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Can Asymmetric Relationships Work Together? A Quantitative Approach of "16+1" Cooperation Mechanism

Abstract

Is there a possibility that there will be cooperation between two sides with a big gap? If so, could this cooperation be sustainable development? This question has always been a hot issue in international cooperation research. The "16+1" framework is a relatively new cooperation format initiated by China with 16 CEE countries in 2012. Since its formation, the "16+1" has made some progress in strengthening dialogue and cooperation between China and CEE countries. The heads of state of the member countries meet annually and each meeting results in a list of agreements. During the 5th and most recent summit, held in Riga, Chinese premier Li Keqiang formally launched a 10 billion euro investment fund to finance infrastructure and production capacity projects ("The Riga Guidelines for Cooperation between China and Central and Eastern European Countries," n.d.). While the above initiatives have been made so far, it is not difficult to trace that in China and the CEE countries, the significant differences in the countries among the CEE made for a complexity of interaction.

First of all, the CEE countries are not only a strictly strategic entity, but not a political or economic entity, and the two sides are now facing the problem of "one to sixteen." Moreover, for the relationship between China and the EU, China cannot be a member state or even a power to arrange the sixteen countries as a political group. Secondly, despite the continuous warming of economic and trade cooperation between the two sides, such as the Czech Republic, Poland, Hungary, Serbia and other countries with China, in terms of bilateral trade, there are still huge differences for both exports and imports, and bilateral ties show an

asymmetric pattern from the political and economic perspectives. Thirdly, while the CEE countries are developing economic and trade relations with China, there are big differences regarding foreign policy toward China among the CEE countries: sixteen states are not consistent with their foreign policies toward China, and at the same time, there is still a disagreement between the two sides on political, economic, and human rights; Tibet and Taiwan issues; the arms embargo and other relevant issues.

Therefore, the development of China's relations with CEE countries is now facing opportunities and challenges simultaneously. The asymmetry of bilateral cooperation requires China to optimize its policies on CEE countries for further development. This paper will analyze the CEE countries' foreign policy toward China via a 15 language[1] *database among all CEE countries since the two sides established diplomatic ties. Using big data, the development of small countries' foreign policies will be analyzed while confronting big powers through game theory, then it will be tested if it is possible for such asymmetric relationships to work.*

Keywords: *asymmetric relationship, international cooperation, China-CEE relations*

1. Asymmetric Characteristics and International Cooperation Theory

From the perspective of international politics, the contemporary world consists of asymmetric power, therefore, most international cooperation must be asymmetric cooperation as well. The most direct consequence of asymmetric cooperation should be the asymmetry of cooperative benefit distribution, as long as there is no denying the zero-sum status in the competition of international relations. Olson in his *Logic of Collective Action* pointed out that the common interest does not necessarily generate cooperation (Olson 1971). In the context of normal circumstances, as a country develops rapidly, it also forms large interest groups. These large interest groups are gradually transformed into wealth distribution groups rather than wealth producing groups. That is to say, they only consider self-interest and seek to maximize their share of total wealth. Such free-riding would result in ignoring the overall interests of the state.

1 In this paper, the metadata of language selection only chooses the official language of China and CEE countries, of course, some countries may have many official languages, or dialects, here, I use only their official language as a statistical sample.

Therefore, in this paper, I will answer the question, is it possible to reach a partnership without the equal power of both parties?

In a broad sense, cooperation is a ubiquitous phenomenon in human society, there is no lack of allies in contemporary international politics, but the ultimate goal of the alliance is balancing of power, the emphasis of which is still the conflict. It can be seen from *Understanding Global Conflict and Cooperation: An Introduction to Theory and History* by Joseph Nye Jr and David Welch (2016). The core concept of international relations theory is power, and the definition of power as the ability to change people's behavior implies potential conflicts. This makes the study of international relations more inclined to discuss power competition. In Keohane and Nye's *Power and Interdependence* (Keohane and Nye 2011), they explain how to generate power in interdependence. On the other hand, they have just seen the possibility of cooperation from their analysis of interdependence, but finally they focus on power and conflict again. In this sense, the incomplete rationality of power makes cooperation divorced from the core field of political science.

The important difference between the theory of international relations and economics from the concept of power and interests is the difference between zero-sum game and positive-sum game. Economics is essentially individualistic, so collectivism is only an option to maximize individual utility. Therefore, in the view of economics, there is no conflict between individual interests, so while in the process of others pursuing their utility maximization, it will not necessarily affect their utility maximization in most cases. Pareto improvement is the typical expression of this explanation (Keohane 2005). The process of China's reform and opening up and globalization is also a clear example: as long as it can gain more benefits and faster development than self-reliance through accession to globalization, or even paying a few costs for it is also worth it. But the theory of international politics is opposite, because the power itself is zero-sum, and growth of one party's power must necessarily mean the weakening of power of the other. Therefore, the positive attitude towards cooperation with economics is different, and the theoretical study of international relations sees more conflicts. This view is expressed in the Mearsheimer's *The Tragedy of the Great Power Politics* (Mearsheimer 2014).

In case of international politics, as long as interaction exists rather than an "Iron Curtain," there is nothing more than conflicts or cooperation. Cooperation depends on rational trade-offs, while conflicts can be opportunistic or limited rational decision outcomes. Conflicts over the

balance of power will result in internecine conflicts, moreover, in this context the asymmetric status is even more obvious. In terms of probability, as long as the outcome of conflict can be expected, the occurrence of the conflict is always opportunistic or limited rationality. In addition, if there is no cooperation, enmity will not stop if the war was caused by military conflict. This is obviously not an ideal end.

It is undeniable that cooperation itself brings conflict, but rational cognition of the consequences of conflict should lead to cooperation. Cooperation can be either explicit or implicit. It can be formal or informal. Even if cooperation is rational, it may be replaced by conflicts at any time, as rationality may be overwhelmed by irrational impulses. Cooperation does not eliminate conflicts. Nevertheless, deepening cooperation may increase the cost of conflict. In this sense, the development of cooperation makes the conflict become the reality of the irrational threshold, so as to reduce the probability of conflict.

Although cooperation is rational, because of the asymmetries in the contemporary world, equal cooperation is doomed to be only an ideal state. So, not only power generation in interdependence, but also power could be generated in cooperation. This means that cooperation and power to some extent is co-existent, even hegemony and compromise, and therefore it is not necessarily equal. The formation of cooperation is often based on the relative benefit or absolute benefit balance, and the win-win cooperation is not common in reality. However, cooperation is only possible due to the asymmetric pursuit of relative benefit and absolute benefit between the two sides. Furthermore, in the case of the coexistence of the finitely versus infinitely repeated games (Kreps et al. 1982), the dynamic results of cooperation will lead to a new situation because of the change of asymmetric power.

Therefore, due to the results of existing research and its shortcomings, the analysis of this paper will start from the characteristics of international cooperation, whether there is an optimization approach in case of the asymmetric status, and take the "16+1" cooperation mechanism as an example for hypothesis testing. This paper aimed at establishing a new interpretative framework.

2. "16+1": An Asymmetric Nexus

Since 2012, the China–CEE cooperation mechanism has become mature gradually. Moreover, during the 2015 Suzhou Summit, participating countries stated their readiness to formulate the Medium-Term Agenda

for Cooperation between China and Central and Eastern European Countries ("The Medium-Term Agenda for Cooperation between China and Central and Eastern European Countries," n.d.). However, CEE countries now have in different status with different demands. For China, the challenges of asymmetric relations and the diversification of interests should not be underestimated. This requires that China, while developing its economic and trade relations, should take into account the different circumstances of the political, economic and social development of each country. Because most of the countries in CEE are small countries with small volumes, it is difficult for China to form a united trade-related cooperation. But if CEE countries are well coordinated in some convergence or similar industries, at the regional level, bilateral investment cooperation will progress smoothly, and it is easier to succeed than for a country alone to cooperate with China. In addition, if there is no coordination, CEE countries may create competition in attracting Chinese investment.

First, the overall scale of both sides: according to the data from World Bank in 2016, China and CEE countries have great differences in terms of population, GDP and surface area. As Table 1 shows, China's territory is 7.12 times the total of 16 countries in CEE, with a population of 11.57 times and GDP of 8.09 times. Secondly, the trade volume between China and CEE-16 is 764.43 billion USD, which accounts for only about 2.04% of China's global trade turnover in the same period (Figure 1). The size of population and territory could directly affect the level of demand for a certain product and the depth of cooperation. More importantly, the partnership is an independent and autonomous cooperation among international actors based on common interests, through joint action and in pursuit of common goals. In order to safeguard national interests and expand its international influence, China has built a partnership strategy based on the "Five Principles of Peaceful Coexistence" and improved the global strategic development through bilateral relations. From the information by the Ministry of Foreign Affairs of PRC, until June 2017, only seven countries in CEE have established "partnership relations" with China (Table 2). In addition, China's outward FDI stock in Central and Eastern European countries grew 35.4 times from 47.88 million USD in 2004 to 1696.51 million USD in 2014. However, at the country level (Figure 2), Hungary (2683.37 million USD) is more than 1118.5 times the size of Montenegro (2.56 million USD). Therefore, the "Belt and Road" initiative and "16+1" cooperation mechanism are very meaningful, but such initiatives must consider the current status of the sides, which could make them more effective.

Table 1. List of information of China and CEE-16 Countries, 2016

Country	Population Total, 2016	GDP, current USD, 2016	Surface Area, sq. km, 2016
Albania	2876101.00	11926892452.85	28750
Bosnia and Herzegovina	3516816.00	16559695718.57	51210
Bulgaria	7127822.00	52395164027.15	111000
China	1378665000.00	11199145157649.20	9562911
Croatia	4170600.00	50425333970.03	56590
Czech Republic	10561633.00	192924593987.30	78870
Estonia	1316481.00	23136741984.16	45230
Hungary	9817958.00	124342940194.42	93030
Latvia	1960424.00	27677391316.34	64490
Lithuania	2872298.00	42738875963.37	65286
Macedonia, FYR	2081206.00	10899583154.65	25710
Montenegro	622781.00	4173255530.97	13810
Poland	37948016.00	469508680416.12	312680
Romania	19705301.00	186690595273.12	238390
Serbia	7057412.00	37745114708.31	88360
Slovak Republic	5428704.00	89551834322.58	49035
Slovenia	2064845.00	43990635176.05	20270

Source: Data collected from DataBank, The World Bank, n.d.

Table 2. Partnership Relations between China and CEE Countries (Until June 2017)

Country	Date of Diplomatic Ties	Remarks
Albania	1949.11.23	N/a
Bosnia-Herzegovina	1995.4.3	N/a
Bulgaria	1949.10.4	Comprehensive friendly cooperative partnership (2014)
Croatia	1992.5.13	Comprehensive cooperative partnership (2005)
Czech Republic	1949.10.6	Strategic partnership (2016)
Estonia	1991.9.11	N/a
Hungary	1949.10.6	Friendly cooperative partnership (2004) Comprehensive strategic partnership (2017)

Country	Date of Diplomatic Ties	Remarks
Latvia	1991.9.12	N/a
Lithuania	1991.9.14	N/a
Macedonia	1993.10.12	N/a
Montenegro	2006.7.6	N/a
Poland	1949.10.7	Partnership (2004) Strategic partnership (2011) Comprehensive strategic partnership (2016)
Romania	1949.10.5	Comprehensive friendly cooperative partnership (2004)
Serbia	1955.1.2	Strategic partnership (2009) Comprehensive strategic partnership (2016)
Slovakia	1949.10.6	N/a
Slovenia	1992.5.12	N/a

Source: Data collected from Ministry of Foreign Affairs of the People's Republic of China.

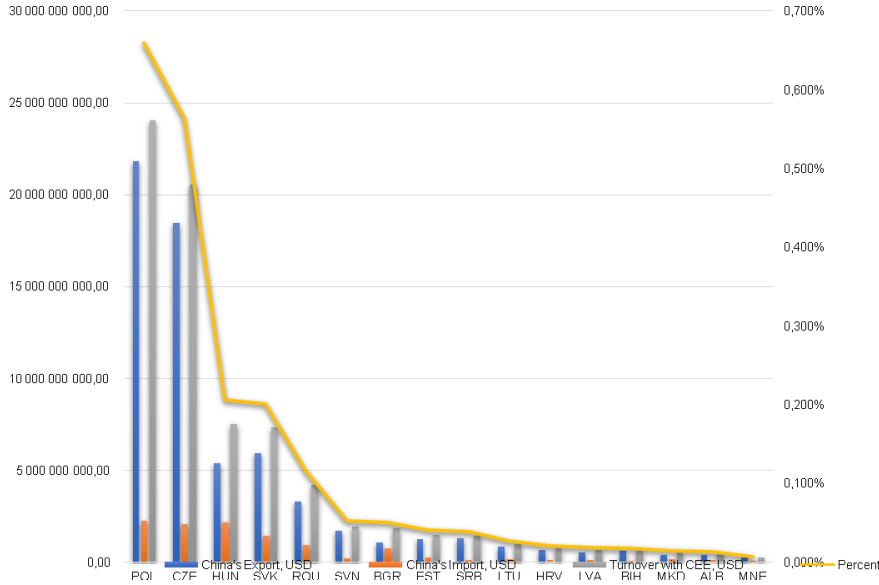

Figure 1. China's Trade with CEE Countries in 2016 (USD, Percent by China to the World in Total)

Source: Data collected from DataBank, The World Bank, n.d.

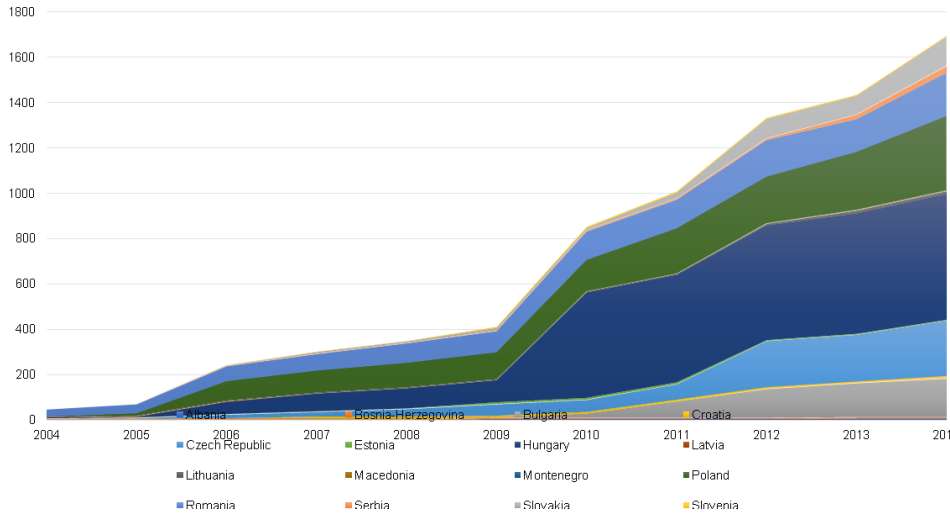

Figure 2. China's Outward FDI Stock by Country in CEE-16, 2004–2014 (millions of USD)

Source: Data collected from Ministry of Commerce of the PRC.

Secondly, the foreign affairs priorities. After radical social changes, the countries of CEE have completed secession from the Soviet Union and restored ties with the West in all aspects of social development (Youngs 2017). With the end of the Cold War and the collapse of US–Soviet bipolar relations, the international and European landscape is facing a reconfiguration (O'Hanlon 2017). In the context of the new geopolitical environment, the CEE countries began to shift westward after the dissolution of the Soviet Union. Many CEE countries, guided by the beliefs of "Return to Europe" (Keukeleire and Delreux 2014), are actively integrated into the Europe-Atlantic system. The most obvious manifestation is the demand for the NATO and the EU, which has become a landmark event in the changing geopolitical and economic map of Europe. But it is worth noting that the countries of Southeastern Europe did not share the "peace dividends" after the Cold War, but on the contrary, it is "fragmentation" which is contrary to European integration, that is bringing problems to Europe.

Russia has also redefined the status of the CEE countries in its own diplomatic strategy and attempted to return to CEE. As the successor of the Soviet Union, Russia has also turned to the Western models, and

therefore it no longer intervenes in the social transformation of CEE countries. After the collapse of the Soviet Union, Russia implemented drastic and profound socio-economic changes in accordance with the Western model. Therefore, the foreign policy has also synchronized with the political and economic processes facing the West. The Yeltsin regime cooperated with the West without reservations and tried to integrate into the Western world. Objectively, such a "one-sided" strategy was a strategic diplomatic strategy for the Yeltsin regime. The success of any social change depends on the improvement of the efficiency and well-being of social development, which is also the ultimate pursuit of socio-economic and political change in Russia in the 1990s. However, due to the lack of adequate ideological and psychological preparation for such reform, coupled with the huge inertia of the Soviet model that lasted for more than 70 years, as well as the complex structure of interest groups in the social transformation of profit and control, such reform may lead to failure. Therefore, at the early stage of Yeltsin's administration, the Central and Eastern Europe region was excluded from the priorities of Russia's foreign policy, and at one time it almost broke contact with Central and Eastern European countries. After Putin came to power, he was soberly aware of the decline in Russia's strength. As Russia had not been able to fight against the United States and the West, it could better defend its interests only by giving up a fight with the United States in some non-major strategic areas and geopolitical aspects. With the evolution of the world political structure, the change of the geopolitical role of Central and Eastern Europe and the adjustment of Russia's foreign policy, especially after Putin's rule, the strategic position of the Central and Eastern European countries and the nature of Russia are redefined. The positive factors in the relations between Russia and Central and Eastern Europe have increased, which opens the way for the establishment of a new type of relations between Russia and Central and Eastern Europe countries (Mankoff 2009). Nevertheless, as a power in Eurasia, Russia is reluctant to accept Western powers in CEE, as it threatens its security and interests. Many of the CEE countries joined NATO and the EU, in this area, Russia is competing with the Western powers led by the United States (Kaplan 2004). From this perspective, the development of external relations in CEE is still restricted by the relations among Russia, the United States, Europe and other major powers.

List 1. Memberships of CEE Countries

Country	AL	BA	BG	CZ	EE	HR	HU	LT
Eurozone	×	×	×	×	√	×	√	√
EU	×	×	√	√	√	√	√	√
NATO	√	×	√	√	√	√	√	√
Country	LV	ME	MK	PL	RO	RS	SI	SK
Eurozone	√	×	×	×	×	×	√	√
EU	√	×	×	√	√	×	√	×
NATO	√	√	×	√	√	×	√	√

Currently, among the 16 countries in CEE, 11 countries are member states of the EU, 5 countries are in the Eurozone, 8 countries are members of NATO. CEE countries have a high degree of market orientation, and the legal supervision system is complicated. Therefore, in light of the above asymmetry status, could China and CEE countries still reach a better cooperation? For the following parts, I will examine the data between China and CEE countries since the establishment of diplomatic ties by a quantitative approach to test both parties.

3. Theoretical Model and Hypothesis

3.1. Asymmetric Hawk-Dove Game Model

The Hawk-Dove model as a basic tool in game theory application has been widely used in the research of conflict and cooperation in human society (Broom and Rychtar 2013). The contestants of such a game can be either Hawk or Dove. These are two subtypes or morphs of one species with different strategies. The Hawk first displays aggression, then escalates into a fight until it either wins or is injured (loses). The Dove first displays aggression, but if faced with major escalation runs for safety. If not faced with such escalation, the Dove attempts to share the resource. As shown in the following table, as one party obtains the benefit V, if both parties choose Hawk (H) as the strategy, the cost of conflict is C, the pure income of both parties is (V-C)/2. If the strategy adopted by the parties is different, the pure benefit of HD strategy is V, and vice versa (DH) is 0. If both parties adopt the Dove (D) strategy, the income of both parties is V/2.

Table 3. The Payoff Matrix for the Hawk-Dove Game

Strategy (S)	Meets Hawk (H)	Meets Dove (D)
If Hawk (H)	(V-C)/2, (V-C)/2	V, 0
If Dove (D)	0, V	V/2, V/2

In the classic Hawk-Dove Game model, the premise is that the power of the two parties is equivalent. When the two parties adopt a cooperative strategy, the two sides gain the same income, and while in conflict, the cost of the conflict is equivalent as well. However, there may be a power asymmetry between the two stakeholders (Maschler et al. 2013; Osborne 2003; Smith 1982). For example, the asymmetries between China and the Central and Eastern European countries are described in the preceding paragraphs. If we only use the classical game model of Hawk-Dove to explore the interest distribution, the mechanism of cooperation between the two sides has a great limitation. Therefore, we need to consider the following payoff matrix of the asymmetric Hawk-Dove game model.

In case of asymmetric power between China and CEE countries, the benefit distribution of both sides is affected by power. Here, if we assume that the power ratio between China and CEE countries is K:1-K, (0<K<1), K can be understood as the probability of winning if conflict occurred between the two parties. When the two sides adopt the S(HH), the gain by China is (V-C)/4K, the gain by CEE countries is (V-C)/4(1-K). If the two sides adopt the S(DD), China's benefit is KV, CEE countries' (1-K)/V. When the two parties adopt different strategies, the assumed gains are the same as the classic Hawk-Dove model, and the cost of the conflict between the two parties is higher than the gains by both, that is C>V. According to the above assumptions, the payment matrix can be displayed in the following table (Mesterton-Gibbons 1992; Womack 2016).

Table 4. The Payoff Matrix for the Asymmetric Hawk-Dove Game

	CEE Countries		
China	Strategy (S)	Meets Hawk (H)	Meets Dove (D)
	If Hawk (H)	(V-C)/4K, (V-C)/4(1-K)	V, 0
	If Dove (D)	0, V	KV, (1-K)/V

Therefore, according to the above analysis, the hypothesis of this paper assumes that if the economic power of the two sides is not equal, the de-

gree of cooperation between the two sides is closely related to the economic power. That is, the bigger the difference between the economic power of the two sides is, the higher the frequency of cooperation will be. The economic interdependence between China and the countries of Central and Eastern Europe has promoted the improvement of bilateral political relations.

3.2. Selection and operation of variables

In this paper, I will set the bilateral political relations as dependent variables and, based on the degree of economic interdependence as independent variables, aim to examine the above hypotheses. For control variables, I will choose the national democracy index, military expenditure and institutional participation.

(1) Bilateral political relations

This paper will use the Global Database of Events, Language and Tone (GDELT) to measure the bilateral relationship as a record. The GDELT Project monitors the world's broadcast, print, and web news from nearly every corner of every country in over 100 languages and identifies the people, locations, organizations, themes, sources, emotions, quotes, images and events driving our global society every second of every day, creating a free open platform for computing for the entire world. This database records what kind of actions have been taken by a Source country to the Target country since 1979 by encoding with Conflict and Mediation Event Observations (CAMEO), which is a framework for coding event data (typically used for events that merit news coverage and generally applied to the study of political news and violence). Then it is used by Goldstein's conflict-cooperation scale to assign the conflict or cooperation (from -10 to 10) to measure the bilateral relationships (see Appendix 1). The GDELT database covers all the interactive issues and time between the relevant countries, so it meets the criteria of comprehensiveness.

(2) Economic interdependence

The independent variable will be selected by the degree of economic interdependence (GDP per capita), trade interdependence (Turnover), and investment interdependence (OFDI) as a combination. For OFDI, the data

will select stock as the source. Due to the numerical instability, it will be converted by the formula $y=\ln(x+\sqrt{x^2+1})$. To a certain extent, the stock as the independent variable can avoid the large fluctuation of flow data in the short term.

(3) Democracy Index

From the perspective of history, especially in light of the reality of contemporary international relations, countries with democratic institutions are rarely in conflict with each other. Because of the restriction of liberal democracy and normative power, there will be no war among democratic countries generally, but there are still disputes over the above statements. Therefore, the degree of democracy is regarded as a control variable affecting the bilateral relations. Information and data are selected from Freedom House's Country Scores (see Appendix 2).

(4) Military Expenditure

Military spending is also a control variable that must be considered. High military spending may matter in a hostile environment, where the relationship between countries is easy to change. Because of the high asymmetry between China and Central and Eastern European Countries in military spending, this indicator is measured by the proportion of each country's annual military expenditure as a share of GDP. The data comes from the Stockholm International Peace Research Institute (SIPRI 2017).

(5) Degree of Fit of Institutional Participation

In recent years, researchers using econometric analysis have made many indicators by the degree of interest similarity between countries, many of which are derived from the General Assembly of the United Nations voting records as a basis for the measurement of bilateral relations. First, all members of the United Nations are eligible to vote in various motions in the General Assembly, while each state has three options for each proposal: yes, no, or abstention. Since the establishment of the United Nations General Assembly, there have been dozens of votes every year, so the similarity of voting between the two countries becomes an

important index to measure the degree of fit of bilateral institutional participation. This paper adopts the similarity between China and Central and Eastern European countries in the United Nations General Assembly as a control variable to examine bilateral institutional participation. The data was selected from United Nations General Assembly Voting Data by Erik Voeten (see Appendix III).

3.3. Model Setting

As described earlier, this paper will set the following linear regression model:

$$value_{it} = inteX_{it} + dem_{it} + mili_{it} + alli_{it} + \varepsilon$$

In this model, i denotes the Central and Eastern European countries, t denotes the year and value representing the relationship with China. Here, inteX contains three different indices to measure the degree of economic interdependence: GDP, trade and investment. The above equation contains three regression models, these are called model I, model II, and model III respectively. Dem refers to the degree of democracy, mili refers to military expenditure, alli refers to the degree of institutional fit of both parties, ε represents random interference.

Due to the lack of some data, Bosnia and Herzegovina, Slovenia, Serbia and Montenegro were not included, and the data selected from 1989 to 2016 contains in total 12 countries, including China. In order to make the data stable, some variables take the natural logarithmic form; variables in percentage, negative or zero will maintain the original. Log is a strictly monotonic recursive increasing function, it does not change the causal relationship between data. The statistical description of variables is shown in the table below.

Table 5. Statistical Description of Variables[2]

Variable	Mean	Standard Deviation	Min	Max
Value	5.26	3.39	-10	10
InteGDP	-3.882557	1.893711	-11.51293	-0.6945994
InteTra	-3.229195	1.749534	-11.51293	-0.8067139

2 Detailed data in the annex.

Variable	Mean	Standard Deviation	Min	Max
InteFDI	0.000878	0.0040751	0	0.0293
Dem	1.346988	6.501585	-8	10
Mili	3.029033	2.887069	0.3	18
Alli	1.933735	2.117735	0	7

Notes: The range of variables is following, value=Bilateral relationship score, inteGDP=Economic interdependence (logarithmic), inteTra=Trade interdependence (logarithmic form), inteFDI=Investment interdependence, dem=Democratic index, mili=Percentage of military expenditure as a percentage of GDP, alli=Degree of fit of institutional participation.

4. Empirical Test and Result Analysis

The above data are used to empirically test the impact of economic interdependence between China and Central and Eastern European countries on bilateral relations, and then to verify whether the prediction of cooperation in the context of the asymmetric relationship could be enhanced. First, it makes a simple model screening of the regression equation. There are three models to deal with the panel data: mixed-effect model, fixed-effect model and random-effect model. The mixed-effect model is to treat panel data as cross-sectional data, directly using OLS estimator. The difference between the fixed effect model and the random effect model is that the random effect model assumes that the individual effect is not related to the explanatory variable, and it is regarded as part of the error term and the regression equation of the random intercept term. The fixed effect model assumes that the individual effect is related to the explanatory variable and treats it as an explanatory variable. For the above three models, I use the Wald test, and I excluded the mixed effect model. The selection of the fixed effect model and the random effect model is usually determined by a Hausman test. When the Hausman test is significant at 10% level, then the fixed effect model is chosen. The results of the Hausman test show that models I, II and III is at 5%, so the results of the fixed effect are reported below.[3]

The results show that both inteGDP and inteTra in model I and II are significant at 1%, and the coefficient is positive. The core explanatory

3 Made by R, version 3.4.1.

variable of model III, inteFDI cannot pass the saliency test. Models I and II show that economic interdependence can promote bilateral relations. However, we cannot simply accept this conclusion without considering the endogenous variable. From a theoretical perspective, economic interdependence has a very high endogenous expectation in the equation of bilateral relations. For example, when bilateral relations tend to rise, it is highly likely that bilateral trade will be promoted, thereby affecting bilateral interdependence. Also, when the degree of economic interdependence is getting higher and higher, it may force the two sides to avoid the deterioration of relations. In the study of economic interdependence and conflict, some scholars treat economic interdependence as independent variables, while others treat conflict as independent variables, so there is reason to suspect inteGDP, inteTra and inteFDI is an endogenous variable.

Table 6. Fixed-effect Model Estimation Results[4]

Variable	Model I	Model II	Model II
InteGDP	0.575*** (8.41)		
InteTra		0.582*** (8.77)	
InteFDI			-31.51 (-0.83)
dem	0.0412* (0.08)	0.0393 (1.93)	-0.00739 (-0.27)
mili	-0.428*** (-7.87)	-0.414*** (-7.63)	-0.0439 (-0.49)
alli	-0.251** (4.11)	0.324*** (5.57)	0.513 (6.55)
CONS	4.311** (3.09)	4.240** (3.07)	1.385 (0.21)
N	36559	36559	36559
Adj-R^2	0.8541	0.8561	0.7861

Notes: (1) ***, **, * means the variables at 1%, 5% and 10% level are significant respectively. The t value is in parentheses.

Moreover, in order to determine whether the existence of endogeneity can be tested or not, we could use the Davidson-MacKinnon method. The

4 The results are estimated based on the variables in Table 5.

original hypothesis of the Davidson-MacKinnon test method is that if there is no endogeneity, the two estimates are consistent, whether using OLS estimation or tool variable method estimation. In this paper, the three models reject the null hypothesis at the 5% level, which indicates that the model is endogenous. The way to eliminate endogeneity is to find a tool variable that is highly relevant to the endogenous variable, but not related to the disturbance term. Since it is difficult to find a tool variable that meets this condition, one of the measures is to use the endogenous variable as a tool variable. In this paper, inteGDP, inteTra and inteFDI (lag I and II) will be used as tool variables.

Table 7. Final Estimated results[5]

Variable	Model I	Model II	Model II
InteGDP	0.745*** (9.48)		
InteTra		0.798*** (9.94)	
InteFDI			-43.09 (-1.01)
dem	0.0486* (2.37)	0.0500* (2.43)	-0.00778 (-0.29)
mili	-0.435*** (-7.39)	-0.421*** (-7.11)	-0.0683 (-0.71)
alli	0.164* (2.55)	0.242*** (4.09)	0.546*** (5.54)
CONS	6.469*** (4.26)	6.641*** (4.35)	3.161 (1.70)
N	36559	36559	36559
Anderson LR-p	0.0000	0.0000	0.0001
Sargan test-p	0.2242	0.1663	0.1127

Notes: (1) ***, **, * means the variables at 1%, 5% and 10% level are significant respectively. The t value is in parentheses.

In order to test whether the tool variables are reasonable, I am using an under-identification and over-identification. From the AdersonLR and Sargan tests, the tool variables chosen in this paper are reasonable, there is no under-identification and over-identification. The regression results

5 The results are estimated based on the variables in Table 5.

of the tool variable method show that the model I and II, inteGDP and inteTra are still significant at 1% level after the endogeneity is mitigated. In model III, inteFDI still did not pass the significance test. Since the level of interdependence of investment is negligible compared to the level of economic interdependence and trade interdependence, the main effect of inteGDP and inteTra on political relations is observed. Therefore, it is believed that if other conditions remain unchanged, the economic relations between China and Central and Eastern European countries have a positive effect on bilateral political relations. For every 1% increase in inteGDP, the scores of bilateral political relations correspond to increase by 0.745 points, or inteTra 1% increase to 0.798 points in bilateral political relations raised simultaneously.

5. Conclusion

Based on the above analysis, I find that in asymmetric cooperation, the enhancement of cooperative efficiency can be realized by the individuals in the system with their corresponding influence. The accepting party of cooperation takes coercive measures to punish the individuals who do not cooperate, and the individual chooses to pay a certain cost to participate in the cooperation, or to take the speculation strategy. Obviously, if the recipient of the cooperation can effectively punish the partners of the cooperative, then the cooperative strategy will be their advantage strategy. However, due to the asymmetric information of the cooperative system, both parties do not know what kind of strategy the two parties actually adopt, that is, the dominant individuals cannot observe the cooperative strategy in real time. Similarly, the recipient of cooperation is not entirely clear when and to what extent the individual will punish non-cooperation actions, and therefore both sides tend to mix the strategy. For partners, the cost of conflict and the ratio of benefit is likely to be higher. It is more credible by the dominant side of the system to punish or suppress the speculative behavior, the more likely the partners are to be forced to cooperate. Therefore, in this sense, the asymmetric system is conducive to the evolution of cooperative behavior.

These results are in accordance with the hypotheses of this chapter. With the end of the Cold War, the economy has become a more important factor. In order to develop economic cooperation, China and the Central and Eastern European countries have realized the importance of opening

up, they have actively created various conditions and taken the opportunity of economic globalization: the economic contacts between the two sides have become closer. In this process, the economic interdependence between countries is deepening, and this deepening makes the cost of disconnecting the economic link increased, thereby inhibiting the conflict to some extent. When committed to the development of the economy, the countries with economic exchanges have taken the initiative to promote bilateral relations, which creates a good environment for economic exchanges and promotes mutual political and economic contacts.

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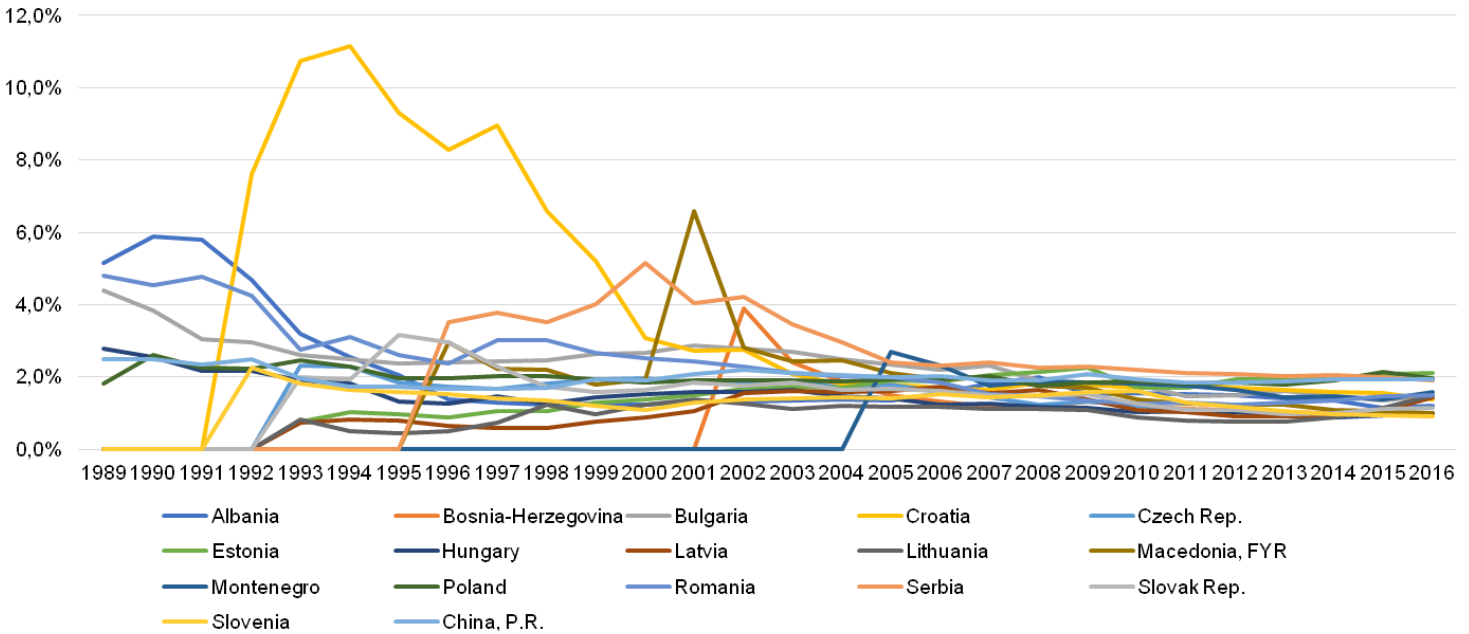
Appendix I: Military Expenditure by Country as Percentage of GDP, 1989–2016



Source: SIPRI 2017.

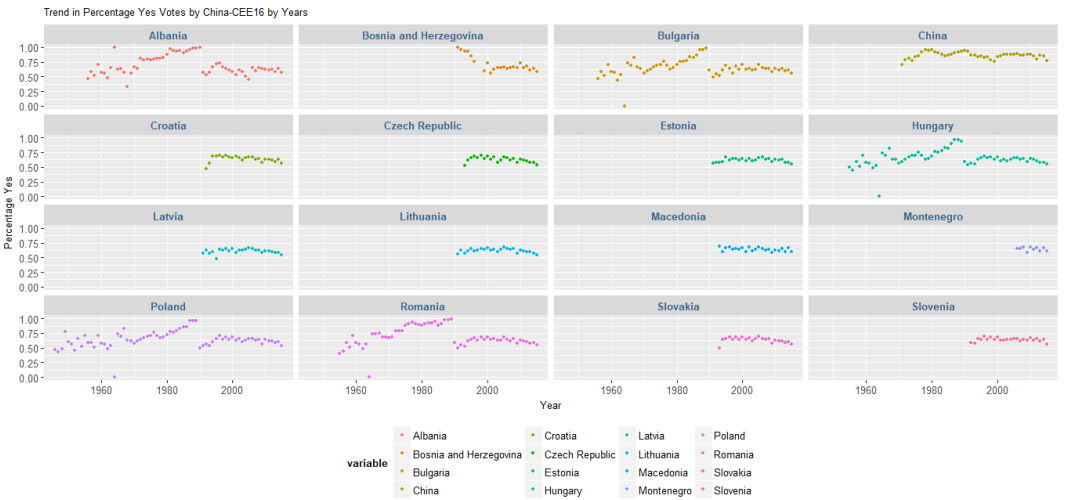
Appendix II: Freedom Score by Country (China and CEE-16)[6]

Country	Freedom Status	PR	CL	Freedom	Aggregate Score	Trend Arrow
Albania	Partly Free	3	3	3.00	68	
Bosnia-Herzegovina	Partly Free	4	4	4.00	55	
Bulgaria	Free	2	2	2.00	90	
Croatia	Free	1	2	1.50	87	
Czech Republic	Free	1	1	1.00	94	
Estonia	Free	1	1	1.00	94	
Hungary	Free	3	2	2.50	76	
Latvia	Free	1	2	1.50	87	
Lithuania	Free	1	1	1.00	91	
Macedonia	Partly Free	4	3	3.50	57	
Montenegro	Partly Free	3	3	3.00	69	
Poland	Free	1	2	1.50	89	↓
Romania	Free	2	2	2.00	84	
Serbia	Free	3	2	2.50	76	
Slovakia	Free	1	1	1.00	89	
Slovenia	Free	1	1	1.00	92	
China	Not free	7	6	6.50	15	↓
A					77.23529412	

Source: Data collected from Freedom House.

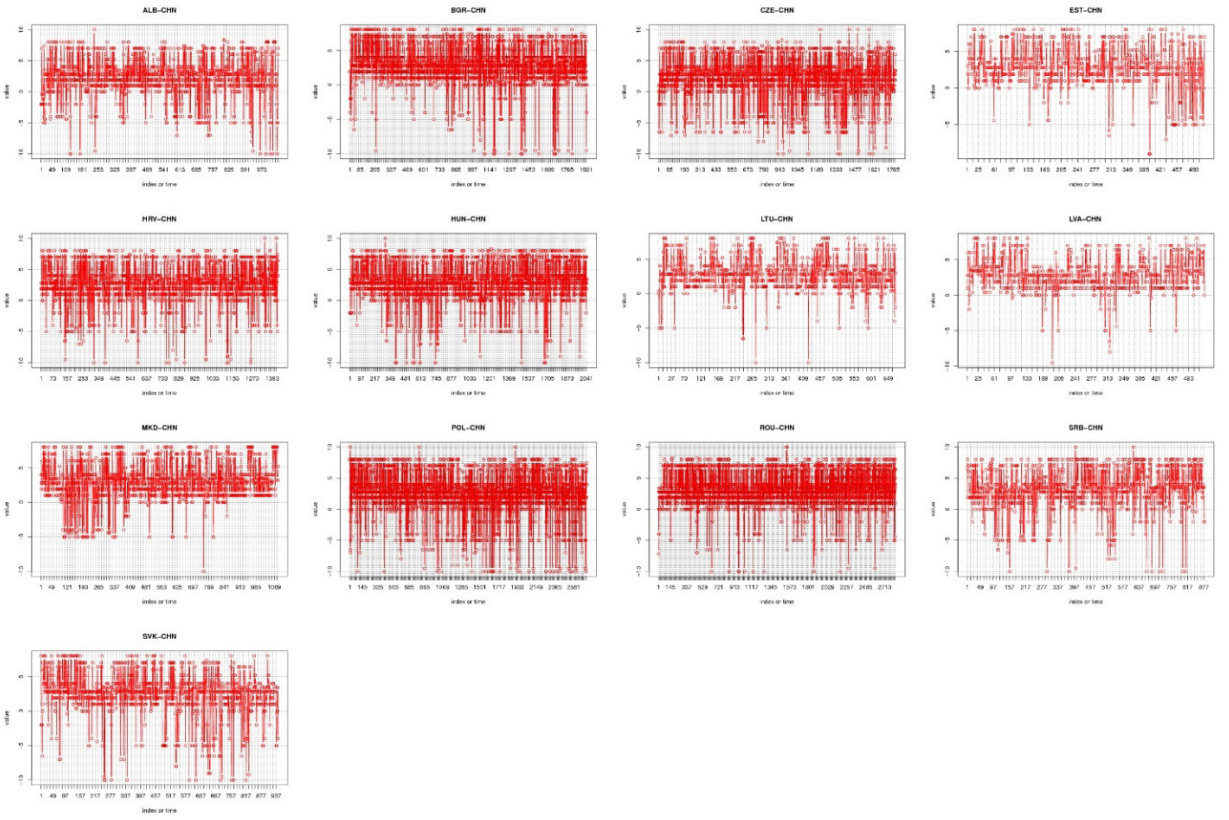
6 Notes: PR = Political Rights, CL = Civil Liberties, CL, PR, Freedom Rating Explanation: 1=most free and 7=least free, Aggregate Score Explanation: 0=least free, 100=most free.

Appendix III: The Voting Records by China and CEE-16



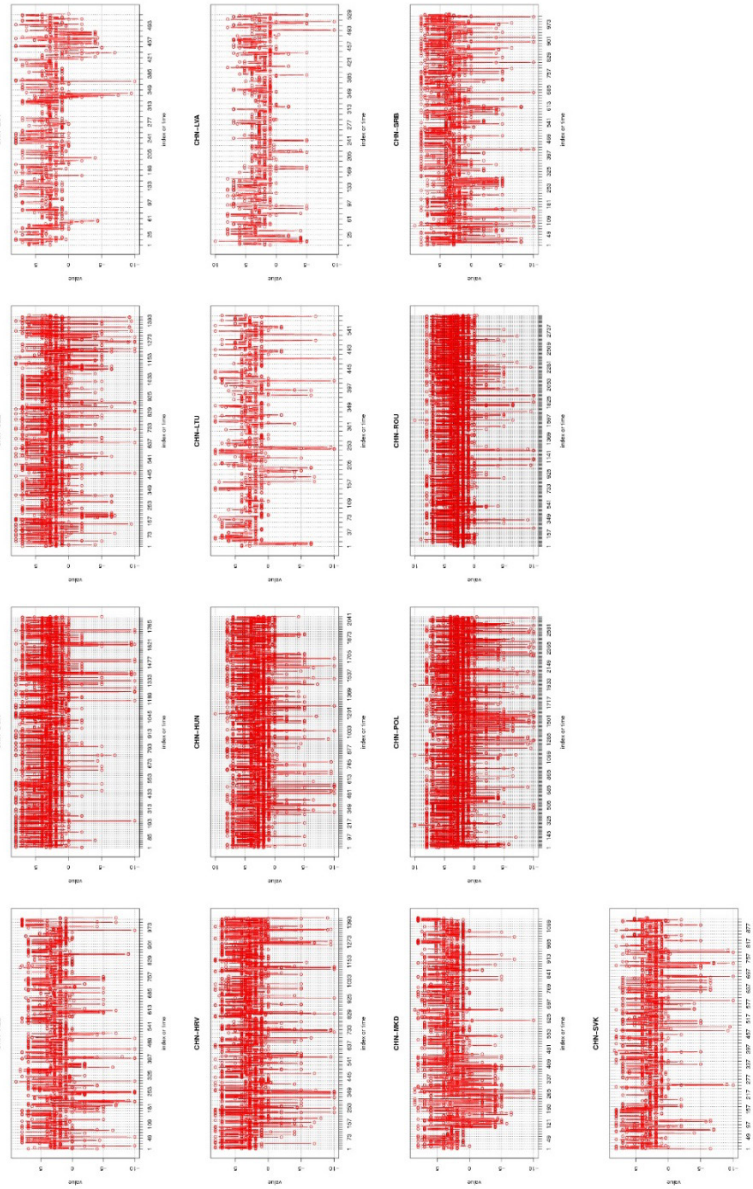
Notes: The Voting Records database provides access to voting information for General Assembly resolutions adopted by a recorded vote beginning in the 1st session (1946), the information provided comes from the voting machine in the General Assembly Hall. If a Member State informs the Secretariat of an error in the vote, the data is not changed and the vote must therefore be researched in the meeting records. Source: United Nations General Assembly Voting Data.

Appendix IV-i: GDELT Data by CEE-16 to China



Source: GDELT Project.

Appendix IV-ii: GDELT Data by China to CEE-16



Source: GDELT Project.

Notes:

IV-i	N	Min	1st Qu.	Median	Mean	3rd Qu.	Max
ALB-CHN	1045	-10.000	1.000	2.500	2.207	4.000	10.000
BGR-CHN	1928	-10.000	1.000	2.800	2.843	4.000	8.000
CZE-CHN	1784	-10.000	1.000	2.800	2.098	4.000	10.000
EST-CHN	516	-9.000	1.000	2.800	2.826	4.000	8.000
HUN-CHN	2043	-10.000	1.000	2.800	2.858	4.000	10.000
HRV-CHN	1428	-10.000	1.000	2.800	2.534	4.000	10.000
LTU-CHN	670	-10.000	1.000	2.800	2.816	4.000	8.000
LVA-CHN	528	-10.000	1.000	2.800	2.787	4.000	8.000
MKD-CHN	1086	-10.000	1.000	2.800	2.871	4.000	8.000
POL-CHN	2732	-10.000	1.000	2.800	2.384	4.000	10.000
ROU-CHN	2843	-10.000	1.900	2.800	2.997	4.000	10.000
SRB-CHN	879	-10.000	1.900	3.400	3.110	5.200	10.000
SVK-CHN	945	-10.000	1.000	2.800	2.281	4.000	8.000
SUM/A	18427				2.662		

IV-ii	N	Min	1st Qu.	Median	Mean	3rd Qu.	Max
CHN-ALB	1017	-10.000	1.000	2.800	2.469	4.000	9.000
CHN-BGR	1847	-10.000	1.000	2.800	2.937	4.000	8.000
CHN-CZE	1428	-10.000	1.000	2.800	2.234	4.000	8.000
CHN-EST	519	-10.000	1.000	2.800	2.790	4.000	8.000
CHN-HUN	2065	-10.000	1.000	2.800	2.871	4.000	10.000
CHN-HRV	1423	-10.000	1.000	2.800	2.611	4.000	8.000
CHN-LTU	579	-10.000	1.000	2.800	2.463	4.000	8.000
CHN-LVA	531	-9.500	1.000	2.800	2.544	4.000	10.000
CHN-MKD	1110	-10.000	1.000	2.800	2.611	4.000	8.000
CHN-POL	2741	-10.000	1.000	2.800	2.459	4.000	10.000
CHN-ROU	2935	-10.000	1.900	2.800	3.003	4.000	10.000
CHN-SRB	1019	-10.000	1.900	3.400	2.930	5.000	9.000
CHN-SVK	918	-10.000	1.000	2.800	2.657	4.000	8.000
SUM/A	18132				2.660		