

Strategic Analysis: Great Power Competition and Small State Survival

A Game-Theoretic Analysis of Proxy War and Ukraine's Strategic
Survival

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Abstract

The study views the Ukraine war as a proxy-war in which Russia, the United States and the EU conduct strategic interaction, and Ukraine can be seen as a constrained but strategic actor in the new post-Cold War international order as a whole. The paper uses a combined case-study and conceptual game-theoretic modelling approach, incorporating game-theory frameworks to investigate the strategic moves, payoff structures, and changes in equilibrium. The analysis captures the interplay between the incentives to escalate, build alliance credibility and domestically political considerations that make the Ukraine war so protracted, tactical cooperation so common and de-escalation so limited. The paper suggests that from a small-state perspective, the country's strategy may be to engage in rational hedging behaviour which would involve securing the maximum external support, maintaining sovereignty and augmenting long-term bargaining power within the context of severe structural constraints.

Keywords: Great power competition; Proxy war; Game theory; Small state survival;
Ukraine war; Strategic interaction; NATO; Euro-Atlantic security; Deterrence;

International political economy; Security dilemma

1 Introduction

The conflict in Ukraine is one of the most serious geopolitical events rocking the post–Cold War European security landscape, aggravating the great power rivalry between Russia and the United States and its Euro-Atlantic partners, such as NATO and the European Union. War is a proxy war, in which big powers attempt to pursue their strategic objectives while a smaller nation is threatened with the loss of its sovereignty, territorial integrity and institutions. The world changed in the wake of the Cold War, and opposing visions of what the new East Europe should look like began the war. Since becoming independent in 1991 Ukraine has developed in two geopolitical directions. It was more closely tied to the Euro-Atlantic political, economic and security institutions and at the same time close to Russian influence. The annexation of Crimea and the military escalation in Eastern Ukraine in 2014, which occurred in Russia, have made the situation in Europe even more difficult. The full-scale Russian invasion in February 2022 triggered the escalation of the conflict and led to large-scale military, economic, and political involvement of the West. This participation was made possible through the provision of financial aid, arms transfers and sanctions. There are various reasons for Russian war with Ukraine. These concerns include, inter alia, the system, national security and NATO enlargement. The US, EU, and NATO help Ukraine to deter aggression, build trust in the alliance, and uphold the rules-based international order of the Cold War era. But Ukraine is not only a frontier land of superpowers. The institutions are strong, people are mobilized and Ukraine is aligned with Euro-Atlantic friends, so it has some control over its fate. The strategic choices and payouts of all countries involved has been affected by Ukraine. Ukraine has impacted the strategic choices, and payoffs for all countries participating. In spite of imbalanced power, incomplete information, and changing relationships, a game-theoretic approach can be used to gain insight into strategic relationships. Ukrainian international relations theories can help to understand history, moral and ideology of the Ukrainian war. Theories of international relations of realism, liberal institutionalism, constructivism can explain the history, the moral, and the ideology of the Ukrainian war. These theories can't explain strategic choice, conditional responses, and equilibrium results in a proxy war rapidly becoming a reality. In this paper, the question of how great and small power play strategically as rational actors constrained by their institutional architecture and driven by military, economic and political pressures in the Ukrainian crisis is examined. This essay attempts a new perspective on the Ukraine war as a kind of proxy war in which countries and persons work together and clash against each other. Ukraine is seeking to not only survive but to deter threats and ensure long-term safety. Nevertheless, important powers try to expand their strategic influence without engaging in any confrontation. Studies about the Ukraine war tend to emphasize the aspects of the legal framework, geopolitical background or operations on the battlefield element. Little formal model research exists on dynamic strategic interdependence, asymmetric payoffs, and agency in

small states in the presence of long-term pressure from outside. This paper creates a game-theoretic model to explore great power competition to fill this gap, modeling the survival of small states when facing long-term pressure from geopolitical titans, using the war in Ukraine as a primary case study. This research investigates the influences of aligning with the external world, credibility and deterrence on strategic balances and policy results. This is achieved through the combination of mathematical modelling with research on institutions and the political economy. The study takes a formal modelling approach to games and a qualitative approach to contextualization, with the goal of comprehending strategic reasoning and empirical complexity. The rest of the paper is organized as follows. The research methodology and modelling assumptions are presented in section 2. The literature review is conducted in section 3 on proxy wars, great power competition, game theory and small state strategy. Section 4 provides a brief history of the Ukraine war and explores the various factors and motivations in war, particularly from the perspective of the great powers during the Ukraine war. The game-theory modeling and the implications of policies are discussed in section 5. The key findings and future research directions are presented in section 6.

2 Study Methodologies

Both a case study and a mathematical game modelling methods are employed in the paper to look at Russia and China's strategic alliance and wars choices. How this can be explained in the real world is through a case study approach where economic, political and security issues are taken into account. Russia–China cooperation is a case of working together and competing with each other under the external sanctions of the West. The case study focuses on the annexation of Crimea by Russia in 2014, the escalation of the war in Ukraine in 2022, China's assertive position in the South China Sea and the rising tensions in Taiwan, among others, due to the increasing sanctions and strategic competition with the USA and the EU. Institution related elements such as trust, image and power imbalance can be discussed to design the game model. The payoff matrix and cost-benefit mathematical functions can be created to analyse political scenarios for Russia and China's decision-making and interdependence. The choices of each country are based on both of their selections. The balance will swing to the longer-term interactions. The case study method is essentially a scientific method (George Bennett, 2005) used to make causal inferences in social sciences. It treats a few units with intense focus, to ensure high internal validity, using a method called Process Tracing, which is a systematic analysis of historical evidence to test the causal mechanisms from the initial conditions to the final result. This is fundamental to the use of game-theory modelling for strategic decisions, as the evidence from the case studies confirms the actual game being played (e.g., Prisoner's Dilemma, Commitment Problem), making the theory connect with the actions of practitioners. Case studies contribute to generalization by refining, improving or creating more complex typological theories that

explain a number of causal pathways of strategic cooperation and conflictual choices.

For the same reason, the paper does not resort to quantitative testing of hypotheses about the strategic relation between China and Russia, but presents its analysis in the form of a case-study approach which, on the one hand, elucidates the core mechanisms of the strategic relation between China and Russia, and, on the other hand, introduces these qualitative insights into conceptual variables for the game-theoretic model. Therefore the case study does not seek to calculate statistical values but provide empirical evidence for the theoretical modelling of the outcomes of cooperative and non-cooperative strategic games. By employing a structured data collection strategy, this paper conducts a thorough documentary analysis of official statements on foreign policy, foreign policy white papers, national strategies and speeches by prominent political leaders, as well as reports, directives and analytical briefs by government agencies and international organizations (International Finance Fund, World Bank, etc.). The paper also delves into their reliability and institutional credibility to improve the empirical basis of reliability. The report is developed by being triangulated with academic literature, expert opinions and publications from research institutes to ensure it is scholarly and meets the appropriate research standard. This guarantees equitable application of the policy. The study's main emphasis is on features and factors of mathematical models. Sections 4 and 5 highlight China- Russia contacts' qualitative and quantitative aspects. Reward functions can be computed from economic indicators, which are available from UN Comtrade, World Bank, and state statistics, such as energy-revenue shares, bilateral trade, and military cooperation. This is just an example of how game modeling can be used to gain insights into the real-time strategic decisions made by both parties. International relations can be analyzed by non-cooperative game theory: security, conflict and cooperation. It builds on basic material in the literature of the rational actors in chaos, uncertainty and partial faith. This paper application has a rational actor interaction research approach. The Strategy of Conflict implies that strategic outcomes can't be achieved through physical dominance alone, as Schelling explains. They also manipulate the risks using credible promises and threats to influence expectations. A crisis can easily turn into a brawl if there is not good communication or trust (Schelling, 1960). The book by Schelling was published in 1960. In 1978, Jervis published a set of strategy games called Security. Another example of applying game theory to the study of security. Communication is like the Prisoner's Dilemma when actors don't trust each other and provide insulting benefits. Even with frequent contact, no cooperation can be guaranteed, as actors are afraid of being misused and leave early. If actors are persuasive in their ability to refrain, exchanges can be Stag Hunts. The combination of all three of these makes collaboration possible, but not strong. The study of 1984 by Axelrod, in the Iterated Prisoner's Dilemma, suggests that the results of the game are influenced by the presence of "reciprocity" and "confidence" and the "future". However, this is

not assured. For repeated games, trust can be lost if there is betrayal, misinterpretation, or there are outside shocks. Players can level-up, resulting in them fighting and losing information. It is essential to repeat these strategies. The 1950 Nash equilibrium can explain these processes. This would imply that a non-cooperative equilibrium could continue in spite of being disadvantageous. Nash invented this. Keep in mind that additions in new methodological sections caution against the use of these models in the real world of uncertainty and commitments. It is revealed by peace research that there is a need for institutions and steps to build trust in the course of strategic meetings (Rapoport 2021; Slantchev 2017). In fact, problems frequently get in the way of collaboration, as Slantchev (2017) reported. These are studies that show the importance of trust when working collaboratively with others and how security issues can easily become conflict.

3 Literature Review

Game theory offers a well-defined analytical approach to understand the interaction of rational actors that are strategically interdependent with respect to each other and politics and security. According to Wagner, war, cooperation, deterrence, and alliance behavior are some of the areas where game theory has proved its importance to research. The concept of war is evaluated as well as cooperation, deterrence, and alliance behavior. In general, game-theoretical models are classified into two categories: friendly games, and non-cooperative games. When actors do nothing cooperative about it, they do what's good for them without any agreement that is meaningful and can be adjusted. But if something is to be achieved cooperatively, there need be mutual understanding, shared rewards, and shared enforcement of unanimity. Trust is not generally the pillar of relationships in high risk conflicts, such as proxy conflicts, that are typically between political sides. On the contrary, it is based on mutual interests, credibility and cost benefit analysis. This is typically a part of proxy warfare. Frankly, the Ukraine issue is just a classic security issue that is all about power, viability and balance of power issues. Realists think such actors are straight out of time and self-absorbed. They see that they are in a chaotic world with low trust and fragile flimsy unity. Realist reasoning fits in well with game theory models such as Prisoner's Dilemma. These simulators show what kind of behaviour players could rationally take up if it were to be advantageous for everyone if they did not. The United States, the EU and the Ukraine utilize this paradigm because doing otherwise would cost them more or put them at a strategic disadvantage. So there was a "Nash Equilibrium" – things were okay, but never really good – and they were never really good by choice, only by fear. According to the neoliberal institutionalists, the actors can cooperate without a government. However, this can only happen when institutions, rules, and continuous experiences provide a sense of reduced risk and cost for the firms.

Ukraine has been receiving assistance from the US, the EU, and the NATO since they cooperate. Through this

coordination, compliance monitoring, cost sharing, and loyalty can be achieved. No one trusts people more than Neoliberalism. The success of collaboration is hinged on credibility of the organizations and expectations of the parties. It can also go in reverse. According to Game Theory, institutions provide balance by not allowing agents to take risks. However, they do not get rid of unequal dependence or negotiating power as smaller countries such as Ukraine do. Constructivism argues that norms, identity and language influence one's perception and their practisation of activities related to norms. Although the Ukraine conflict is illegal and violates the sovereignty of the country, the use of these notions in the rhetoric to the West has afforded them sway in public opinion and policy. There is more strategic savvy and more rules of escalation limitation and conditional support that go beyond constructivist principles. As long as it is not material commitment, it does not imply norm agreement. Respect, not trust, is what the rules symbolize in game theory. They do impact on judgments of cost to the organization of actor's betrayal, however, strategic preparation is crucial. A problem with uncertainty related coordination issues in game theory is "the Stag Hunt game" [?]. To drive actors' interest into aligning, coordination in the Ukraine war is more of a structure or an incentive than trust. This is true despite its often linkage to trust-based cooperation in conflict situations. It can be a multi-modal structure with multiple Nash equilibria. We could have several Nash equilibrium. It does not depend on partner preferences for the equilibrium to be achieved – it is driven by credible communication, organizational discipline and external factors. But while a series of contacts may cause players' opinions and gameplay to shift, they can still be dissolved or altered. Proxy conflict and Great power competition are also studied more, but certain aspects need to be studied in more depth. First, research shows that Ukraine is in need of international help. They fail to shed light on the effect that dependency has, on the labor markets that are less equal. They do not try to illuminate the consequences of less equal dependency bargaining, and strategic risk that flows from it over time. Second, minor countries are not paid much attention as they should be in terms of alliance and proxy wars writing. Ukraine is depicted as a player with no leverage or influence on the game and a passive observer. Recent scholarship on the international system converges on a theoretically pluralist assessment of the post–Cold War liberal international order (LIO), integrating Realism, Liberalism, and Constructivism as complementary analytical tools rather than competing doctrines. First, the literature centers on whether the current crisis of the LIO represents reversible institutional decay or a deeper structural transformation: Liberal institutionalists argue that internal democratic erosion and governance fatigue explain the order's weakening and leave room for reform (Ikenberry, 2018), whereas Realists contend that the liberal project overextended itself by underestimating nationalism and power competition, making renewed great-power rivalry structurally inevitable (Mearsheimer, 2019). Second, scholars increasingly agree that no single paradigm can adequately explain contemporary security dynamics: Realism remains essential for understanding state survival and material power, Liberalism for institutional density and interdependence (Chandio, Mahesar, Inayatullah, 2025), and Constructivism for the ideational frameworks through which interests and threats are interpreted. Third, the integration of these approaches has proven to be especially useful in generating an explanation for differentiated state responses when the states are operating in shared institutional environments, as in the case of security policies in the countries of East-Central Europe, where the convergence of institutions is best explained by Liberalism, but the subsequent divergence can be explained by Realist factors like geopolitical exposure, and

Constructivist factors like strategic culture and historical threat perception (Peterson Lubecki, 2019). Fourth, the Constructivist insights are essential in the security domains of norm sets, and point to the social construction of security threats and legitimacy claims as being socially produced through discourse and security processes rather than given (Aria, 2025). In conclusion, the authors argue that the literature suggests that the current international order is not a failure of liberalism, rather it is its subordination in a power-based international order, where material capability, institutional mechanisms and norms of moral obligation and human rights play unevenly under conditions of strategic rivalry. In summary, all three – realist, neoliberal, and constructivist – provide partial explanations for the Ukraine war but none of them provides a formal mechanism that can model the strategic interaction, payoff adjustment, and stability of equilibrium under proxy war conditions. To overcome this, this paper combines empirical evidence on the Ukraine war with a non-zero-sum, multiple game-theoretic approach where the cooperation between the United States, the European Union and Ukraine is not based on trust but on interests. This paper formally explains modern proxy war collaboration, defection and strategy stability. Constructivism, neoliberal Institutionalism and Realism are fused together with the creation of a successful payment system. The five new academic papers in this article offer essential theoretical and methodological data that will help to comprehend the Ukraine War as a major power/lesser power conflict. These studies claim that a game-theoretic approach must be adopted in search of a full understanding of the strategic complexity of the conflict, not only descriptive geopolitical analysis. Smith (2024) and Wolford (2024) make the assumption of rationalist bargaining. They note that the difficulty of commitment and indivisibility makes it impossible for Russia and the West to settle down to a stable solution. (2) This is an architectural fault and the war is a proxy war with strategic engagement. Alibeli (2023) employs hyper-game theory to examine Russia, the US, the EU and Ukraine's adjustment of their grand objectives and their search for long-term balance. Escalation risk research is directly informed by the game theory analysis of US, NATO and Russia nuclear brinkmanship (Gabel and Johnson, 2023). From this research it is found that strategic decisions may create obstacles to teamwork and tranquility. (4) The documents suggest Ukraine should be considered as an active actor who can change strategies, not a pawn. Derivative power and joint power enable a very small nation to hedge its bets for a greater supply of aid from other nations as well as more long-term arrangements, as argued by Long (2025). This is the most important lean on decision. (5.) Even a full game theory model that incorporates domestic political constraints (a key element of your research proposal) for all four main players (Ukraine, the EU, the United States and Russia) simultaneously remains missing in the understanding of great power competition. Even if these research offer solid theoretical theories. To date, the literature leaves the understanding of Ukraine's hedging behavior quite vague, failing to provide a clear link between it and specific utility-maximizing decisions within a dynamic game of hedging between Great powers. There is a considerable amount of gap in this study. The security problem and the Thucydides Trap make sense of the start and escalation of the Ukraine war when taken together. This model is designed to depict how rational response to safety needs can result in conflict as power transfers and trust in the system is low. The lack of organization with regards to foreign system poses security concerns. States need to take care of themselves in order to make it in this system since they don't know what states are getting ready. From the west, NATO's eastward expansion, military cooperation with Kyiv and arms aid are considered to be defensive measures, to secure stability in the east and to protect Ukrainian sovereignty. These were not only an invasion but

were also intended to be longer term measures to prevent the enemy getting in. Ukraine and NATO have joined to condemn Russia's military pacts and firm diplomacy, aimed at restoring Ukraine's security, as revisionist. This led to greater protection and deterrence. Security challenge: Any surrounding protection is less secure. These terms are used by experts. This 2-way touch is a representation of this. You may feel powerless and terrified of your situation after having this chat. This study is an illustration of the Thucydides Trap. Ukraine embraced western policies, and it was not as influential as before. That's not to say Ukraine is a new power. Worries that it would cease to be an international significance power. However, this is prevented by Thucydides (Allison, 2017). These problems proved to be a complicating factor in making strategic decisions for Russia, and it was more inclined to accept political and economic losses to stem adverse trends. The Ukraine issue demonstrates that "fear of power transfers" can exacerbate security concerns and make a person feel more threatened and less likely to take action, respond, and make the right decision as a result, says Fearon (1995) and Walt (1987). All of these viewpoints help to account for the failure of institutional structures, and the failure to resolve the conflict.

4 Case Study of Ukraine war

4.1 Policy Motivations of Great Powers and Responses of Ukraine

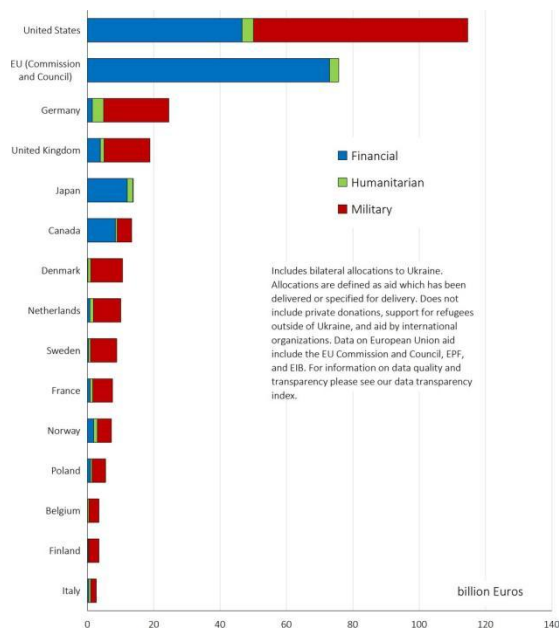
The war in Ukraine has a long history dating back to its early days as a crisis in 2014, and has now become a full-fledged conflict in 2022, with some actors viewing regime change as a means of ensuring Europe's safety, and others seeing it as a threat. The situation is deteriorating due to the response of the institutions and actors of Ukraine, a sovereign nation that is in existential danger, to the strategy of the great powers. As seen from Russia's point of view, the war is mostly caused by nationalist and security-related goals. NATO's eastward expansion is regarded by Moscow as an actual "structural invasion" into Russia's sphere of influence. This is how Russia sees NATO and EU membership by Ukraine as threatening to its core security interests. Following this strategy paradigm, Ukraine is considered as a neighbor and geopolitical buffer. Russia is seen as weaker in the region because of its attitude towards Euro-Atlantic institutions. Russia is employing force to change the post-Cold War European security accord. This indicates a larger issue with liberal society. The US and EU, as well as NATO, support Ukraine to protect the state sovereignty, international law and the institutions which created the post-Cold War order. Most people think Russia's attack had broken into its country's territorial integrity, and it showed just how dangerous it is to invade other countries, threatening the safety of Europe. On the simplest level, the conflict in Ukraine is a struggle for differing visions of security in Europe. The principal actors in the war are the Russian Federation, the United States and NATO and the European Union (EU). Russian foreign policy actions have two motives related to the Realist and Constructivist dictates. First, the Russian state prevents NATO's

expansion to the eastwards direction which it considers as an existential threat from its military point of view (Realism); secondly, Moscow seeks to establish its sphere of influence and prevent its own geopolitical containment. An ideological motive is to deny the legitimacy of an independent, sovereign Ukrainian state and to revive an imagined Eurasian identity, which is what the Russian elite desire to achieve (Mankoff, 2022; Shahir Boghairy, 2025). Hence, Russia has more regard for armed action than for complying with institutional norms to pursue its security and identity interests. There is a direct conflict between the United States and NATO. But their joint effort is primarily for the sake of safeguarding the liberal international order that has emerged since the end of the Cold War and the concept of state autonomy. As a way to discourage Russia from attacking, they want to use military help and collective defense to make it so expensive for Russia to do so. This will help to diminish Russia's military power and to thwart any further territorial claims. To maintain the Western alliance system and the balance of power in Europe, this is what they must do, if they continue to do so (Mearsheimer, 2014). Finally, the EU would like to maintain a democratically stable eastern flank and to extend its normative influence. These incentives are motivated by a combination of liberal ideas and safety concerns. Ukraine has been granted unprecedented economic leverage by the EU: sanctions against Russia; and the opportunity to become a member state to ensure its borders remain stable in the face of an aggressive power and in order to defend the EU's shared values. This has provided Ukraine with freedom to decide its own political & economical course (Le Hoang Kiet Tran Xuan Hiep, 2025). Hence, the war continues, as Russia wishes to alter the security arrangement, while the US, NATO and EU wish to preserve it. The West is supporting Ukraine with a strategic agenda, including to hold Russia back, forge greater trust between allies and ensure stability. This was because these are so important. The politics of revisionist violence and autocracy in Europe can be avoided by helping Ukraine. In response, Ukraine has provided examples of how they are developing strategic agency and building their national forces and institutions. Ukraine declared martial law throughout the country and called for the deployment of a significant army following the attack in 2022. Thus, the conflict became a defensive one to defend the nation. In the hands of President Volodymyr Zelenskyy, Ukraine has shown unity in politics and society. It is for this reason that the military has been able to change, without its appearance showing. Ukraine also initiated a major diplomatic and communication effort to keep getting the support and to embed its struggle in the Euro-Atlantic normative and security formats. Ukraine has become an active organization creating Europe's security architecture rather than a passive platform for large power struggle.

4.2 The Support of the West and the Suffering of Ukraine

The intervention in Ukraine by West is an obvious, powerful and broad strategic commitment. This pledge alters the politics and warfare on the ground, rather than just expressing support. This project combines theory of strategy with its practice in the real world in three interconnected components: Strategic Coercion and Military Support: starting with capability. In a game where cooperation is not possible, it is a conscious strategy rather than aiding. Change the rewards if you want to prevent Moscow from winning too easily. This will help Ukraine stay in the operational range as the "Russia- China-Iran-North Korea Anti-West Bloc Strategy" (Rimanelli, 2024) is being formed. The second pillar is called "legitimacy and narrative mobilization," by Ash, Krastev and Leonard (2023). It was essential in the basic sense to keep the "United West" and to achieve global consensus. The interaction must seem vital to the "survival of the West" and the preservation of liberal values, according to Miliband (2023). However, the inability to "convince the rest" (Appel, 2024) is a problem of western tale rivalry, and in this case, it is clear that NATO countries and non-western countries have become much more distant. Thirdly, the pillar of Systemic Framework Defense suggests support as a way of stabilizing the international system. The deal seeks to prevent Russia from executing its "realist" policy (Tsygankov, 2022). This approach erodes Cold War era institution network. It is actually a good state support typology yielding this answer. Others say several factors are employed to secure victories and the rules-based system. The decision by western countries to support Ukraine strikes a geopolitical paradox: the US, EU and NATO want to stop Russia's aggression, but don't go to it themselves. The giving of western aid has been marginal, delivered under poor conditions, on condition. This twin objective has greatly impacted the war and Ukraine's suffering. Over 274 billion euros of western aid to Ukraine shows that western governments sees the war as a struggle for their national interest. This extensive and complex network of support is frequently considered as a proxy war against Russia by the West. This much is solidarity and a security investment (Figure 1). Western countries were mindful of strategy when it comes to a measured policy of support in order to build Ukraine's defence without escalating the situation to a direct military conflict with Russia.

Figure 1. Total Bilateral Alocations (billion Euros) over the Period 2022–2025

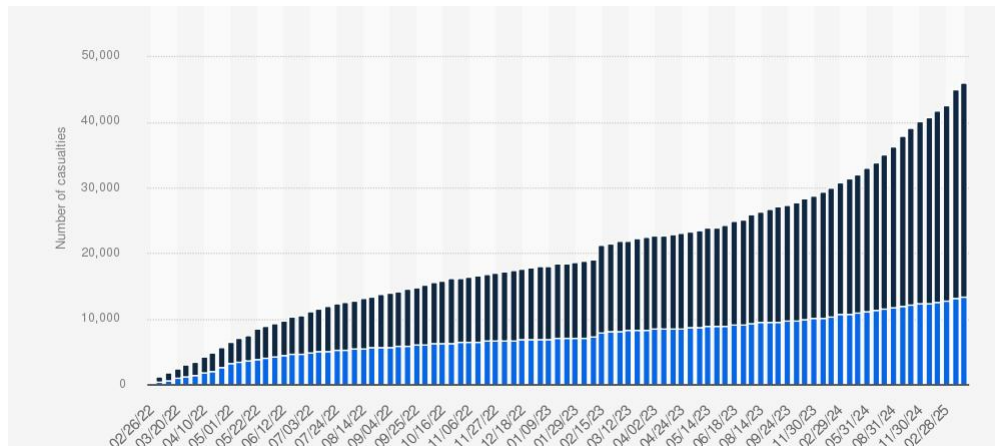


Source: Kiel Institute for the World Economy, 2025.

Russia military support, sanctions and diplomatic measures are tightly-controlled to curb its further cooperation efforts, while ensuring strategic prudence. From a game-theoretic perspective, this means an optimum for Western actors that is characterized by a balance between the gains from deterrence and alliance legitimization and those that stem from the risk of nuclear proliferation and wider systemic uncertainty. But Russia's unwillingness to back down has turned this conflict into a war at the highest price tag for Ukraine in military and civilian exponents. Western assistance saved Ukraine from an immediate collapse, but this has led it on a long road of attrition, resulting in the deaths of many and the loss of infrastructure as well as millions sending for migration. To apply the rules of "risk exposure" to Ukraine, bear in mind that this country works under extreme conditions conditions because Western countries agree to pay to ensure that the dangers do not get worse. With help from the West, the war's reach is limited, which makes it less likely that things will get worse all over. However, it prolongs the time that Ukraine may find itself in dangerous or questionable circumstances. Ukraine appears to be making no decision at this time on a plan. This implies that in the absence of external pressure, fighting is an effective means, and is necessary for survival, but that when there is external pressure, it is hard to find a lasting solution. This is an example of proxy war. Proxy warfare is being used by major states to quell violence, but without taking the costs themselves. In May 2025, it is expected that 45,500 citizens will die. This figure includes reported deaths of 13,500 and injuries of 32,000. The greater the human loss, the greater the financial and material support to the conflict. So, the worst part of the war is extended. So, the worst part of the war is prolonged. But even in the case of high cost humanitarian assistance, donor states can invest huge amounts of money, as they have a different strategy

calculus. These states need to be held in check by Russia, who pose a risk to them. If the world does not do so, they are afraid that Ukraine losing its independence will jeopardize their common security and will lower them in the world in terms of power and influence.

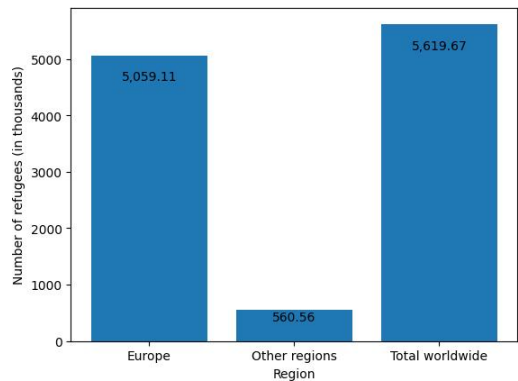
Figure 2. Cumulative Number of Civilian Casualties in Ukraine during Russia's invasion from 26 February 2022–31 to May 2025.



Source: Statista, 2025.

As the Ukrainian crisis continues, it has been a complete burden for Europe, with about one million Ukrainian refugees residing in the country. There are 5.06 million refugees hosted, with less than 0.56 million in other regions, or nearly 90% of the global total of 5.62 million. First, this focus on the cost of the war can capture the human toll of the conflict on the Ukrainian population, which is immense, all too painful, and with life being taken, communities and family members lost. Second, the extent of displacement suggests not only physical insecurity, but also long-term social and economic disruption for Ukrainians, given that protracted exile is leading to pressure on access to employment, education, and social integration (see Figure 3). In this regard, although Europe is facing the immediate burden of hosting the Ukrainian people, the data highlights that the Ukrainian people are the main victims of the conflict, suffering from enduring loss of safety, stability, and national cohesion.

Figure 3.Ukrainian refugees in Europe and worldwide 2025



Source: United Nations High Commissioner for Refugees, 2025.

5 Discussion: From Case Study toward Game-Theory

Modelling of Strategic Choices

5.1 Payoff Matrix for Great Powers Choosing Proxy War

Suppose there are two great powers, G1 and G2, vying for control within a smaller state S. Both Great Powers selects one of the two actions:

P = Proxy Intervention, N = Non-Intervention.

Parameters and assumptions:

B = benefit of influence in S , C_p = cost of proxy intervention, C_n = cost of non-intervention when rival

$$B > C_p > 0, \quad C_n > 0, \quad L_S(P, P) \gg 0.$$

Payoff Matrix and Nash Equilibrium

Table 1: Payoff matrix for great powers (G_1, G_2).

	$G_2 : P$	$G_2 : N$
$G_1 : P$	$(B - C_p, B - C_p)$	$(B, -C_n)$
$G_1 : N$	$(-C_n, B)$	$(0, 0)$

Suppose $B > C_p$, for both great powers P strictly dominates N, thus creating the unique Nash equilibrium:

(P, P) .

This predicts mutual proxy intervention regardless of the devastating consequences $L_S(P, P)$ for the small state.

5.2 The Strategic Problem for Small States

The small state faces its losses which are maximized with intervention:

$$U(S) = -L_S(a_1, a_2),$$

where $L_S(P, P)$ is extremely high and $L_S(N, N) \approx 0$.

- Great powers select P to maximize their payoff.
- The small state prefers (N, N) since it does not want to be involved in the war.

A small state can inadvertently increase the benefit B or the rival's cost C_n for great powers, setting the stage for proxy war:

1. Imbalance in alignment: strengthening the alignment with one great power (e.g., NATO aspirations).
2. Enhance Strategic value – foreign military bases or presence.
3. Domestic instability: division within which competing factions.
4. Exclusive signaling: exclusive alignment elicits defensive proxy actions.

Formally:

$\Pr(\text{proxy war}) = f(\text{alignment imbalance, domestic instability, geopolitical location})$.

5.3 Policy Implications

Small states can reduce the likelihood of (P, P) and increase the feasibility of (N, N) by shifting parameters B and C_p .

5.3.1 Neutrality or Strategic Non-Alignment

A Finlandization or Austrian-style neutrality strategy:

$S \rightarrow$ Neutral Zone between G_1 and G_2 .

Goal condition:

$$B < C_p.$$

5.3.2 Reduce Threat Perception

- Do not form a military alliance with any one nation.
- Don't allow foreign bases to be placed close to the borders of great powers.

This reduces perceived C_n and the incentive for proxy intervention.

5.3.3 Balanced Hedging (Equidistance)

Maintain balanced relations:

$$S = \text{equidistant from } G_1 \text{ and } G_2, \quad B_i(\text{balanced hedging}) \downarrow.$$

If effective:

$$B - C_p < 0.$$

5.3.4 Regional Multilateralism

Embed national policy within regional institutions:

$$C_p^{\text{effective}} = C_p + \text{multilateral penalty}.$$

If $C_p^{\text{effective}} > B$, intervention becomes irrational.

5.3.5 Result: Small States Can Shift the Game

Before:

$$B > C_p > 0 \Rightarrow (P, P).$$

After:

$$B \leq C_p \Rightarrow (N, N).$$

Ukraine's war from a strategic point of view is a product of high costs of dependence in a proxy war scenario and structural risks. First, national mobilization and alliance support have enhanced Ukraine's ability to defend against Ukraine's aggression, but it also brings asymmetric bargaining power, because Ukraine's supporting countries continuously analyse their own costs, domestic problems and other geopolitical interests. Second, great powers that try to negotiate peaceful settlement, stability or strategic accommodation with each other run the risk of settling for negotiated concessions on Ukrainian territory, thus diminishing their control over how that territory is settled. Third, while strategic communication and reputational credibility can raise the costs, at the political level, to abandoned allies, such costs are not always sufficient to offset structural dependence, especially in times of donor tiredness and changes of global priorities. Thus, one of the key policy recommendations for small states to survive is to resist and engage with rivals and allies, while also making a long-term effort to keep sovereign power from becoming a negotiation chip in alliance building for the great powers.

6 Conclusion

This paper shows that great power behavior in the Ukraine war is driven by rational strategic calculation, and that the long-term stability of outcomes relies on the incentive structures, the credibility they build, the commitment of the allies, and external constraints. This paper discusses how the main powers of the Ukraine war were strategically planning their actions. Incentives, trustworthiness, collective commitment and external forces, however, do impact long-term performance. This method is supported by models based on game theory in a quantitative approach and the analysis of qualitative case studies. The Ukraine conflict is not a zero-sum game, that is, a conflict in which one party's loss represents another party's gain. Big powers aim to enhance their power and make things less likely to get worse in these games, while smaller states want to maintain their influence. A stable institutional system and external alignment shapes payoff structure design changes. The report shows that every player in the global game from the EU, NATO, Russia and Ukraine to others obsessed with Ukraine are continually rethinking their strategic pay-offs as a result of military, economic and political shifts.

These adjustments to battlefield dynamics, sanctions regimes, alliance cohesion, and domestic political constraints, for example, can result in new equilibrium outcomes over time, and can make strategic alignment inherently fluid or unstable. The changes in escalation policies can explain both the variations in escalation tactics and the cases for tactical caution during the war.

Second, external economic and political pressures, such as Western sanctions and pledges, can be the drivers for shaping strategic choices. Sanctions for Russia result in an inflated cost of sustained conflict, and incentivize selective escalation and risk management over maximalism. For Western actors, supporting Ukraine is a way to strike a balance between credibility in deterrence and potential direct confrontation.

Thirdly, the game-theoretic approach is employed to explore the centrality of Ukraine as an active strategic player, not an object of great powers' contending. By mobilizing the country on a national level, adapting institutions and fostering strategic cooperation with Euro- Atlantic partners, Ukraine can alter the payoff of aggression for external actors, thus raising costs and enhancing the level of deterrence. This finding provides some policy implications for small countries in dealing with great powers actively to ensure their favorable strategic equilibria in asymmetric wars.

Therefore, from a methodological point of view, it is the proxy war that is a determinant of incentive structures, strategic trade-offs and tendencies to equilibrium, rather than a method of empirical prediction, when we are able to model with the qualitative complexity of real-world geopolitics.

Last, future research should be able to include repeated-game models of varying degrees of dynamics to study how the development of trust, deterrence, and commitment unfold over time during a sequence of cooperation, escalation, and restraint. These extensions would enhance the comprehension of the stability of proxy wars, alliance management, and small states' survival in the context of growing great power competition.

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Disclosure of Interests

The author declares no competing interests.

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