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Escalation of a local conflict into a Cold War

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Since the Russia-Ukraine conflict of 2022, the world has been headed toward a dichotomized world like the Cold War. The increasing division is not necessarily predicted by “rationalist” models based upon the costs and benefits of conflicts and trade. The existing scholarship theoretically and empirically finds that increasing trade between two countries makes it more likely that the two countries will avoid conflicts. The natural question is why the world is increasingly divided after one local conflict despite the increasing costs of division. This note sheds light on the driving forces of a dichotomy and its robustness by studying a simple signed network game model. In this game, a country chooses to be an ally or enemy of every other country. I show that one local conflict together with a particular strategy by one of the countries implicated in the conflict is sufficient to lead the world to a dichotomized world. In particular, I demonstrate that if that country employs a policy that a friend of my enemy is my enemy, then the world will *always* be divided into two groups, within which countries are allies and across which countries are enemies.

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Introduction

Since the Russia–Ukraine conflict of 2022, the world has been increasingly divided. Such division can be enormously costly to multiple layers of the world such as loss of international trade opportunities, increased vulnerability of emerging economies with accumulated debt, and risks of reduced cooperation for pressing global issues including climate change (Georgieva 2023). The increasing division is not necessarily predicted by the existing scholarship of “rationalist” models based upon the costs and benefits of conflicts and trade. For example, Jackson and Nei (2015) theoretically and empirically find that increasing trade between two countries makes it more likely that the two countries will avoid conflicts. The natural question is then, why is the world increasingly divided after one local conflict despite the increasing costs of division?¹ This note provides a driving force for such division by studying a simple signed network game first proposed by Hiller (2017). In this game, a country chooses to be an ally or enemy of every other country. I show that one local conflict together with a particular strategy by one of the countries involved in the conflict is sufficient to lead the world to a dichotomized world.

In particular, I demonstrate that if (i) this specific country (call it A) chooses to be an enemy of another specific country, and if (ii) country A employs a policy that a friend of my enemy is my enemy, then the world will always be divided into two groups, within which countries are allies and across which countries are enemies. I demonstrate that any constrained efficient way of grouping countries into two that maximizes total welfare is stable in the sense that no one or set of countries together want to deviate from the state. Stability may support the long-term rigidity² and thus may be one indicator for the robustness of the state.

With the main result, I will briefly explore the extensions of my model with consideration of (1) the choice of neutral states and (2) different preference structures. Neutral states are prevalent strategies as we can infer from voting strategies.³ For instance, at the United Nations General Assembly (UNGA), India has abstained from voting for Russia to be suspended from the Human Rights Council⁴ and from voting against Russia’s annexation of a portion of Ukraine.⁵ Many countries adopt this neutral position, and President Macron’s speech at the United Nations admonishes countries not to stay neutral about condemning Russia.⁶ I will discuss how the results of my model would change with consideration of such a strategy.

Furthermore, the value of a link and its surplus-sharing rule between two countries may depend on particular characteristics of countries such as their sizes. I will explain what conditions are sufficient for the result of my model to carry through with the twists in the preference structures. Moreover, Russia has so far only partially employed the strategy described in (ii) above. It has so far labeled many of the countries that impose economic sanctions on Russia and support Ukraine as “unfriendly countries,” while it has not regarded those countries that support the allies of Ukraine as “unfriendly countries” yet. The results of my model imply that once it fully employs the strategy, this may lead to a dichotomized world for an extended period. Given that Russia appears to be moving toward fully adopting the strategy, which will be discussed later, I will provide possible policy prescriptions in my model.

Before delving into the details of my model, I acknowledge its limitations here. As empirically found by Maoz et al. (2007), while the friend-of-my-enemy-is-my-enemy type triad relations are prevalent in international relations, there are many triad relations that do not follow such rules, both historically (such as the time span of 1816–2001 studied in Maoz et al. (2007)) and contemporarily. In the context of the current Ukraine–Russia

conflict, India is an example and is not regarded as an enemy by Russia in spite of being a Quad member. While this could be explained by the aforementioned India’s neutral state and/or the aforementioned Russia’s partial enforcement of the strategy, there can be many other factors that result in the example. Turkey is another example of the limitation.

To reiterate, my main model is a simplification of a complex reality. For example, the celebrated “domino theory” turned out to be overly celebrated and only accounted for 11% of the adoption of democracy by countries between 1850 and 2000 (Leeson and Dean 2009) since the theory considers a hypothetical world that ignores a number of countervailing influences. Similarly, my note considers a hypothetical situation that considers an extreme case of one country fully committing to the above strategy and abstracts away from a number of other important factors such as regime types and economic sanctions. While I propose toward the end a simple extension of my model to incorporate such complexity for future theoretical and empirical studies,⁷ the purpose of this paper is neither to explain all historical international relations nor to construct a complex model for precise predictions on future dyadic or triadic international relations. Rather, the objective of this paper is to provide a simple model and succinctly portray how a local conflict can have a butterfly effect and affect the global structure of international relations.

Relation to the literature

Among many related papers⁸, three closely related papers are Cartwright and Harary (1956), Lee et al. (1994), Koizumi (2023), Jackson and Nei (2015), and Hiller (2017). While, unlike this study, Cartwright and Harary (1956) and Lee et al. (1994) do not have incentive structures over countries’ behavior, the difference between my paper and these two papers comes down to the following. Cartwright and Harary (1956) and Lee et al. (1994) show that if all countries have preference structures such that they somehow like to follow Heideger-based rules of triadic relationships—e.g., the enemy of my enemy is my friend—⁹, then the world will tend to the dichotomy in a static (Cartwright and Harary 1956) or dynamic manner (Lee et al. 1994). Similarly, although Koizumi (2023) has incentive structures over countries’ behaviors by studying an unsigned network game, he also assumes that all countries somehow have preference structures based upon Heideger-based rules in his paper.¹⁰ In contrast, this note demonstrates that even if only one country follows the rules, the world will be divided into two groups as long as there is a conflict between this country and another country.

Jackson and Nei (2015) analyze the relationship between trade and war among countries. In their model, countries form bilateral military alliances through which countries coordinate attacks against other countries who in turn may be defended by their allies. Jackson and Nei (2015) demonstrate that without trade, there is no stable network such that no country has an incentive to initiate a war. The authors then establish that trade may result in stability and prevent the outbreak of war. While Jackson and Nei (2015) study conditions for equilibria such that no conflict arises, this note explores conditions for the dichotomy of the world in the presence of antagonism and conflict.

Hiller (2017) is concerned with the same topic. Hiller (2017) is a seminal paper of a signed network game that lays out rich settings to provide insightful analyses on how players can be divided into groups. Specifically, assuming that countries are homogeneous in the preference structure, Hiller (2017) provides conditions for a possible dichotomy of the world using the standard Nash equilibrium (NE) and for a strong NE. Note that

the standard NE assumes away any communication among countries, which may be a strong assumption in international relation contexts. The strong NE allows for full communication, but partly because of the restriction to homogeneous countries, any strong NE in his model leads to an outcome in which all but one country gang up on that country. In contrast, focusing on the stability of coalition, which is a solution concept that lies between the standard NE and strong NE, I provide different sufficient conditions for the dichotomy of the world while allowing for heterogeneous countries in preference structures.

Note that the contribution of this paper does not lie in the technical aspects of signed network games. Rather, the contribution lies in the applicability of the model results and their implications to the current circumstances. In particular, for the international community, this paper sheds light on what policies could be effective at preventing a dichotomized world.

Environment

Let $N = \{1, \dots, n\}$ be a finite set of countries with $n \geq 3$, considered fixed in what follows. Country i 's strategy is a row vector $\hat{g}_i = (\hat{g}_{i,1}, \hat{g}_{i,2}, \dots, \hat{g}_{i,i-1}, \hat{g}_{i,i+1}, \dots, \hat{g}_{i,n})$, where $\hat{g}_{i,j} \in \{-1, 1\}$ for each $j \in N \setminus \{i\}$. I say that country i extends a positive link to j if $\hat{g}_{i,j} = 1$, meaning that country i intends to form a friendly relation with country j . Similarly, country i extends a negative link to j if $\hat{g}_{i,j} = -1$, indicating that country i intends to form a hostile relation with country j . With the value of $\hat{g}_{i,j}$ being either -1 or 1 , I abstract away from (1) the degree of friendship or enmity and (2) the multifaceted relationship between the two countries. That is, I do not consider the complexity of international relations in which, for example, country i is somewhat friendly with country j in the context of trade, but country i regards country j as an enemy in politics. Rather, I assume that such multi-dimensional friendship and enmity with heterogeneous degrees can be projected onto a uni-dimensional degree of friendship and enmity between $[-1, 1]$, which can be further grouped into two categories of either friend or enemy at the cutoff of value 0.

The set of i 's strategies is a combination of such friend or enemy choices over all the other countries and is denoted by \hat{G}_i , while the strategy space is a set of all possible combinations of such choices by each country and is written as $\hat{G} = \hat{G}_1 \times \dots \times \hat{G}_n$. A strategy profile is a collection of all the countries' strategies denoted by $\hat{g} = (\hat{g}_1, \hat{g}_2, \dots, \hat{g}_n)$. The corresponding undirected network \bar{g} , which we call a signed network, is a realization of international relations based on the strategy profile and is defined in the following way. The link between countries i and j is positive in the undirected network \bar{g} if both directed links are positive, so that $\bar{g}_{ij} = 1$ if $\hat{g}_{i,j} = \hat{g}_{j,i} = 1$. The link in the undirected network is negative if at least one of the two undirected links is negative, so that $\bar{g}_{ij} = -1$ if either $\hat{g}_{i,j} = -1$ or $\hat{g}_{j,i} = -1$ (or both). This means that even if country i wants to form a friendly relation with country j , the relation between country i and j is hostile as long as country j intends to form a hostile relation with i . Notice that in this setting, all pairs of countries are linked either positively or negatively. I denote by \bar{G} the set of all possible signed networks.

A signed weighted graph $H = (N, L, \bar{g}, w)$ comprises a set of countries N , a set of all unsigned links L that is a set of all unordered pairs of distinct countries, \bar{g} that assigns a sign to each of the elements of L , and $w : L \rightarrow R_{++} \setminus \{\infty\}$ is a function that assigns real strictly positive weights to the links. Let w_{ij} be the weight of link $\{i, j\}$ and reflect a potential positive or negative surplus; if $\bar{g}_{ij} = 1$, it is a positive surplus for i and j while if $\bar{g}_{ij} = -1$, it is a negative surplus for i and j . These weights capture multifaceted characteristics of potential "values" realized between a pair of countries. For example, weight w_{ij} with $\bar{g}_{ij} = 1$ may

represent the trade volume between country i and j , security through military alliance, cultural exchange, etc. \bar{g} maps each of the unsigned links into either a set of positive links L^+ or negative links L^- .

A path of H is a collection of unsigned links with $A_1 A_2, A_2 A_3, \dots, A_{m-1} A_m$, where the countries A_1, A_2, \dots, A_m are distinct. A cycle $A_1 A_2 \dots A_m$ of H consists of the path described above together with the link $A_m A_1$. Following Cartwright and Harary (1956), I say that a cycle is a positive cycle if after assigning the sign of each of the link by \bar{g} , the number of negative links is even including zero. Similarly, I say that a cycle is a negative cycle if the number is odd. Finally, a signed weighted graph is in balance if all its cycles are positive.

A value function is a function $v : \bar{G} \rightarrow R$ and determines the total value generated by a given signed network, which is essentially the total "pie" generated by all international relations. A value function v is additive if $v(\bar{g}) = \sum_{i \neq j} w_{ij} \bar{g}_{ij}$ for any \bar{g} . Note that an additive value function precludes complementarities; for example, country i will not obtain an extra surplus from a positive link between country j and k under \bar{g} in which $\bar{g}_{ij} = 1$ and $\bar{g}_{jk} = 1$. In this note, I focus on additive value functions. A signed network \bar{g} is constrained efficient relative to a value function v if $v(\bar{g}) \geq v(\bar{g}')$ for all $\bar{g}' \in \bar{G}$.

The way the value generated by a signed network is allocated among the countries, either through their decisions or some outside intervention, is described by an allocation rule. An allocation rule is a function $Y : \bar{G} \times V \rightarrow R^n$ such that $\sum_i Y_i(\bar{g}, v) = v(\bar{g})$ for all v and \bar{g} , where $Y_i(\bar{g}, v)$ is the payoff to player i from graph \bar{g} under the value function v . In this note, I focus on a simple allocation rule as defined below:

$$Y_i(\bar{g}, v) = \frac{1}{2} \sum_{j \in N} w_{ij} \bar{g}_{ij}. \tag{1}$$

Given the focus on additive value functions that do not face complementarities, I focus on the above functional form that does not involve complementarities. Notice that since \hat{g} defines \bar{g} , to define each player's payoff, we only need to know the resulting \bar{g} . I will discuss how much of this allocation rule can be relaxed to retain the results of this note later in this note.

A signed network \bar{g} is stable¹¹ if there exists no blocking coalition $S \subset N$ such that with a different signed network $\bar{g}' \neq \bar{g}$, for at least one member of S , $i \in S$,

$$Y_i(\bar{g}', v) > Y_i(\bar{g}, v)$$

and for the rest of the members $j \in S$,

$$Y_j(\bar{g}', v) \geq Y_j(\bar{g}, v).$$

Resulting network structures and stability

I first describe the main conditions in this note. First, one specific country extends a negative link to another specific country. Without loss of generality, I assume these two countries are 1 and 2.

Assumption 1 For any strategy of country 2, $\hat{g}_2 \in \hat{G}_2$, $\hat{g}_{2,1} = -1$.

Now, I assume country 2 adopts a "friend-of-my-enemy-is-my-enemy" strategy.

Assumption 2 (Friend-of-my-enemy-is-my-enemy). For any arbitrary players $i, j \in N \setminus \{2\}$, if $\hat{g}_{2,i} = -1$, and if $\hat{g}_{j,i} = 1$, then $\hat{g}_{2,j} = -1$.

For example, country 2 can be Russia, which labels those countries that support Ukraine as "unfriendly countries." Assumption 2 would be satisfied if Russia starts labeling all countries that support allies of Ukraine as unfriendly countries. With these assumptions, I will first show that all triads in a

constrained efficient signed network \bar{g} exhibit the above assumption that the friend of my enemy is my enemy. The proofs for Lemma 1 and Proposition 1 of this note can be found in the Appendices.

Lemma 1 *Let Assumptions 1 and 2 hold. Then, any cycle with three countries induced by a constrained efficient signed network \bar{g} is positive.*

The important insight from this lemma is that despite the assumption that all the weights between a pair of countries are innately positive, a conflict between just two countries can lead to a “domino” effect and a realization of negative links other than the one between countries 1 and 2, due to the strategy adopted by country 2 (Assumption 2). Suppose there are four countries: countries 1, 2, 3, and 4. By Assumption 1, the relation between countries 1 and 2 is hostile. Given this and Assumption 2, country 3 has to decide which side she belongs to. If country 3 becomes a friend of country 2, then country 3 cannot be simultaneously a friend of country 1 since as soon as countries 1 and 3 are friends, country 2 regards country 3 as an enemy under their tactics described by Assumption 2. Suppose country 3 decides to be a friend of country 1 and becomes an enemy of country 2. Given this tactic of country 3, if country 4 wants to become a friend of country 2, then country 4 must abandon friendship not only with country 1 but also with country 3 since country 3 is an enemy of country 2. Then, even if there is no reason for countries other than country 2 to form a hostile relation with the other countries, some countries that want to be a friend of country 2 are forced to become an enemy of the countries that are friends of country 1.

Next, the following lemma is due to Davis (1967).

Lemma 2 (Davis, 1967) *Let Assumptions 1 and 2 hold. Then, by Lemma 1, players can be partitioned into two sets, $1 \in S_1$ and $2 \in S_2$ such that all links within each set lie in L^+ and all links across two sets lie in L^- .*

Now, the stability of constrained efficient signed networks is straightforward to show with Lemma 2. This is because the allocation rule aligns players’ incentives with constrained efficiency¹² and because Lemma 2 makes it easier to check the possibilities of blocking coalitions.

Proposition 1 *Assumptions 1 and 2 hold. Then, any constrained efficient signed network \bar{g} is stable.*

The following corollary is an immediate consequence of this proposition.

Corollary 1 *Assumptions 1 and 2 hold. Then, by Lemma 2 and Proposition 1, all stable signed networks feature a dichotomy.*

The underlying intuition behind the above results is the following. The two conditions reduce the world to a simple situation in which two countries are fighting each other and tell every other country to choose either side. Other countries’ wishes to be friends of both do not matter since, following the standard structure of a signed network game, the sign of a link between two arbitrary countries becomes negative if only one of the two countries extends a negative link. By this nature, it turns out that only one country of the two fighting countries needs to tell every other country to choose either side. My note finds precisely what conditions lead to this simple situation.

Discussions, extensions, and limitations

Neutral state. We see that some countries hold neutral positions in international relations. Suppose we allow neutral states for countries other than country 2 in a way that extending a neutral link can circumvent the extension of a negative link by country 2 against these countries for supporting the enemies of country 2. Specifically, i extends a neutral link to j with $\hat{g}_{ij} = 0$, and $\bar{g}_{ij} = 0$ if both i and j extend a neutral link to each other. The benefit of a neutral link is that i and j will not incur negative weights even if

one of them is in S_1 and the other is in S_2 . Note that all members of S_2 except 2 are better off by extending a neutral link to each member of S_1 including 1. Similarly, all members of S_1 are better off by extending a neutral link to members of S_2 except 2. As a result, a stable signed network features that all members of S_1 will have negative links with 2 but neutral links with all the other members of S_2 .

Different payoff and preference structures. All the results above are obtained with the particular payoff and preference structure. The equal division of a surplus between two countries is a strong assumption and can be relaxed as long as (a) the surplus-sharing rule is determined between two countries prior to the formation of networks, (b) the rule does not depend upon the position of a network, and (c) the rule does not involve countries other than the two (i.e., without externalities and complementarities). All the proofs above carry through with such pre-specified surplus-sharing rules. For instance, there may be heterogeneity in the size of each country, and a surplus and the sharing rule between two countries may depend upon their sizes. As long as (a), (b), and (c) are satisfied, all the results of this note will carry through even under such settings.

Antagonism among countries within the same group. I assume that only country 2 extends a negative link to country 1 no matter what. However, there can be other countries between which antagonism or enmity exists. Such antagonism may exist between countries on the same side (i.e., members within S_1 or S_2) in the model. Then, the results of this note hold only if these countries adopt particular, similar strategies such as “the enemy of my enemy is my friend.” If it is more important for all members of S_1 (S_2) to cooperate and fight against country 2 (country 1) than fighting among their allies, then they may tolerate antagonism against the other members of the same group. For example, the West cooperated with Hitler, Mussolini, and Franco when its enemy of the 1930s was Stalin (Saperstein 2004). In the current contexts, EU has been united more than ever due to Russia.¹³ With that said, I emphasize that the purpose of this note is to delineate the driving forces of the current dividing movement, and that my model simplifies and abstracts away from many complications in the real world.

Comparison to NE and Strong NE. In this section, I will explain why I chose stability as a solution concept over a NE. I define a NE following Hiller (2017). Define the payoff of player i under strategy profile \hat{g} as $u_i(\hat{g}) = Y_i(\bar{g}, \nu)$, where \bar{g} is the resulting signed network from \hat{g} . A strategy profile \hat{g}^* is a pure strategy NE if and only if $u_i(\hat{g}_i^*, \hat{g}_{-i}^*) \geq u_i(\hat{g}_i, \hat{g}_{-i}^*) \forall \hat{g}_i \in \hat{G}_i$ and $\forall i \in N$.

In general, focusing on an individual country’s deviations leads to the violation of Assumption 2. For example, suppose initially that country i forms a positive link with country 2; $\hat{g}_{i,2} = 1$ and $\hat{g}_{2,i} = 1$, so that $\bar{g}_{i2} = 1$. Suppose $\hat{g}_{i,1} = 1$ since there is no reason for country 1 to extend a negative link to other countries. And yet, for country i to form a positive link with country 2, country i must form a negative link with country 1 due to Assumptions 1 and 2. Then, $\hat{g}_{i,1} = -1$. Now, suppose country i deviates and $\hat{g}_{i,1} = 1$. For the moment, country i can form positive links with both countries 1 and 2, violating Assumption 2, due to the absence of dynamics. Then, the standard NE significantly limits the analysis in my context. This is one reason why I chose stability as a solution concept. The stability solution focuses on alternative signed networks rather than deviating individuals’ strategies, making it possible to analyze the steady-state behavior of countries in a static manner.

Even if one considers dynamic games with a corresponding NE, the other undesirable feature of an NE is the restriction on the amount of communication among countries. A pure strategy NE considers a deviation of only one country, but countries tend to cooperate and act as a group in the real world. Example 1 in the Appendices portrays this issue and demonstrates how an NE does not attain constrained efficiency. In fact, we have seen some amount of communication among countries publicly at least at some gatherings such as a series of European Union meetings including the newly established European Political Community¹⁴ and the UNGA. Therefore, a pure strategy NE is unlikely to be a suitable solution concept to analyze international relations including the current circumstances.

On the other hand, a strong NE, a solution concept first suggested by Aumann (1959), allows for deviations of any subset of countries in which a deviation is considered profitable if payoffs are strictly higher for all deviating agents. More formally, a strategy profile $\hat{g} \in \hat{G}$ is a strong NE if there is no $J \subseteq N$ and $\hat{g}' \in \hat{G}$ such that (i) $\hat{g}'_i = \hat{g}_i \forall i \notin J$ and (ii) $u_i(\hat{g}') > u_i(\hat{g}) \forall i \in J$. Notice that possible deviations in a strong NE require more than the stability concept in that deviations have to be profitable to all deviating members.

Due to this demanding requirement, a strong NE may not be constrained efficiently as portrayed by Example 2 in the Appendices. This comes from a situation in which although the total surplus will increase by a group of countries switching between S_1 and S_2 , only one of the countries from the group obtains a strictly higher payoff while the other countries of the group obtain the same payoff by switching sides.

Regime types and sanctions. In this section, I consider a possible extension of the model for future studies and consider factors that lead to the imbalance of the resulting network. An interesting feature of my model is that the imbalance comes entirely from the violation of Assumption 2, implying that we only need to look at what country 2 cares about.

While there are many potential factors that discourage country 2 to fully adopt the strategy in Assumption 2, I focus on regime-type differences and economic sanctions for the following reasons. Notice from Russia’s list of “unfriendly countries” that these countries are mainly those that impose economic sanctions on Russia and support Ukraine.¹⁵ Furthermore, the existing scholarship finds that states with similar regime types tend to form alliance ties (Lai and Reiter 2000; Siverson and Emmons 1991). In fact, President Biden has rendered the notion of “democracies versus autocracies” the organizing principle of his foreign policy in the context of the Ukraine–Russia conflict.¹⁶ Turkey is a good example of the imbalance (being a friend of both Russia and Ukraine) with the two factors despite the fact that Turkey is a member of the North Atlantic Treaty Organization and has voted against Russia at one of the UNGA polls.¹⁷ Turkey does not impose an economic sanction on Russia, and according to the Democracy Matrix based on the Democracy Dataset¹⁸, Turkey’s democracy quality is ranked 137th among 176 countries in 2020 (while Russia is ranked 144th).

To incorporate these factors and simplify discussions, I impose parametric assumptions on the payoff function of Country 2. In particular, country 2 solves the following maximization problem with an optimizer \hat{g}_2 : 2 maximize

$$\sum_{i \neq 2 \in N} (w_{i2} - d_{i2} - e_{i2}) \min \left\{ \hat{g}_{2,i}, \hat{g}_{i,2} \right\} + \sum_{i \neq j \neq 2} w_{ij} \min \left\{ \hat{g}_{2,i}, \hat{g}_{i,2} \right\} \min \left\{ \hat{g}_{2,j}, \hat{g}_{j,2} \right\} \min \left\{ \hat{g}_{i,j}, \hat{g}_{j,i} \right\}$$

where d_{i2} is the degree of regime-type similarities between country 2 and i and e_{i2} is the degree of economic sanctions that i imposes

on country 2. Note that the second term is the benefits of either (1) having all positive links among 2, i , and j ¹⁹ or (2) attacking a friend of an enemy to deter or prevent the supports between i and j . Notice that the larger d_{i2} and e_{i2} , the less attractive for country 2 to form a positive link with i , which in turn make the relative attractiveness of the benefits through indirect relations captured by the second term. Depending on the magnitudes of these parameters, country 2 may not make the Heidegger-based rules the organizing principles of its foreign policies in international relations. While these parameters are potentially estimatable, this empirical task is beyond the scope of this paper.

Policy prescriptions. The findings of this note imply two potential policy prescriptions for the world to avoid the dichotomy. One way is to simply end the Russia–Ukraine conflict. Recall that the conditions for the dichotomy are two-fold, one of which is an existing conflict between two countries. If there is no such conflict in the first place, then no country has an incentive to form a hostile relation with another country in the model. Thus, there would not be such a dichotomy.

The other way is to prevent Russia from fully adopting the strategy of Heidegger-based rules. Note that Russia appears to be moving forward to fully adopting the strategy. Sergei Karaganov, honorary chairman of the Presidium of the Council on Foreign and Defence Policy and former Presidential Advisor to President Putin, wrote in June 2023 in a Russian magazine, “[t]hings may also get to the point where we will have to urge our compatriots and all people of goodwill to leave their places of residence near facilities that may become targets for strikes in countries that provide direct support to the puppet regime in Kiev”²⁰. Notice that in the model above, there is no reason for a country to form a hostile relation with another country unless that country extends a negative link to her. In other words, if other countries initiate to form hostile relations with Russia, then Russia would not have too much to lose by adopting the strategy. In contrast, if other countries do not initiate to form hostile relations with Russia, then it would be costly for Russia to adopt the above strategy. One real-life policy prescription could be that the U.S. signals to Russia that she would not extend a negative link against Russia—i.e., the end of various U.S. sanctions on Russia and supports for Ukraine joining NATO—if Russia initiates ceasefire negotiations.

Unfortunately, this type of effort has not been sufficiently made. For example, President Biden’s policy is to weaken Russia rather than an immediate ceasefire. As U.S. Defense Secretary Lloyd Austin said, “[w]e want to see Russia weakened to the degree that it can’t do the kinds of things that it has done in invading Ukraine”²¹. If Russia has to choose between being “weakened to the degree” and fully adopting the strategy of fighting against all the countries supporting Ukraine, then she might choose the latter.

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Notes

- 1 In fact, the world seems to be reducing trade and “onshoring” under the recent series of turmoils. See, e.g., <https://www.nytimes.com/2022/09/06/opinion/the-world-is-getting-less-flat.html> accessed through <https://economictimes.indiatimes.com/small-biz/trade/exports/insights/the-world-is-getting-less-flat-as-retreat-from-globalisation-continues/articleshow/94043161.cms?from=mdr>.
- 2 See, e.g., Roth (2002).
- 3 See, e.g., <https://news.un.org/en/story/2022/04/1115782> and <https://www.businessinsider.com/these-5-countries-sided-with-russia-in-un-vote-2022-10>.
- 4 See <https://news.un.org/en/story/2022/04/1115782>.

- 5 See <https://www.hindustantimes.com/india-news/143-countries-condemn-russia-at-un-india-abstains-101665632003819.html>.
- 6 See <https://www.politico.eu/article/macron-accuses-neutral-nations-complicity-russia-new-imperialism-ukraine-war-un-general-assembly/>.
- 7 See Warren (2016) for a simulation-based analysis of interaction among regime types, alliances, and conflicts with interdependent international relation structures.
- 8 See Larson (2021) for a review of the literature.
- 9 The rules are: the friend of my friend is my friend; the friend of my enemy is my enemy; the enemy of my enemy is my friend; the enemy of my friend is my enemy.
- 10 Note that Koizumi (2023) does not provide a result on the realized network structure of his model.
- 11 For those who are interested in the relationship between a coalition-proof Nash equilibrium and stability, see Dutta and Mutuswami (1997).
- 12 The alignment of incentives with constrained efficiency is similar to the egalitarian allocation rule from Jackson (2005).
- 13 See, e.g., <https://www.prospectmagazine.co.uk/world/putin-has-united-europe-more-than-ever-before>.
- 14 See, e.g., <https://www.rferl.org/a/europe-prague-summit-ukraine-war/32068070.html>.
- 15 See, e.g., <https://tass.com/politics/1418197> and <https://www.reuters.com/graphics/UKRAINE-CRISIS/SANCTIONS/byvrjenzmve/index.html>.
- 16 See, e.g., <https://thehill.com/opinion/national-security/3521187-does-bidens-democracy-v-autocracy-framework-make-sense/>.
- 17 <https://news.un.org/en/story/2022/04/1115782>.
- 18 <https://www.democracymatrix.com/ranking>.
- 19 For example, in part for purposes of its national defense against countries such as North Korea, the U.S. maintains bilateral defensive alliances with South Korea and Japan. For the interoperability of militaristic cooperation among the three countries, the South Korea–Japan relation is significant to the U.S. See, e.g., <https://www.japantimes.co.jp/news/2019/08/23/national/politics-diplomacy/japan-south-korea-gsomia-intelligence-pact/>.
- 20 An excerpt from <https://eng.globalaffairs.ru/articles/a-difficult-but-necessary-decision/>.
- 21 An excerpt from <https://foreignpolicy.com/2022/04/29/russia-ukraine-war-biden-endgame/>.

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Additional information

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