | 14              | 76.4 million     | 22              | 931.6 million    | 30              | 2.2 billion      | 22              | 812.8 million    | 37              | 97.9 million     |
| Turkmenistan | 12              | 82.1 million     | 17              | 7.1 billion      | 3               | 5.1 billion      | 11              | 1.6 million      | 5               | 0                |
| Uzbekistan   | 14              | 240.5 million    | 38              | 6.6 billion      | 47              | 5.3 billion      | 47              | 4.6 billion      | 20              | 1.5 billion      |
| Tajikistan   | 13              | 48.7 million     | 22              | 1.7 billion      | 40              | 2.1 billion      | 54              | 1.5 billion      | 23              | 861.3 million    |
| Kazakhstan   | 10              | 438.7 million    | 37              | 31.4 billion     | 37              | 17.1 billion     | 50              | 13.7 billion     | 21              | 1.6 billion      |

**Source:** Created by the authors using data from AidData.



**Figure 2.** Economic Freedom Index of Countries (by Year)  
(Source: Created by the authors using data from the Heritage *Economic Freedom Index*).

The table above presents the amounts of grants and loans received by countries from China, grouped by year clusters, while the figure shows the Economic Freedom Index scores between 2000 and 2021.

In general, it can be observed that the index scores, which remained low in the early 2000s, began to show an upward trend after 2005. However, this increase did not occur simultaneously or at similar levels across all countries. Domestic political structures, relations with China, Russian influence and reform processes shaped these differences. During this period, the amount of loans and grants provided by China remained relatively low. After 2005, however, the noticeable rise in China's energy and credit investments appears to have contributed to a steady increase in the Economic Freedom Index scores in countries implementing economic and political reforms. In contrast, in more authoritarian regimes, such as Turkmenistan, this effect remained limited.

At the country level, Kazakhstan's Economic Freedom Index score was around 50 in the early 2000s and rose to over 70 by the end of 2021. Among the countries examined, Kazakhstan can be described as having the most stable upward trajectory. In particular, the increase in energy revenues along with Chinese investments during 2006-2008 enabled the country to experience rapid growth (Zhang). The effects of reforms initiated after 2010 became evident after 2015 (Dreher et al., *Banking on* 226). The trend of Kazakhstan's grant and loan amounts received from China closely parallels its Economic Freedom Index score. This suggests that the financial support received also contributed to structural economic transformation.

When examining the figure for Kyrgyzstan, a decline is observed between 2000 and 2005. Nevertheless, a more stable increase appears after 2015, which may be attributed to economic investments and grants received from China. However, this seems to have had only a limited effect on liberal economic reforms. Despite a decline in financial support, the Economic Freedom Index remained flat, indicating that the aid and loans did not lead to structural economic transformation.

In Tajikistan, a slow but steady increase is observed after 2003, maintaining a level close to 55% until 2016. Although Tajikistan benefited from Chinese loans for infrastructure development during this period, no significant

increase in the Economic Freedom Index was recorded. Moreover, the utilization of these financial supports followed a flat trajectory. This could be due to the political climate of repression and the slow pace of structural reforms.

Turkmenistan, on the other hand, initially had the lowest Economic Freedom Index score among the countries. Although the index showed an upward trend before 2004, it experienced a notable decline after 2005 and then remained flat. This trend appears to align with the increase in financial support received from China. However, despite the intensive financial support, no structural transformation similar to Kazakhstan occurred (Rudyak 695). In other words, although Turkmenistan maintained strong financial ties with China, these did not translate into structural reforms. This may stem from its closed economic structure and authoritarian governance approach.

When examining the trends for Uzbekistan in the figure, a noticeable-albeit not permanent-reform process is observed after 2004. Indeed, a more distinct reform process in economic freedom is evident after 2016 (Tsereteli). The reform trend after 2016 stems from changes in leadership and governance approaches. Changes in economic freedom closely mirror the trends in loan amounts received from China. Accordingly, it can be argued that financial support from China contributed to Uzbekistan's liberalization under Mirziyoyev's leadership, through developments such as market liberalization, investment incentives and customs reforms.

Imports, Exports and External Debt: Import and export data are significant economic determinants of a country's voting behavior on international platforms such as the UNGA, as they reflect a country's position in the international system and particularly its dependency relationships with major powers (Flores-Macías and Kreps 366). A country that is highly dependent on another for foreign trade may tend to align more closely with that country's political positions. This, combined with foreign aid, investments and debt relations, manifests itself as voting alignment in multilateral platforms such as the UN (Kastner 989).

Since the 2000s, the Turkestan states have experienced significant changes in their foreign trade structures and public borrowing, driven by China's

growing economic influence. The analysis presented below examines these countries' trade balances with China and their total external debt to China as of 2021, offering an assessment of their potential political susceptibility.

**Table 5**  
Countries' Trade Relations with China

| Country      | Average Exports<br>(USD million) | Average Imports<br>(USD million) | Average Trade Balance<br>(USD million) | Total Debt in 2021 (USD)<br>(2020 for Tajikistan) |
|--------------|----------------------------------|----------------------------------|----------------------------------------|---------------------------------------------------|
| Kazakhstan   | 6,423.31                         | 3,573.84                         | 2,849.47                               | 13,587,990.1                                      |
| Kyrgyzstan   | 45.3                             | 806.11                           | -760.81                                | 155,366,371                                       |
| Tajikistan   | 56.43                            | 420.28                           | -363.86                                | 810,103,611                                       |
| Turkmenistan | 3,459.58                         | 522.88                           | 2,936.7                                | 1,187,398,391                                     |
| Uzbekistan   | 2,038.09                         | 2,797.63                         | -759.53                                | 2,011,828,324                                     |

Source: World Bank, International Dept Statistics and AidData's Global Chinese Development Finance Dataset, Version 3.0.

Kazakhstan has the highest average exports to China, at approximately \$6.4 billion. Its average imports stand at about \$3.57 billion, resulting in an average trade surplus of around \$2.85 billion. Despite this economic advantage, Kazakhstan's total debt to China in 2021 was only \$13.6 million, indicating that Kazakhstan maintains relative economic autonomy in its relationship with China.

Kyrgyzstan appears highly dependent on China in terms of foreign trade. Its average exports amount to just \$45 million, while its average imports are about \$806 million, leading to a trade deficit of approximately \$761 million. Moreover, its debt to China stood at \$155.4 million in 2021. Frequent changes in government have made Kyrgyzstan politically fragile and open to foreign aid and investment (Hale 273).

Tajikistan's economic vulnerability is directly reflected in its relationship with China (Laruelle 18). Average exports are about \$56.4 million, while imports average \$420.3 million, resulting in a trade deficit of nearly \$364 million. Most notably, its total debt to China reached as high as \$810 million by 2020. China's influence in Tajikistan extends beyond economics into military and political domains, through border security and infrastructure control (Lemon and Norov).

Turkmenistan is one of the countries that maintains a trade surplus with China, with average exports of \$3.46 billion and imports of \$523 million. Nevertheless, its debt to China in 2021 was still a substantial \$1.19 billion. This apparent contradiction reflects the impact of infrastructure loans taken from China, backed by Turkmenistan's energy revenues. Natural gas pipeline agreements and infrastructure projects with China suggest a debt-repayment model tied to energy exports, despite the trade surplus (Bräutigam and Gallagher 350).

Uzbekistan, on the other hand, maintains a relatively balanced trade relationship with China. Its average exports are about \$2.04 billion and average imports are approximately \$2.80 billion, resulting in a trade deficit of around \$760 million. Beyond this deficit, the most striking point is that Uzbekistan's total debt to China reached \$2 billion by 2021 – the highest among the countries in the region. Following the economic reforms implemented after 2016, Chinese financing has been used primarily for infrastructure and transportation investments (Muratalieva).

### **Empirical Tests**

Shapiro-Wilk Test: Test was performed using JASP. The descriptive statistics of the variables used in the study are presented in the table below. The test results clearly shows that the data do not follow a normal distribution.

**Table 6**  
Descriptive Statistics

|                                         | Financial<br>Commitments | Number of<br>Projects | Export   | Import   | Alignment | Economic<br>Freedom | Total Debt |
|-----------------------------------------|--------------------------|-----------------------|----------|----------|-----------|---------------------|------------|
| <b>Missing</b>                          | 0                        | 0                     | 0        | 0        | 3         | 0                   | 18         |
| <b>Mean</b>                             | 827.294                  | 5.873                 | 2404.028 | 1620.327 | 0.832     | 52.885              | 1.043x10+9 |
| <b>Std.<br/>Deviation</b>               | 1986.468                 | 4.961                 | 3549.521 | 1908.112 | 0.083     | 7.981               | 1.452x10+9 |
| <b>Shapiro-<br/>Wilk</b>                | 0.453                    | 0.871                 | 0.718    | 0.774    | 0.893     | 0.977               | 0.687      |
| <b>P-value of<br/>Shapiro-<br/>Wilk</b> | <.001                    | <.001                 | <.001    | <.001    | <.001     | 0.049               | <.001      |

Although the dataset of this study has a panel data structure (country x year), the effects of the independent variables on voting alignment were found to be insignificant in parametric panel regression models (Fixed Effects, Random Effects and Beta Regression) and violations of model assumptions were also observed. Therefore, a non-parametric, outlier-resistant method, namely the Theil-Sen regression, was preferred.

**Theil-Sen Regression Analysis:** This method was originally proposed as an estimator of the slope parameter in a simple linear model, defined as the median of all pairwise slopes (Theil). Sen (1985) later extended this estimator to account for ties. TSE has a breakdown point of 29.3%, a bounded influence function and high asymptotic efficiency, making it quite effective compared to other slope estimators (Dang et al. 1-2). Accordingly, the estimator model is defined as follows:

For all  $i < j$ , the Theil-Sen estimator is:

$$\beta_{ij} = \frac{y_j - y_i}{x_j - x_i}$$

$$\widehat{\beta}_1 = \text{median}\left(\frac{y_j - y_i}{x_j - x_i}\right)$$

$$\widehat{\beta}_0 = \text{median}(y_i - \widehat{\beta}_1 x_i)$$

$$y_i = \widehat{\beta}_0 + \widehat{\beta}_1 x_i + \varepsilon_i$$

...is calculated as follows (Sen 1386). Accordingly, the general equation of the study is:

*Vote Alignment*<sub>it</sub>

$$\begin{aligned} &= \widehat{\beta}_0 + \widehat{\beta}_1 \text{Financial Commitments}_{it} + \widehat{\beta}_2 \text{Number of Projects}_{it} \\ &+ \widehat{\beta}_3 \text{Imports}_{it} + \widehat{\beta}_4 \text{Exports}_{it} + \widehat{\beta}_5 \text{Economic Freedom}_{it} + \widehat{\beta}_6 \text{Total Debt}_{it} \\ &+ \varepsilon_{it} \end{aligned}$$

$$\begin{aligned} i &= \text{Country}, t = \text{Year (2000 –} \\ &2021) \text{ and } \varepsilon_{it} = \text{error term} \end{aligned}$$

can be expressed as follows.

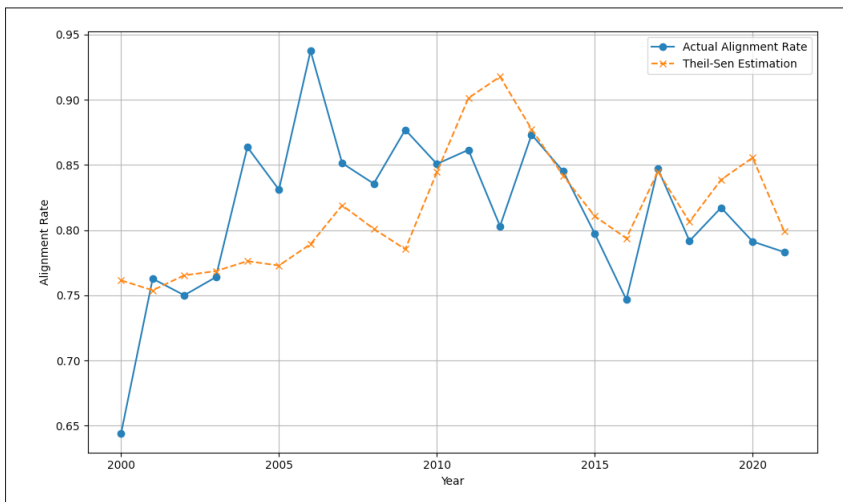
**Results of the Empirical Tests**

The analyses were conducted using Python version 3.12.2. The *pandas* and *sklearn.metrics* libraries and *TheilSenRegressor* were used. Independent tests were applied and interpreted separately for each country.

**Table 7**  
Theil-Sen Regression Results for Kazakhstan

| Variable              | Coefficient |
|-----------------------|-------------|
| Financial Commitments | -0.000003   |
| Number of Projects    | 0.003358    |
| Imports               | 0.000001    |

|                        |           |
|------------------------|-----------|
| Exports                | 0.000008  |
| Economic Freedom Index | -0.000590 |
| Total Debt             | 0.000000  |
| Intercept              | 0.778934  |
| $R^2$                  | -0.0268   |

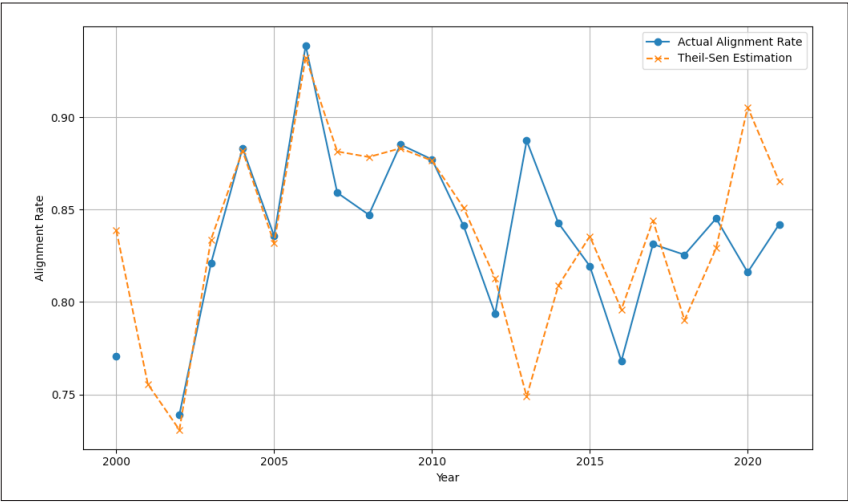


**Figure 3.** Theil-Sen Estimation vs. Actual Voting Alignment in Kazakhstan

$R^2$  value for Kazakhstan indicates that the model fails to explain the variance in the voting alignment rate. Graphical analysis shows that while the estimated trend line partially reflects general tendencies, it is inadequate in capturing the sudden spikes and drops observed in the empirical data. In particular, sharp fluctuations such as the sudden increase to 94% in 2006 and the decline in 2015 are not captured by the model. This suggests that economic variables alone are not the sole determinants of Kazakhstan's voting behavior. While the model's prediction line remains relatively flat during these years, the actual voting alignment rate exhibits abrupt breaks. Although the model partially reflects medium – and long-term trends, it fails to predict sudden changes.

**Table 8**  
Theil-Sen Regression Results for Kyrgyzstan

| Variable               | Coefficient |
|------------------------|-------------|
| Financial Commitments  | -0.000003   |
| Number of Projects     | -0.001044   |
| Imports                | -0.000125   |
| Exports                | 0.001137    |
| Economic Freedom Index | 0.024729    |
| Total Debt             | 0.000000    |
| Intercept              | -0.584035   |
| R <sup>2</sup>         | 0.7538      |



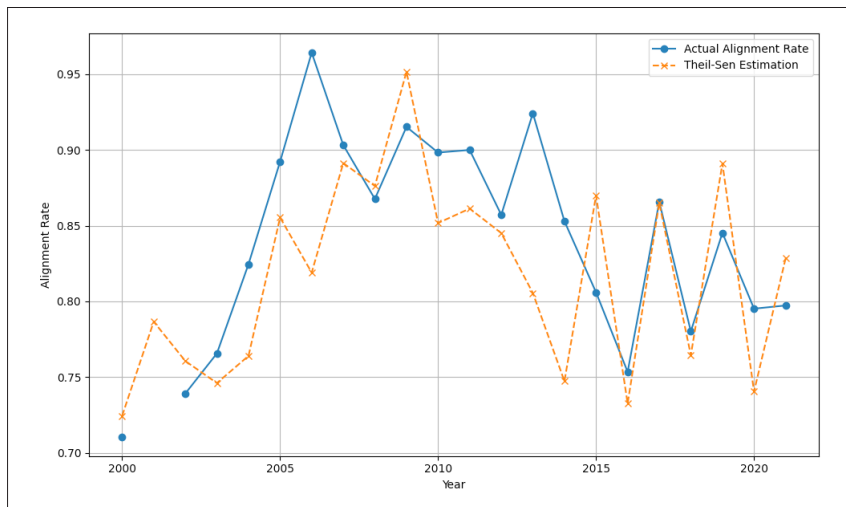
**Figure 4.** Theil-Sen Estimation vs. Actual Voting Alignment in Kyrgyzstan

R<sup>2</sup> value for Kyrgyzstan indicates that the independent variables significantly capture the effect on voting alignment. The model’s estimated trend line closely follows the actual voting alignment series. In particular, the trends during 2003–2010, both upward and stable phases, are reflected quite successfully. The model’s high explanatory power suggests that economic

dependency and trade relations play a decisive role in Kyrgyzstan's external relations with China. Although overall alignment remains high, discrepancies between the model's predictions and actual values are observed in some years between 2014 and 2017. This may indicate the influence of external factors, such as domestic political turmoil during that period.

**Table 9**  
Theil-Sen Regression Results for Tajikistan

| Variable               | Coefficient |
|------------------------|-------------|
| Financial Commitments  | 0.000003    |
| Number of Projects     | -0.011900   |
| Imports                | -0.000011   |
| Exports                | 0.000252    |
| Economic Freedom Index | 0.019072    |
| Total Debt             | 0.000000    |
| Intercept              | -0.106255   |
| $R^2$                  | -0.2260     |

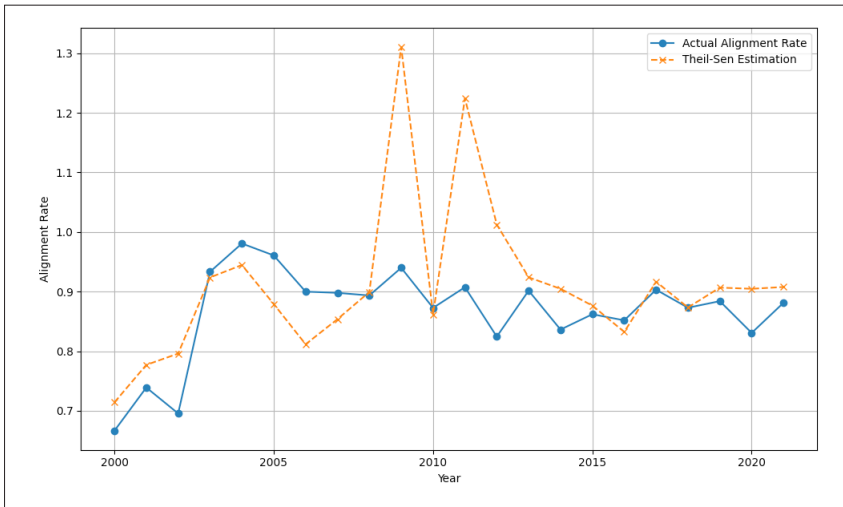


**Figure 5.** Theil-Sen Estimation vs. Actual Voting Alignment in Tajikistan

R<sup>2</sup> value for Tajikistan indicates that the independent variables fail to explain the variance in voting alignment and even suggest a poor fit. The graph illustrates that the model struggles to capture the actual pattern of voting behavior. While the actual alignment shows noticeable fluctuations and periods of recovery, the model's predicted line diverges significantly and fails to follow the key dynamics, particularly after 2010. This suggests that the regression model is insufficient to account for the structural, political and contextual factors influencing Tajikistan's voting alignment. The inability to explain even the general trend implies that factors beyond economic ties—such as security cooperation with Russia, internal political considerations and sensitivities around issues like Xinjiang—likely played a more decisive role. While economic relations are an important dimension of China's influence, the negative R<sup>2</sup> and weak coefficients underline that for Tajikistan, economic dependence alone does not sufficiently determine foreign policy behavior, especially in the face of competing alliances and domestic volatility. This highlights the limitations of economic instruments in shaping political alignment in contexts where geopolitical and security concerns are dominant.

**Table 10**  
Theil-Sen Regression Results for Turkmenistan

| Variable               | Coefficient |
|------------------------|-------------|
| Financial Commitments  | 0.000065    |
| Number of Projects     | -0.007897   |
| Imports                | 0.000104    |
| Exports                | -0.000000   |
| Economic Freedom Index | 0.015968    |
| Total Debt             | 0.000000    |
| Intercept              | 0.125776    |
| R <sup>2</sup>         | -0.4354     |



**Figure 6.** Theil-Sen Estimation vs. Actual Voting Alignment in Turkmenistan

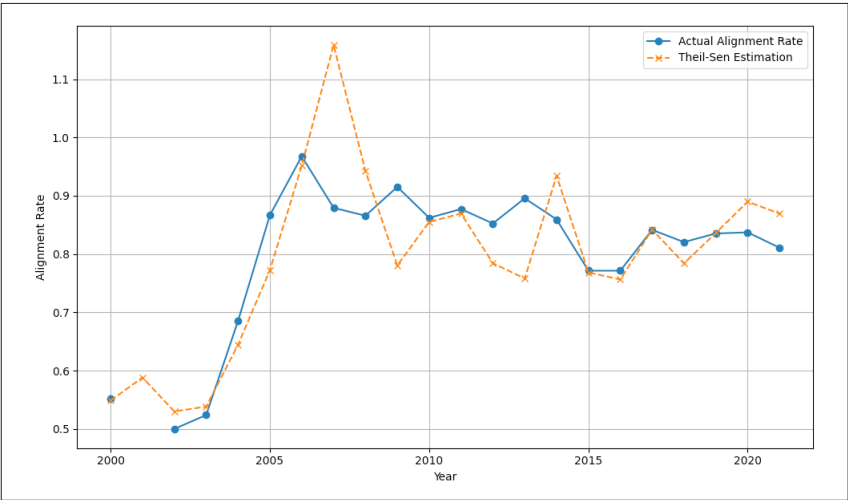
$R^2$  value for Turkmenistan indicates that the model failed to explain the variance in the data. The graph clearly illustrates this weak fit: the predicted line shows a tendency to overestimate, particularly between 2009 and 2011, producing inconsistent and unrealistic values. This suggests that, despite its robust nature, the model was distorted by extreme values in the data structure. In this context, Turkmenistan’s voting alignment with China in the UN may be better explained by factors such as strategic balancing, its policy of neutrality and its fear of international isolation.

**Table 11**

Theil-Sen Regression Results for Uzbekistan

| Variable               | Coefficient |
|------------------------|-------------|
| Financial Commitments  | -0.000030   |
| Number of Projects     | 0.010138    |
| Imports                | 0.000001    |
| Exports                | 0.000122    |
| Economic Freedom Index | 0.011207    |

|                |           |
|----------------|-----------|
| Total Debt     | 0.000000  |
| Intercept      | -0.040688 |
| R <sup>2</sup> | 0.5275    |



**Figure 7.** Theil-Sen Estimation vs. Actual Voting Alignment in Uzbekistan

R<sup>2</sup> value for Uzbekistan, indicates that the model was able to explain approximately 53% of the variance in voting alignment. The graph shows that the model’s predicted line largely reflects the trends observed, particularly during the 2004–2014 period. However, the model’s estimates tended to overshoot actual voting alignment in 2006–2007 and occasional deviations occurred after 2015, suggesting that the model has limited sensitivity to structural breaks. Nevertheless, compared to the other cases in this study, the prediction line shows a relatively consistent ability to track general trends and fluctuations. The model’s limited explanatory power underscores that political behavior cannot be explained solely by economic rationality and highlights the need for more comprehensive foreign policy analyses.

**Assessment of the Analysis Results**

This study examined the impact of China’s economic relations with the Turkestan states on their voting behavior in the UNGA. The analysis results

reveal that the countries are affected by these economic relations at different levels. The research, conducted using non-parametric regression techniques (Theil-Sen estimator), provides empirical insights into the mechanisms through which economic relations with China translate into political alignment.

**Table 12**  
Assessment Table

| Country      | R <sup>2</sup> | Model Strength | Prediction Consistency                                       | Political Interpretation                                                                             |
|--------------|----------------|----------------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Kazakhstan   | -0.0268        | Weak           | General trend poorly reflected; sudden fluctuations missed   | Economic variables insufficient; foreign policy shaped by other factors                              |
| Kyrgyzstan   | 0.7538         | Strong         | High overlap with actual data                                | Economic dependence decisive; high synchronization with China                                        |
| Tajikistan   | -0.2260        | Weak           | Model fails to capture alignment pattern                     | Economic factors insufficient; likely influenced by Russia, internal politics and issue-based voting |
| Turkmenistan | -0.4354        | Very Weak      | Prediction line unrealistic and unstable; very low alignment | Neutrality and closed regime overshadow economic influence                                           |
| Uzbekistan   | 0.5275         | Moderate       | General trend good; strong alignment during 2004-2014        | Economic relations effective; multi-vector foreign policy occasionally causes deviation              |

As summarized in the table above, the economic relations of Kyrgyzstan and Uzbekistan with China have a noticeable impact on their voting behavior. In contrast, the effects in Kazakhstan, Tajikistan and Turkmenistan are very weak or insignificant. Negative  $R^2$  values are observed in the Theil–Sen regression results for Kazakhstan, Tajikistan and Turkmenistan. In the case of Kazakhstan, the  $R^2$  value is close to zero, indicating that the model offers virtually no improvement over a mean-based benchmark. By contrast, the substantially negative  $R^2$  values for Tajikistan and Turkmenistan indicate a pronounced lack of explanatory power, suggesting that economic variables play a very limited role in shaping voting alignment in these cases. Rather than reflecting a statistical anomaly, these results point to the predominance of non-economic factors, such as regime characteristics, security considerations and strategic foreign policy choices. Overall, it can be stated that the Economic Freedom Index, export volume and number of projects tend to have a positive effect on voting alignment. However, the results vary from country to country, indicating that in some cases the political context outweighs economic dependence. The explanatory power of the model and the effects of the independent variables were evaluated separately for each country and these differences were interpreted in conjunction with the countries' political structures and foreign policy choices.

In the case of Kazakhstan, the model's  $R^2$  value is nearly zero. This suggests that economic variables do not have a significant effect on Kazakhstan's voting alignment with China. The model's poor predictive power indicates that not only economic interests but also political and geopolitical factors play an important role in Kazakhstan's relations with China. Kazakhstan's foreign policy is influenced by its alliance with Russia, regional security concerns and leadership transitions — all of which can be considered explanatory factors affecting its voting alignment with China. Indeed, the decline observed after 2015 may be related to Kazakhstan's need to position itself against China's increasing assertiveness in controversial issues such as the South China Sea or differing stances on other global issues on the UN agenda.

For Kyrgyzstan, the model is quite strong and the effect of economic variables on voting alignment is clearly observable. The high explanatory power of the model suggests that economic dependence and trade relations play a

decisive role in Kyrgyzstan's foreign relations with China. Moreover, the fact that the level of external debt appears to be a more sensitive variable for Kyrgyzstan indicates that loans received from China may have influenced its voting behavior. Indeed, the economic freedom scores and foreign trade values appear to contribute significantly to the model. Although overall alignment is high, discrepancies between the model's predictions and actual values are observed in some years between 2014 and 2017. This suggests that external factors, such as domestic political turmoil during that period, may have come into play.

In the case of Tajikistan, the model's explanatory power is weak, indicating that the independent variables fail to explain the variance in voting alignment. The Theil-Sen predicted line diverges considerably from the actual alignment, suggesting that China's economic instruments have limited effectiveness in shaping Tajikistan's voting behavior. Moreover, the model fails to capture the overall trend and the fluctuations observed in the period between 2016 and 2020. These deviations are likely due to factors beyond economic ties, such as Tajikistan's security cooperation with Russia, domestic political dynamics and voting on sensitive issues on the UN agenda that could negatively affect China's international image. This underscores the limited role of economic dependence in determining Tajikistan's foreign policy alignment in contexts where geopolitical and internal political factors are prominent.

For Turkmenistan, the obtained  $R^2$  value is very low. The model fails to establish any meaningful relationship between voting alignment and the economic variables. This suggests that Turkmenistan, with its closed and authoritarian regime, follows a more isolated and independent line in foreign policy. Despite strong economic ties with China, these relations do not appear to translate into voting behavior. The model's poor performance may be due to Turkmenistan's closed economic structure, limited openness, the lack of transparent economic data, or the tendency to exaggerate relations with China in official discourse – all of which may distort the regression model.

For Uzbekistan, the model performs relatively strong. The number of projects, the Economic Freedom Index and imports have a positive effect, whereas project budgets have a negative effect. This finding suggests that

Uzbekistan is undergoing a structural reform process and that its economic relations with China directly influence its foreign policy preferences. The negative effect of large-budget projects may be interpreted as stemming from debt burdens or perceptions of dependency. The model's moderate ability to explain voting alignment behavior through economic variables points to the political alignment effects of China's economic engagement policies. However, the deviations observed in certain years indicate that voting behavior is shaped not only by economic interests but also by domestic regime consolidation processes, regional security concerns and multi-vector foreign policy strategies.

The analysis results indicate that China's influence over the Turkestan states cannot be fully explained by economic variables alone. While trade and debt relations provide some leverage for China, particularly in more dependent economies like Tajikistan and Kyrgyzstan, the regression results show weak and inconsistent explanatory power of economic factors across the region. In Tajikistan, despite high debt levels and economic ties to China, the model performs poorly, suggesting that geopolitical and domestic political factors overshadow economic dependence. Similarly, in Turkmenistan, economic dependence does not translate into political alignment, likely due to its politically closed and strategically isolated stance.

Although variables such as export volume, project frequency and economic freedom show weak positive associations with voting alignment in some countries like Uzbekistan and Kyrgyzstan, these relationships are neither strong nor uniform. Kazakhstan, despite maintaining a significant trade surplus with China, shows minimal correlation between economic indicators and voting behavior, reflecting a more autonomous foreign policy. Overall, the findings highlight that while economic dependence may contribute to China's soft power in the region, it is not a sufficient determinant of voting alignment, as strategic, domestic and geopolitical considerations play a decisive role.

Although the literature often expects external debt to influence political behavior through dependence, the empirical analyses here reveal that China's total debt stock does not have significant explanatory power over voting outcomes. This suggests that in shaping foreign policy alignment, the

nature and quality of economic relations may matter more than the sheer magnitude of debt.

Finally, a domestic political variable – the Economic Freedom Index – was included in the analysis. The results indicate that countries undergoing structural reforms appear more responsive to economic incentives in their foreign policy behavior, while more closed regimes remain more insulated from such effects.

## **Conclusion**

This study analyzes the impact of China's economic and financial relations with the Turkestan states on these countries' voting behavior in the UNGA. The empirical analyses based on the Theil-Sen estimator show that there are significant country-level differences between economic dependence and political alignment. The explanatory power of the model varies from one case to another and is closely related to domestic political regime structures, economic reform capacity and foreign policy orientations.

From a temporal perspective, a marked increase in political alignment with China was observed in the post-2005 period – when China's regional influence began to grow – and especially after the announcement of the BRI in 2013. However, this alignment did not develop to the same extent or in the same way across all countries. During this process, reform-oriented countries displayed a more receptive stance toward economic incentives, while such effects were not observed in closed and isolationist regimes. This finding indicates that the political consequences of economic interaction are shaped by country-specific contexts.

The findings reveal that in Kyrgyzstan and Uzbekistan, economic and financial relations with China significantly influenced voting behavior, whereas in Kazakhstan, Tajikistan and especially Turkmenistan, no clear relationship could be established between economic indicators and political behavior.

When considered within the broader literature, these results empirically enrich existing discussions on the relationship between economic ties and diplomatic alignment. While the literature generally points to a positive association between economic dependence and political alignment, the findings of this study indicate that this relationship does not operate

uniformly across countries and political settings. Accordingly, the analysis underscores the importance of incorporating domestic political and institutional factors when assessing the diplomatic implications of economic relations.

In conclusion, China's political influence in Turkestan is shaped not only through economic tools such as trade, investment and external debt but also through the domestic political context, institutional structures and geopolitical preferences within which these tools are deployed. This study empirically demonstrates that China's economic policies in Turkestan have a variable impact, depending both on the form of the economic relationship and on the recipient state's internal political context. The results suggest that economic incentives alone do not directly ensure political alignment and that strategic, institutional and ideological factors play a critical role in shaping state behavior in multilateral settings such as the UNGA. In this regard, the study contributes to the literature on international political economy and foreign policy alignment.

The main limitations of the study lie in not accounting for the substantive context of voting alignment and non-economic factors. Future research may deepen the analysis by incorporating qualitative aspects of voting behavior as well as cultural, security and political variables.

### **Author Contributions**

The authors' contribution rates in this study are equal.

### **Conflict of Interest Statement**

There is no conflict of interest with any institution or person within the scope of this study. There is no conflict of interest between the authors.

### **Note**

- 1 In this study, the term Turkestan is preferred over Central Asian states. In the literature, the concept of Central Asia, when used on its own, refers to a broad geographical–geopolitical category whose boundaries vary according to different definitions. Indeed, in UNESCO's regional classification, Central Asia encompasses not only Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, but also Afghanistan, Mongolia, Western China and parts of India, Pakistan and Iran. Since the sample of this study focuses not on this expansive definition but rather on states that are historically and geographically situated

within the Turkestan basin and that exhibit comparable patterns of economic and diplomatic engagement with China, the term Turkestan is employed as an analytical conceptualization.

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