



Bilateral Political Relations with the United States and the Shortening of Global Value Chains

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Abstract. Based on the bilateral political relationship index constructed from the voting data of the United Nations General Assembly, this paper systematically examines the impact of political relations with the United States on the length of global value chains (GVCs). The study finds that a distant political relationship between a country and the United States significantly curtails its participation in the length of GVC links, promoting the shortening of GVCs. This conclusion remains robust after addressing endogeneity issues using instrumental variable methods and PSM-DID. Mechanism analysis indicates that the distancing of political relations with the United States mainly leads to the shortening of value chains through two channels: trade structure and investment layout. Additionally, the research further reveals that under geopolitical pressure, enterprises often face a strategic trade-off between "chain length" and "chain resilience". The findings of this paper help clarify the mechanism by which bilateral political relations affect the global production system, providing theoretical and practical references for building more resilient and diversified regional industrial chains and responding to complex geopolitical environments.

Keywords: Global value chain restructuring, Shortening of chains, Value chain length, Bilateral political relations

1 Introduction

At present, the global value chain (GVC) is undergoing a profound structural transformation from "efficiency first" to "efficiency and security in equal measure". This shift, driven by the interplay of multiple forces such as geopolitical competition, technological iteration, and the demand for sustainable development, is manifesting as a complex trend of regionalization, shortening of chains, and digitalization. The "friend-shoring" and manufacturing reshoring policies promoted by the United States, along with China's efforts to build a "dual circulation" new development pattern in response to industrial chain risks, are jointly accelerating the adjustment of the global production network from a high reliance on global division of labor to a focus on regional agglomeration and resilient security. Against this backdrop, an in-depth exploration of the inter-

nal mechanisms and evolution paths of the shortening of global value chains is of critical theoretical and practical significance for grasping the evolution of the future global economic and trade landscape and promoting the resilience and security upgrade of China's industrial chains under high-level opening up.

This study offers two principal contributions.

First, in terms of theoretical contribution, this study extends the existing literature by shifting the analytical focus from macroeconomic or event-based analyses toward a micro-foundational understanding of how geopolitical frictions reshape global production networks. Rather than treating political relations as an exogenous background factor, it explicitly theorizes and empirically tests two underlying channels—trade structure and investment layout—through which bilateral political tensions affect value chain length. In doing so, it reveals a strategic trade-off that firms face between maintaining chain length and enhancing chain resilience under geopolitical pressure, thereby enriching the theoretical framework of global value chain restructuring from a managerial adaptation perspective.

Second, in terms of empirical and methodological contribution, this study introduces a novel and refined measurement strategy. It constructs a bilateral political relations index based on UN General Assembly voting data, capturing continuous, time-varying differences in political alignment between the United States and other countries. To address endogeneity concerns, the analysis employs both instrumental variable estimation using genetic distance and a PSM-DID approach, thereby strengthening causal inference. These methodological innovations enable more precise identification of the political determinants of global value chain configurations than was possible in previous studies relying primarily on cross-sectional or descriptive evidence.

2 Theoretical Mechanism and Research Hypotheses

Lun Rui et al.^[1] (2023) analyzed data and found that the average internationalization index of the world's top 100 multinational companies increased by 5 percentage points from 1990 to 1999, and rose by another 10 percentage points after 2000, but remained stagnant after 2010. From 2000 to 2010, the production length of global industry value chains generally increased, with the average production length from raw material input to final consumption extending from 7.9 to 8.5. However, from 2010 to 2019, the average production length of industries no longer grew and remained at 8.5.

The return of mercantilism in the United States and the European Union and the strengthening of anti-globalization policies have stimulated the politicization, weaponization, and "pan-securityization" of economic issues (Zhong Feiteng^[2], 2025), attempting to transform their value chain status advantages based on key industries into geo-strategic tools (Luo^[3], 2024), and promoting the "localization" or "friend-shoring" of key supply chains, which may prompt multinational enterprises to readjust their production layouts based on geopolitical relations (Bhaumik et al.^[4], 2025). However, multinational enterprises are important driving forces for the expansion of global value chains. Facing policy risks such as the weaponization of trade policies and technological nationalism in the United States, multinational enterprises not only care about the

pressure brought by policy uncertainty but also consider the costs of adjusting production layouts (Schindler & Rolf^[5], 2025). Therefore, there is a difference between the strategic demands of the United States and the interests of multinational enterprises, and this difference provides conditions for the stability of value chains in some industries affected by geopolitics (Linsi & Gristwood^[6], 2024). In buyer-driven GVCs, some leading enterprises may choose to strengthen vertical integration to reduce the risk of value chain loss of control. For example, in some strategic industries (such as renewable energy, semiconductors, pharmaceuticals, and automobiles), leading multinational enterprises will partially vertically integrate to bring core component production and key raw material supply under their own control rather than relying on multi-level outsourcing (Kano et al.^[7], 2022). This reflects that multinational enterprises, to avoid systemic risks such as increased export controls, tariffs or non-tariff barriers, SWIFT system cuts, and malicious judicial investigations due to geopolitical uncertainties in the long chain structure of multi-level outsourcing, reduce the number of external dependent links in the value chain through partial vertical integration, causing the contraction of the original international production links and thus leading to the shortening of the value chain length. Compared with the retreat of Western developed countries represented by the United States from the free trade stance, developing countries represented by China have continuously reaffirmed their commitment to openness and embrace of globalization to the world. The retaliatory tariffs imposed by China are merely passive countermeasures. Therefore, this paper believes that the shortening and reconfiguration of global value chains caused by the current geopolitical tensions are initiated by Western countries. At the same time, the United States holds a monopolistic position across multiple domains within the Western world. First, through its control over SWIFT—the dominant global cross-border payment system—the U.S. can sever value chain links with countries that have strained bilateral political relations. Following the 2022 Russia-Ukraine war, the U.S. and its allies excluded major Russian banks from SWIFT, disrupting Russia's energy and automotive value chains and forcing a shift from global to regional or domestic production structures. Second, leveraging its military hegemony, the U.S. enforces long-arm jurisdiction through mechanisms such as export controls and the Entity List, imposing high-end technology blockades on countries like China. This severed technology flows in global value chains, as exemplified by the U.S. ban on advanced chip sales to Huawei, which forced the company's supply chain to shorten from a globally integrated model to one relying on non-U.S. technology and regional assembly. Third, the U.S. utilizes its leadership in political, economic, and security alliances to coordinate allied actions on trade rules and supply chain reorganization. During the 2018 U.S.-China trade war, for instance, the U.S. not only imposed tariffs on Chinese goods but also pressured allies such as the EU, Japan, and Canada to adopt similar measures, prompting multinational enterprises to adopt vertical integration strategies to mitigate tariff compounding effects. Given its monopolistic control over global trade infrastructure, its military-backed long-arm jurisdiction, and its capacity for ally coordination, this paper argues that the current restructuring of global value chains is fundamentally driven by U.S. geopolitical strategy. Based on this, this paper proposes Hypothesis 1.

Hypothesis 1: The more distant the bilateral political relationship between a country and the United States, the more likely its value chain length will tend to shorten, and the country's GVC activities will be restructured towards shortening. From the perspective of the indirect transmission mechanism, the intensification of geopolitical risks caused by the bilateral political relations with the United States will affect the length of the value chain through two channels: trade structure and investment layout.

First, trade structure. On the one hand, the intensification of geopolitical risks may lead to the disruption of cross-border supply chains and logistics channels, thereby increasing the cost of cross-border trade and ultimately suppressing the import and export trade activities of the relevant countries and their surrounding regions (Liu et al.^[8], 2024). On the other hand, the rise in geopolitical risks will increase transaction costs and reduce investment returns, indirectly affecting export decisions and ultimately suppressing the import and export dependence of a country (Balcilar et al.^[9], 2018). The trade structure of a country directly affects the characteristics of the GVC. The shift from "disassembly, offshoring, and outsourcing" to "re-integration, onshoring, and insourcing" in the trade structure promotes the shortening of international production chains, manifesting as a significant contraction of the global value chain (Lun Rui, 2023). Based on this, Hypothesis 2 is proposed.

Hypothesis 2: The intensification of bilateral political relations with the United States will affect the length of the value chain through the trade structure channel.

Second, investment layout. The rise in geopolitical risks will increase trade and financial uncertainties, forcing investors to transfer capital to other low-risk regions, increasing net direct investment outflows, and thereby reducing the capital stock of the relevant economies (Bandyopadhyay et al.^[10], 2014). Multinational companies can significantly enhance a country's integration depth and complexity into the global value chain by applying advanced technologies in processing trade and leveraging the connection advantages of their global value chain networks (Luo Wei and Lyu Yue^[11], 2019). Therefore, an increase in net direct investment outflows will suppress the depth and complexity of the GVC, leading to a contraction in the length of the value chain. Based on this, Hypothesis 3 is proposed.

Hypothesis 3: The risk of bilateral political relations with the United States will affect the length of the value chain through the investment layout channel.

From the perspective of short-term equilibrium, when specific industrial sectors in a country exhibit high production location stickiness (i.e., facing institutional obstacles or sunk cost constraints in cross-border industrial transfer), the high resilience of the value chain will make enterprises tend to shorten the value chain through vertical integration to avoid the sharp increase in transaction costs caused by geopolitical risks. This reflects the substitution relationship between "transfer and reconstruction" and "vertical compression" in the global value chain reconstruction: the resilience of the value chain reflects the frictional costs faced by industrial transfer in the horizontal dimension, while the compression of the value chain length is the main path of vertical reconstruction.

From the perspective of long-term evolution, geopolitical shocks will trigger adaptive adjustments of "decoupling and reconstruction" in the value chain by enterprises. When the system resilience is insufficient to cope with the shock pressure, enterprises

will continuously take decoupling actions, promoting the evolution of the value chain structure towards shorter and more resilient directions until the system reaches a new resilience equilibrium (Zhen Zhen and Wang Fengbin^[12], 2022). In other words, as long as the shock has not ended and the structural evolution has not yet formed a higher level of system resilience capable of withstanding the shock, embedded enterprises will continuously perceive the crisis and implement responsive decoupling behaviors, continuously promoting the co-evolution of the "structure and resilience" of the global value chain. Given that the current retreat of globalization shows no sign of abating, the co-evolution relationship of "shortening and high resilience" of the global value chain is expected to continue to strengthen. Based on this, Hypothesis 4 is proposed.

Hypothesis 4: The resilience of the value chain has a positive moderating effect on the shortening and reconstruction of the value chain caused by the tension in bilateral political relations with the United States.

3 Research Design

3.1 Empirical Model

This paper employs global cross-economy panel data to examine the impact of bilateral political relations between different countries and the United States on the length of the value chain. The basic regression model is as follows:

$$PLV_{ijt} = \alpha_1 + \beta_1 S_score_{it} + X\gamma_1 + \lambda_{ij} + \eta_t + \varepsilon_{ijt} \quad (1)$$

Here, i represents the country, j represents the industry, and t represents the year. PLV_{ijt} indicates the length of the forward link value chain of industry j in country i in year t . S_score_{it} represents the bilateral political relationship between country i and the United States in year t . X represents the set of control variables. λ_{ij} represents the country-industry fixed effect, η_t represents the time fixed effect, and ε_{ijt} represents the random disturbance term.

3.2 Variable Measurement

3.2.1 Dependent Variable: Value Chain Length.

Value chain length can be divided into the forward link value chain length (PLV) and the backward link value chain length (PLY). According to the WWYZ method proposed by WANG et al.^[13](2017), which utilizes a multi-regional input-output table at the country-industry level, the value chain length depicts the number of production stages (links) from the initial input of capital and labor in a given industry to the final output of consumer goods in another industry. Essentially, it is the ratio of the cumulative total output of all production links to the cumulative added value of each link, or it can be understood as calculating the number of times the initial production factors are repeatedly counted in the process of forming the final product, reflecting the complexity of

the production process. In this study, we adopt the forward linkage measure (PLv) as the primary dependent variable, as it captures the number of production stages from upstream inputs to final consumption, reflecting a country's role as a supplier of intermediate goods in global production networks. A higher PLv value indicates a longer value chain, implying greater production fragmentation and deeper involvement in global value chains.

3.2.2 Core explanatory variable: Bilateral political relationship index.

This paper follows the method of Kleinman et al.^[14] (2024) to construct a United Nations voting similarity index to measure the bilateral political relationship between two countries. The votes of countries in the United Nations are recorded as "No" (coded 1), "Abstain" (coded 2), or "Yes" (coded 3). The bilateral political relationship index S_score between two countries a and b is measured using the Euclidean distance method. Since this study aims to examine the impact of bilateral political relations shocks on the shortening and restructuring of GVCs, the index is negatively transformed to more intuitively capture the relationship between political distance and the shortening effect. A higher S_score for a country relative to the United States indicates a more distant bilateral political relationship between the two countries.

3.2.3 Other Control Variables.

This paper also refers to the research of Gao Yunsheng et al.^[15] (2023) and Zhang Junrong et al.^[16] (2024), and incorporates a series of control variables. Export scale (dva_{ijt}) is measured by the domestic value added of exports; industrial structure ($ivas_{ijt}$) is measured by the proportion of industrial value added, which is calculated as the share of a country's industrial value added in its total value added; economic development level ($\ln PGDP_{it}$) is measured by the logarithm of per capita GDP in current US dollars; foreign direct investment (fdi_{it}); member state governance level (gov_{it}) is calculated as the average of the six dimensions of the Global Governance Index; natural resource endowment ($land_{it}$) is measured by the per capita land area of a country; degree of trade protection (im_tariff_{it}) is represented by the weighted average tariff rate of country i to all countries, and the specific tariff rate is measured by the effectively applied rate at the national level; tariff trade barrier rate (ex_tariff_{ijt}) is represented by the weighted average tariff rate of all countries to country i 's industry j , and the specific tariff rate is measured by the effectively applied rate at the industry level.

3.2.4 Mechanism Variables.

In the mechanism test, the variables used in this paper include export dependence (exp_{it}), calculated as the proportion of a country's export trade volume to its GDP;

import dependence (imp_{it}), calculated as the proportion of a country's import trade volume to its GDP; net outward direct investment ($nodi_{it}$), calculated as a country's outward direct investment minus its foreign direct investment; global value chain resilience (gvc_res_{ijt}), following the approach of Yang Renfa and Zheng Yuanyuan^[17] (2023) and Li Guangqin and Qiu Xinyue^[18] (2023).

In the subsequent instrumental variable test, the variable used in this paper is the genetic difference between each country and the United States (F_{ST}^W).

3.3 Data Description and Descriptive Statistics

The data on the length of the forward link value chain, the length of the backward link value chain, the domestic value chain length, the traditional trade value chain length, the global value chain length, and the global value chain resilience measured in this paper were calculated through the Asian Development Bank (ADB) database, which contains input-output data of 63 economies and 35 sub-sectors. The specific values are sourced from the UIBE database. The bilateral political relationship index S_score was calculated based on the United Nations General Assembly voting database. Among the control variables, export scale and industry structure were calculated using the ADB database. Import and export tariff data were obtained from the World Bank's Trade Analysis Information System (TRAINS). The data for the six dimensions of the Global Governance Index, which measures the governance level of member countries, were sourced from the WGI database. Other control variables and mechanism variables were derived from the World Bank's WDI database. The data on genetic diversity was compiled by Pemberton^[19] et al. (2013). Additionally, the following treatments were applied to the initial sample: (1) Some economies were not sovereign states and thus did not have the right to vote in the United Nations General Assembly, and were therefore excluded. (2) Since the S_score index measures the bilateral political relationship between different countries and the United States, the data for the United States was excluded. (3) As the ADB database classifies industries based on the ISIC Rev.3 standard, this paper also calculated the tariff data at the industry level using the World Integrated Trade Solution (WITS) based on the ISIC Rev.3 standard. Due to the inconsistency in some industry codes between the two databases, manual matching was conducted based on the textual descriptions. (4) As there was a lack of tariff data at the service industry level, the service industry data was excluded. After the merging process, this paper obtained a total of 13,903 sample observations without missing values for 59 countries and 22 industries from 2007 to 2021. (5) To mitigate the influence of extreme values, a 1% winsorization was applied to the continuous variables.

4 Empirical Results and Analysis

4.1 Benchmark Regression Results

Column (1) of Table 1 reports the benchmark results that only include the core explanatory variables. The coefficient of the bilateral political relationship with the United States is -0.222, which is significantly negative at the 1% level, indicating that a distant political relationship with the United States has a significant shortening effect on the length of the value chain. After successively introducing country-industry fixed effects, year fixed effects, and control variables, the sign, significance, and magnitude of this coefficient remain robust in columns (2) to (4), further supporting the validity of Hypothesis 1. The results of the core variables indicate that, in the context of rising geopolitical tensions, for every one standard deviation increase in the political stance difference between a country and the United States, the length of its global value chain will contract by approximately 0.22 standard deviations, highlighting that political factors have become an important force driving the shortening and restructuring of global production networks.

Table 1. Benchmark Regression Results

Variable	(1)	(2)	(3)	(4)
	PLv	PLv	PLv	PLv
S score	-0.222***	-0.115***	-0.179***	-0.139***
	(-4.36)	(-8.72)	(-5.31)	(-4.31)
Con	2.384***	2.391***	2.386***	2.455***
	(19.01)	(2739.15)	(1069.44)	(9.58)
Control Variable	NO	NO	NO	YES
Country-Industry Fixed Effects	NO	YES	YES	YES
Year Fixed Effects	NO	NO	YES	YES
Observations	13903	13898	13898	13898
R ²	0.013	0.917	0.918	0.918

Note: The values in parentheses are t-statistics; *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. The values in parentheses are the standard errors clustered at the industry level. The same applies to the following tables.

4.2 Endogeneity Test

4.2.1 Instrumental Variable Test.

The benchmark regression results of this paper may have endogeneity problems caused by reverse causality. Therefore, this paper refers to existing literature to introduce exogenous variables (Huang et al., 2013) and uses the idea of designing instrumental variables based on genetic diversity to alleviate the interference of endogeneity problems.

Genetic diversity refers to the degree of genetic composition difference between two individuals or groups, which is usually used to measure the genetic differences between

species or populations. Genetic diversity can be calculated by comparing DNA sequences, allele frequencies, or single nucleotide polymorphisms (SNPs) and other genetic markers. The smaller the genetic diversity between the populations of two countries, the more likely it reflects that there have been large-scale migrations or intermarriages between the mainstream populations of the two countries in history. This historical connection not only promotes the exchange and integration of ideas, cultures, and living customs, but also helps to enhance the political mutual trust between the two countries. Therefore, genetic diversity and bilateral political relations show a negative correlation. Based on the above logic, this paper selects the genetic diversity between each country and the United States as the core instrumental variable and multiplies it with the continuous year variable to construct an interaction term to capture the feature that the effect of genetic diversity on political frictions with the United States increases over time. The specific measurement method of genetic diversity data can be referred to in classic literature such as Spolaore and Wacziarg (2009). On the other hand, human genetic characteristics have a high degree of historical heredity and stability, and it is difficult for human genetic characteristics to have a direct connection with economic activities, thus having exogeneity, which can better meet the requirement of the exclusion restriction of instrumental variables.

As shown in column (1) of Table 2, in the regression of the instrumental variable on the explanatory variable S_score , the coefficient of is significantly positive at the 1% level, indicating that the interaction term of genetic diversity and year and the bilateral political relationship index have a significant positive relationship, satisfying the relevance requirement of the instrumental variable. The second-stage results reported in column (2) show that the regression coefficient of the variable S_score is significantly negative at the 1% level. The above results indicate that after introducing instrumental variables to mitigate the influence of endogeneity problems such as reverse causality, the main conclusion of this paper still holds. The F value of the weak instrumental variable test is 1929.63, which is significantly greater than the critical value of the Stock-Yogo weak instrumental variable test, so the null hypothesis of the existence of weak instrumental variables can be significantly rejected, indicating that the model does not have a weak instrumental variable problem.

4.2.2 PSM-DID Estimation.

This paper employs the PSM-DID model to conduct an endogeneity test in order to alleviate potential sample selection bias and reverse causality issues. The implementation of the reindustrialization strategy in the United States in 2010 is a typical exogenous shock event. Moreover, based on Hypothesis 2 and the regression results of the varying coefficient panel model, this paper posits that the impact of the United States' anti-globalization policies on the length of the value chain began in 2010. Subsequently, a dummy variable *Time* is introduced; if the year is 2010 or later, it is assigned a value of 1, otherwise 0. Additionally, a dummy variable *Treat* is introduced. The average value of the bilateral political relationship S_score between each country and the United States from 2007 to 2010 is calculated. Countries with an average S_score greater than 0 are classified as the treatment group, with *Treat* assigned a value of 1, while the rest

are classified as the control group, with Treat assigned a value of 0. The control variables remain consistent with those in the previous sections. Finally, propensity score matching is conducted on . Then, a Logit regression is implemented, using the nearest neighbor matching method for 1:1 matching without replacement, resulting in a total of 1,418 observations after matching. Through the above matching process, the treatment group and control group in the propensity score matching processed sample have relatively similar characteristics. The results of re-regressing the matched sample according to model (9) show that the regression coefficient is significantly negative at the 1% level, indicating that the conclusion of this paper remains robust after overcoming sample selection bias and reverse causality issues.

Table 2. Endogeneity Test

Variable	(1)	(2)	(3)
	Phase I of PLv	Instrumental variable test of PLv	PSM-DID test of PLv
$F_{ST}^W \times \text{Year}$	0.249***		
	(45.53)		
S score		-1.273***	
		(-3.00)	
Treat $\times$ Time			-0.225***
			(-5.16)
Con	-10.683***	1.426**	-0.338
	(-48.21)	(2.37)	(-0.41)
Control Variable	YES	YES	YES
Country-Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Observations	13328	13332	1418
R ²	0.968	0.911	0.944

4.3 Mechanism Test

Table 3 reports the results of the mechanism test on the impact of the bilateral political relationship with the United States on the length of the global value chain. The results show that the bilateral political relationship mainly exerts a mediating effect on the length of the value chain in the two dimensions of trade structure and investment layout.

Firstly, a distant political relationship with the United States significantly suppresses a country's export dependence, thereby promoting the shortening of the value chain. Specifically, the coefficient of S_score on export dependence (exp) in column (2) is -10.491, which is highly significant at the 1% level, indicating that a distant political relationship with the United States significantly reduces the country's export scale. In column (1), the coefficient of export dependence (exp) is significantly positive, indicating that it plays a partial mediating role between S_score and PLv. This result is in line with theoretical expectations: when geopolitical risks rise, enterprises will actively contract cross-border trade flows to reduce the uncertainty of international trade, directly leading to a shortening of the value chain.

Secondly, changes in political relations affect net outward direct investment (nodi) and thereby influence value chain structure. In column (4), the coefficient of S_score on nodi is 0.001, which is significantly positive at the 1% level, indicating that tensions in bilateral political relations with the United States may heighten firms' concerns about investing in the domestic economy, thereby leading to an increase in net outward direct investment. In column (3), the coefficient of nodi is -1.422, which is significantly negative at the 1% level, suggesting that an increase in net outward direct investment in turn inhibits the extension of the value chain length. This mechanism reveals that heightened geopolitical risks induce capital outflows, which objectively constrain the depth and complexity of domestic production networks.

Finally, column (5) further introduces value chain resilience (gvc_res) as a moderating variable. The coefficient of the interaction term between S_score and gvc_res is 0.076, which is significantly positive at the 1% level, indicating that the higher the value chain resilience, the stronger the negative impact of political relations on shortening the chain, which is in line with the theoretical logic of "high resilience - high stickiness - strong shortening", further confirming the judgment of Hypothesis 4.

In summary, the mechanism test shows that the bilateral political relationship with the United States not only directly suppresses cross-border production links by compressing the export structure but also indirectly weakens domestic value chain links by driving capital outflows, jointly constituting the transmission path of shortening the chain.

Table 3. Regression Results of Mechanism Test

Variable	(1)	(2)	(3)	(4)	(5)
	PLv	exp	PLv	nodi	PLv
S_score	-0.094*** (-2.98)	-10.491*** (-46.60)	-0.091** (-2.73)	0.001*** (39.20)	-0.138*** (-4.17)
exp	0.003*** (3.99)				
imp					
nodi			-1.422*** (-3.28)		
gvc_res					-0.038*** (-3.54)
$S_score \times gvc_res$					0.076*** (4.91)
Con	2.215*** (8.22)	81.183*** (31.08)	2.789*** (10.20)	-0.000 (-0.45)	2.475*** (9.66)
Control Variable	YES	YES	YES	YES	YES
Country-Industry Fixed Effects	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES
Observations	13672	13672	13610	13610	13797
R^2	0.923	0.977	0.921	0.586	0.920

5 Conclusions and Policy Recommendations

Under the backdrop of the anti-globalization policies promoted by the United States and other Western developed countries, the GVC has undergone a complex and profound restructuring process. Currently, there is a certain consensus in the academic community that the bilateral political relations with the United States have led to the shortening of the GVC. This paper empirically validates this phenomenon.

At the mechanism level, the bilateral political relations with the United States lead to the shortening of the value chain through two channels: trade structure and investment layout. Meanwhile, the resilience of the value chain has a positive moderating effect on the shortening of the GVC caused by the bilateral political relations with the United States. When facing adverse external shocks, there is a complex trade-off between enhancing the resilience of the value chain and maintaining its length, forming a typical "dilemma". If the current wave of globalization retreats continues, the dynamic evolution relationship of "shorter chains - higher resilience" of the GVC may exhibit long-term characteristics.

Based on the research conclusions, this paper puts forward the following policy implications:

First, maintain stable international political relations and reduce the external risks brought by geopolitical fluctuations. The research shows that the estrangement of political relations with the United States will significantly inhibit a country's depth and length of participation in the global value chain. Therefore, through multilateral diplomatic cooperation and international mechanism construction, policy communication and mutual trust with major economies should be maintained to reduce the adverse impact of political frictions on trade and investment activities. At the same time, a domestic economic and diplomatic policy coordination mechanism should be established to enhance the flexibility and foresight in responding to international relations fluctuations.

Second, optimize the trade structure and investment layout to enhance the resilience and adaptability of the global value chain. In the face of geopolitical uncertainties, countries should actively promote the diversification of trade partners and industrial layouts, and reduce dependence on a single market, especially the US market. The government can use tax incentives, financial support, and overseas investment guidance and other policy measures to help enterprises layout key production links in multiple countries and regions, and build a more decentralized and stable global production network to enhance the ability to cope with external shocks.

Third, balance the length and resilience of the global value chain, and promote the independent controllability and safe development of key industries. Under the background of tense external political relations, enterprises and governments need to make strategic choices between "chain length" and "chain resilience". For high-tech and highly externally dependent industries, efforts should be made to increase independent innovation and core technology research and development, and strengthen the construction of the local supply system; for general manufacturing and non-critical links, international cooperation and reasonable division of labor can be maintained. On this basis, a risk monitoring and early warning mechanism for the industrial chain should be established to dynamically assess the impact of political factors on the structure of the

global value chain, thereby achieving the coordinated development of industrial chain security and international cooperation.

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