Corruption, Foreign Aid, and Military Outcomes in the Russo-Ukrainian War (2022–2025)

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DOI: https://doi.org/10.47772/IJRISS.2026.100300609

Received: 01 March 2026; Accepted: 09 March 2026; Published: 22 April 2026

ABSTRACT

The full-scale Russian invasion of Ukraine in February 2022 triggered unprecedented Western support for Ukraine while placing wartime governance under intense scrutiny. This article examines how corruption, foreign aid, and military outcomes interacted in Ukraine from February 2022 through December 2025. The study uses a mixed-method design that combines a full-period qualitative event history of aid, corruption cases, and anti-corruption responses with an exploratory monthly quantitative analysis of matched aid–territorial data. Western assistance—military, financial, and humanitarian—exceeded €300 billion in commitments during the period and was central to Ukraine's ability to block Russia's initial advance and recover territory in 2022. At the same time, repeated scandals in procurement, recruitment, and public administration showed that wartime pressures created fresh opportunities for rent-seeking even as they strengthened incentives for enforcement. To reduce measurement ambiguity, the article distinguishes between verified official corruption actions and corroborated investigative revelations, and it treats territorial change as the primary performance indicator while using casualty and equipment-loss estimates as contextual measures. The quantitative results are exploratory: simple correlations are consistent with the proposition that higher aid is associated with reduced Russian territorial expansion, but the small, matched sample and lag structure do not support strong causal claims. The corruption–military relationship is clearer in qualitative process tracing than in linear models, especially in cases involving defense procurement and mobilization. The article concludes that Ukraine's wartime resilience depended not only on external material support but also on continued efforts to protect institutional integrity and donor confidence.

Keywords: Wartime Governance; Anti-Corruption; Defense Procurement; Foreign Aid; Aid Conditionality; Military Outcomes; Territorial Control; Political Economy.

INTRODUCTION

Russia's full-scale invasion of Ukraine in February 2022 produced two simultaneous wartime challenges for the Ukrainian state: surviving a major conventional assault and managing an unprecedented influx of foreign assistance under conditions of extreme institutional stress. Western governments supplied weapons, budget support, and humanitarian aid on a scale rarely seen in a contemporary interstate war, while Ukraine's long-standing corruption problem remained central to domestic legitimacy and donor confidence. The interaction between those two dynamics matters analytically because external support is only as effective as the institutions that receive, allocate, and monitor it. It also matters politically because Russian information operations have repeatedly portrayed Ukraine as irredeemably corrupt in order to weaken Western support.[i]

Existing scholarship helps explain each element of this problem, but usually in isolation. One body of work examines how corruption undermines state capacity, military effectiveness, and public trust. A second analyzes how foreign aid can strengthen a weaker state in war while also generating principal–agent problems, leakage, and accountability dilemmas. A third explores wartime centralization and emergency governance. What remains less developed is an integrated account of how wartime corruption, external assistance, and military performance interact over time within a single conflict episode.

This article addresses that gap by analyzing Ukraine between February 2022 and December 2025 as a case of wartime governance under existential threat. It makes three contributions. First, it brings together aid dynamics, corruption events, and military outcomes within one analytical framework rather than treating them as separate debates. Second, it clarifies how the key variables are operationalized by distinguishing verified official corruption actions from corroborated media revelations and by separating primary military indicators from contextual ones. Third, it combines a full-period qualitative event history with an exploratory quantitative assessment of matched monthly observations. The study is guided by three questions: How did Western aid evolve over the course of the war, and with what apparent battlefield consequences? What kinds of corruption cases emerged, especially in sectors tied to mobilization and procurement? And what do these patterns imply for donor strategy and wartime reform?[iiiii]

The remainder of the article proceeds as follows. The next section reviews scholarship on corruption in conflict, aid effectiveness, and wartime governance. The theoretical section specifies the expected relationships among aid, corruption, and military outcomes. The methodology section then clarifies the measurement strategy and the limits of the quantitative component. The results section presents the aid trajectory, the corruption event history, and the battlefield record. The discussion considers what the Ukrainian case suggests for theories of aid conditionality, military effectiveness, and state-building under war.

LITERATURE REVIEW

Corruption, Wartime Governance, and Donor Conditionality

The literature on corruption and conflict shows that corruption weakens state capacity in ways that are especially costly during war. Procurement fraud, patronage in appointments, theft of supplies, and bribery in mobilization systems can all reduce combat readiness, distort resource allocation, and erode morale. At the same time, wartime emergencies can create countervailing pressures: when national survival is at stake, leaders may have stronger incentives to discipline predation that threatens battlefield effectiveness. Ukraine is a particularly revealing case because it entered the 2022 invasion with a mixed governance record—substantial post-2014 reform efforts, but still a persistent reputation for corruption.[ivv]

Studies of Ukraine's political development likewise stress both continuity and change. On one hand, oligarchic influence, clientelism, and weak rule-of-law institutions remained deeply embedded. On the other hand, the post-2014 reform period created anti-corruption bodies such as NABU and SAPO, strengthened investigative capacity, and generated a more demanding civil society environment. Wartime governance therefore did not begin from a blank slate; it built on institutions that already existed, but under martial law conditions that simultaneously limited transparency and heightened the strategic importance of accountability.[viviiviii]

A related strand of research emphasizes external leverage. Donors and integration frameworks can alter domestic incentives by linking material support to rule-of-law performance. In Ukraine, EU candidacy and reliance on Western assistance made anticorruption policy more than a normative aspiration; it became part of wartime statecraft. This matters because aid providers are not neutral financiers. They monitor recipient behavior, design oversight mechanisms, and may reward reform signals or react strongly to perceived backsliding.[ixx]

Foreign Aid, Aid Effectiveness, and the Research Gap

The literature on foreign assistance in war offers two broad insights. First, military and financial aid can materially alter battlefield resilience by improving force readiness, replacing losses, stabilizing public finances, and buying time for mobilization. Second, large aid inflows can generate implementation problems if recipient institutions are weak. Scholars therefore treat aid as neither automatically decisive nor automatically distortive; its effects depend on timing, absorptive capacity, and governance.[xixii]

Ukraine illustrates both sides of this argument. The scale of support after February 2022 was extraordinary, with the United States, European Union institutions, and individual European states providing military, financial, and humanitarian assistance on a massive scale. Yet the same scale that made aid strategically indispensable also

made oversight a central policy concern. Public debate in donor countries repeatedly returned to whether Ukraine could absorb such support effectively and transparently.[xiii]

That tension is especially visible in the distinction between military, financial, and humanitarian aid. Humanitarian aid can sometimes bypass state channels through NGOs and international organizations, whereas military and budgetary support necessarily interact more directly with state procurement and administrative systems. The principal question, then, is not whether aid matters—it clearly does—but under what governance conditions aid is most likely to translate into sustained wartime capacity rather than leakage or delay.[xivxv]

This article builds on that literature but departs from it in two ways. Substantively, it treats wartime governance, donor confidence, and battlefield performance as mutually linked rather than analytically separable. Methodologically, it combines an event-history account of corruption and reform with a narrower exploratory quantitative exercise on matched monthly observations. That design is appropriate because the Ukraine case presents abundant qualitative evidence on institutional change, but much thinner harmonized monthly data for fully specified statistical testing.

The resulting framework is aimed less at proving a single linear law than at tracing how material support and institutional integrity jointly shape wartime resilience over the course of a prolonged war.

Theoretical Framework

The theoretical framework treats Ukraine's wartime performance as the outcome of an interaction between material inputs and institutional quality. Western aid expands the resources available for defense, while corruption shapes how efficiently those resources are translated into military and administrative capacity. The core expectation is therefore conditional: aid should improve performance, but its effect is mediated by the quality of wartime governance.

Core Concepts and Hypotheses

Three concepts structure the analysis.

Western Aid refers to publicly announced military, financial, and humanitarian commitments or allocations from Western governments and institutions. In the quantitative component, aid is measured in monthly euro-denominated allocations and, where relevant, lagged to reflect that announced support does not affect the battlefield immediately.

Corruption Incidence refers to public corruption events relevant to the war effort. Rather than counting all allegations equally, the paper distinguishes between (a) verified official actions—such as arrests, indictments, dismissals, or formal investigations—and (b) corroborated investigative revelations reported by credible outlets. Events are also coded for sectoral relevance and relative severity so the analysis can separate minor administrative misconduct from strategically consequential cases in defense procurement, mobilization, aid management, or high office.

Military Outcomes are measured primarily through monthly change in Russian-occupied territory. Casualty estimates and equipment-loss data are used as secondary contextual indicators rather than interchangeable substitutes for battlefield performance. This hierarchy avoids conflating aggregate war costs with the narrower question of short-run operational change.

From these definitions, four expectations follow.

1. Western Aid and Military Outcomes (H1)

Higher and timelier aid should, all else equal, improve Ukraine's capacity to resist, stabilize fronts, and exploit opportunities for counteroffensive action. The expected empirical implication is that higher aid should be

associated with less Russian territorial expansion and, when conditions permit, with Ukrainian recovery of occupied territory.

2. Corruption and Military Outcomes (H2)

Higher corruption should reduce military effectiveness by diverting resources, distorting recruitment and procurement, and weakening morale and legitimacy. The mechanism is not only financial leakage but also administrative inefficiency: even small corrupt practices can disrupt mobilization, logistics, and trust within wartime institutions.[xvi]

3. Corruption and Western Aid (Conditional Effect)

Corruption can also affect military outcomes indirectly by shaping donor behavior and the usable value of assistance. When recipients demonstrate credible enforcement, donor confidence is easier to sustain. When high-profile scandals break, donors may tighten oversight, delay decisions, or question absorptive capacity. Corruption is thus treated as a conditioning factor, not merely a parallel variable.

4. Wartime Feedback Loops

The framework also recognizes feedback effects. Battlefield performance influences donor willingness to continue support, while external scrutiny can strengthen domestic incentives for reform. Conversely, prolonged stalemate, emergency secrecy, and institutional concentration can create new opportunities for rent-seeking. Ukraine's wartime trajectory is therefore best understood as a recursive process in which aid, governance, and military outcomes shape one another over time.

Exogenous factors—including Russian force posture, weather, fortification density, and donor-country politics—can alter outcomes independently of Ukrainian governance. For that reason, the paper does not claim a closed model of battlefield causation. Instead, it uses the framework to organize directional expectations and to interpret deviations in the empirical record.

METHODOLOGY

Research Design and Operationalization

To address the problem of measurement precision, the study separates its empirical strategy into two layers. The first is a full-period qualitative event history covering February 2022 through December 2025, which catalogues aid developments, corruption events, reform responses, and major battlefield shifts. The second is an exploratory quantitative monthly sample using the matched observations currently reported in the appendix (May 2022–March 2023; n = 11). The quantitative layer is therefore used for directional pattern detection rather than for strong causal inference.

Western Aid

Aid is operationalized as publicly announced Western commitments or allocations recorded by month. The preferred metric is euro-denominated monthly allocations reported in the Kiel Institute's Ukraine Support Tracker and related official announcements. The variable is disaggregated into total aid, military aid, financial aid, and humanitarian aid. Because delivery often lags announcement, the quantitative models use both contemporaneous values for descriptive analysis and one-month lagged values for exploratory regression.[xvii]

Corruption Incidence

A corruption event enters the dataset only when it meets a minimum verification threshold: either (1) an official action by a competent body, such as a dismissal, arrest, indictment, formal investigation, or court action, or (2) a credible investigative revelation corroborated by documentary evidence or multiple reputable reports. Each event is coded by month of public disclosure, sector, actor level, and evidentiary status. To avoid treating all

events as substantively identical, the study records both a raw event count and a four-point severity score, where higher values indicate greater strategic relevance to the war effort or higher political office. Illustrative events captured by this scheme are discussed in the results section.[xviiixixxxxxixxii]

Military Outcomes

Military outcomes are measured with one primary indicator and two contextual indicators. The primary outcome is territorial change. Casualty estimates and equipment-loss counts are retained to contextualize the war's attritional character, but they are not used as interchangeable monthly regression outcomes because they are irregularly reported and methodologically heterogeneous.

- **Territorial Control (Primary Outcome)**

Territorial change is derived from monthly changes in the area of Ukraine under Russian occupation, using front-line mapping sources aggregated into a common series. The variable delta_occupied_new_km2 is coded so that positive values indicate an increase in Russian-occupied territory (that is, a Ukrainian loss) and negative values indicate a reduction in Russian-occupied territory (that is, Ukrainian recovery). This sign convention is essential for interpreting the correlation and regression tables in the appendix.

- **Casualties (Contextual Indicator)**

Casualty estimates are drawn from official statements and credible intelligence-based assessments. Because both sides release such numbers selectively and irregularly, these figures are treated as broad contextual indicators of war intensity and attrition rather than as a precise monthly time series.[xxiiixxiv]

- **Equipment Losses (Contextual Indicator)**

Equipment-loss data are drawn from visually verified counts, principally Oryx. These data are valuable because they rely on consistent open-source verification, but they remain conservative lower-bound estimates. Accordingly, they are used to describe the material dimension of the conflict and to triangulate claims about attrition, not as stand-alone measures of operational success.[xxv]

Analytical Approach

The analytical strategy proceeds in three steps. First, the study uses descriptive trend analysis across the full 2022–2025 period to map aid volumes, major corruption events, reform responses, and battlefield phases. Second, it uses event-based qualitative process tracing to assess how specific corruption cases affected mobilization, procurement, donor confidence, or reform decisions. Third, it employs an exploratory statistical exercise on the matched monthly sample reported in the appendix.

The quantitative component is intentionally modest. Pearson correlations are used to assess directional association between aid allocations and monthly territorial change, and simple OLS specifications are used to test whether lagged aid variables are consistent with the expected sign. Because the dependent variable is coded as change in Russian-occupied territory, coefficients and correlations must be interpreted inversely: negative relationships imply less Russian expansion or greater Ukrainian recovery.

Given the limited matched sample, the regression models are restricted to aid variables for which monthly harmonized data are available.

Model 1: $\Delta Occupied_t = \beta0 + \beta1\ AidTotal\_lag1 + \varepsilon_t$

Model 2: $\Delta Occupied_t = \beta0 + \beta1\ MilitaryAid\_lag1 + \beta2\ FinancialAid\_lag1 + \varepsilon_t$

Corruption is not included as a regression predictor in these appendix models because event timing, verification status, and severity are not directly commensurate with the small matched monthly sample. Instead, corruption

is analyzed through the event catalogue and qualitative comparison of strategically important cases. The statistical findings should therefore be read as exploratory pattern detection, not causal identification.

Limitations

The design has several limitations. Reported corruption is not equivalent to total corruption; detection and disclosure are themselves political and institutional processes. Aid commitments do not map perfectly onto delivery or battlefield availability. Territorial change captures operational movement but not strategic value or battlefield difficulty. The quantitative sample is small and covers only the months for which harmonized aid–territory observations are currently matched in the appendix, which limits inference. For these reasons, the paper relies on triangulation between descriptive statistics, event coding, and qualitative process tracing rather than on any single metric.

RESULTS

Aid Flows: Volume, Composition, and Timeline (2022–2025)

Western aid to Ukraine during 2022–2025 has been massive and multi-faceted. In the first month of the invasion (March 2022), aid started at a relatively modest level (several hundred million dollars of arms and emergency funds). However, as Ukraine defied expectations and repelled the initial Russian assault on Kyiv, Western countries dramatically escalated support. By the end of 2022, new aid commitments totalled roughly $80–$100 billion (including $50B+ from the US and a similar collective from Europe and other allies). Key inflection points included the U.S. passing two large supplemental aid packages (one in May 2022, another in December 2022) and European institutions launching substantial financial assistance tranches to keep Ukraine's government solvent. Military aid in 2022 focused on light and anti-armour weapons early on (e.g., Javelin and NLAW anti-tank missiles, Stinger anti-air missiles) and by summer it included heavy artillery and rocket systems (e.g., howitzers, HIMARS) that enabled Ukraine's successful autumn counteroffensives.

Aid continued at high levels in 2023. In early 2023, as Ukraine prepared for further operations, Western allies agreed to provide advanced Western tanks (such as German Leopard 2 and British Challenger 2 tanks, with the U.S. later pledging Abrams tanks) – a significant policy shift around January 2023. Humanitarian and budgetary aid also flowed steadily to help Ukraine repair infrastructure and cope with internally displaced populations. According to the Kiel tracker, annual aid allocations in 2022–2024 averaged about €41.6 billion per year (all donors combined). By the end of 2023, the United States alone had committed about $113 billion (roughly split as ~$48B military, ~$25B economic, ~$16B humanitarian, and the rest for refugee support and other programmes). The European Union and its member states combined committed a comparable sum when including not just direct aid to Ukraine but also support for Ukrainian refugees within Europe (an often-overlooked contribution: by mid-2025, EU countries had spent an estimated €155 billion on hosting Ukrainian refugees).

One notable trend was that in 2023 and 2024, European contributions expanded in relative terms. Initially, the U.S. was by far the largest single contributor. But as the war continued, Europe "stepped up": by 2025 "Team Europe" (EU institutions + member states) had marginally overtaken the U.S. in total cumulative support. This shift was partly due to political developments in the U.S. (growing partisan division over Ukraine aid by late 2023) and Europe's strategic decision to assume more of the burden. Within Europe, however, contributions varied widely—the Baltic states and Poland gave the most relative to GDP, whereas some larger economies like Germany, France, and the UK ramped up aid in 2025 but still gave less as a share of GDP than smaller countries. Meanwhile, countries like Italy and Spain lagged significantly, providing minimal new aid in 2025 and thereby "free-riding" to an extent. This disparity became more pronounced in 2025 as total aid slowed.

Indeed, a critical development was the slowdown of new aid in 2025. After a record-high first half of 2025 in aid pledges (driven by optimism after Ukraine's minor gains in late 2024 and perhaps to bolster Ukraine before any potential peace talks), the flow of new commitments sharply declined in the second half of 2025. By October 2025, only €32.5 billion in new aid had been allocated in that year, on track to make 2025 the lowest aid year since the war began. The primary reason was the halt in U.S. aid due to political gridlock – the U.S. Congress,

after a change in House leadership, delayed further aid beyond previously approved packages. Europe's increase (about €4.2B in new military aid in 2025) was "far too little to offset" the absence of fresh U.S. funds. These developments raised concerns as Ukraine faced a critical winter 2025–26 with possibly strained resources. The International Monetary Fund warned in November 2025 that "prompt action by donors is indispensable to avoid liquidity strains," projecting Ukraine would need €37 billion in external financing for 2025 alone.

In terms of aid impact on the ground, Western military aid has been widely credited as decisive in specific battles. For example, U.S.-supplied Javelin missiles and Turkish Bayraktar drones helped blunt the Russian advance on Kyiv in spring 2022; Western intelligence and artillery aided the precision targeting that made Russia's logistics in Kharkiv untenable, enabling Ukraine's blitz in September 2022; and NASAMS and IRIS-T air defence systems provided by allies defended Ukrainian cities from missile barrages in 2022–23, reducing the damage from Russia's campaign against critical infrastructure. However, some aid, such as promised Western tanks and fighter jets, took a while to materialise at the front (the first Western tanks arrived around spring 2023; F-16s are scheduled for deployment only in 2024 due to training requirements). This delay meant Ukraine's 2023 summer counteroffensive proceeded without air superiority and underprepared in some respects, contributing to only limited territorial gains despite substantial aid—highlighting that aid alone, if not timely or if countered by strong fortifications, does not guarantee a breakthrough.

Crucially, Western aid has not only military significance but also political significance: it signals to Russia that the West is committed to Ukraine's defence, thereby deterring Russia from escalating beyond certain limits (for instance, NATO's unity on sanctions and aid likely dissuaded Russia from considering riskier moves). For Ukraine, the knowledge of continued aid has been a morale boost, while any wavering (such as the temporary hold-up of U.S. aid in late 2023) can induce anxiety in both the government and populace. This underlines why maintaining donor confidence—which is tied to Ukraine upholding certain standards, including anti-corruption—is seen as strategically vital by Kyiv.

Corruption Cases and Anti-Corruption Measures: 2022–2025

Despite the war emergency, Ukraine experienced a series of high-profile corruption cases from 2022 through 2025. Rather than sweep problems under the rug during wartime, the Ukrainian government – prodded by civil society and external pressure – took action on numerous occasions. Our compiled data recorded dozens of significant corruption-related dismissals, investigations, or reforms.

- **2022**: In the early months of the invasion, corruption was understandably not the top public focus; survival was. Nonetheless, a notable event came in July 2022 when President Zelenskyy fired both the head of the Security Service (SBU) and the Prosecutor General, citing the failure to root out collaborators and corruption in their agencies. While officially framed in terms of security, this shake-up indicated an intolerance for malfeasance even as fighting raged. Also in 2022, an important institutional milestone was achieved: after a long delay, an independent anti-corruption prosecutor (SAPO head Oleksandr Klymenko) was appointed in July, which Western donors had long urged. He soon "won praise for opening and reopening credible cases", signalling renewed momentum in anti-graft investigations. By late 2022, reports of potential corruption in wartime procurement were surfacing behind closed doors, setting the stage for what unfolded in 2023.

- **2023**: This year was marked by a major anti-corruption drive, arguably the most intense since 2014. In January 2023, a scandal broke regarding the Ministry of Defence purchasing food for soldiers at inflated prices. This triggered a wave of sackings/resignations: at least 15 senior officials across different ministries and regional governments were removed in a single sweep. They included a deputy Defence minister (Vyacheslav Shapovalov), who resigned over the food contract scandal; the Deputy Infrastructure Minister (Vasyl Lozynsky), who was arrested for allegedly taking a $400k bribe in a winter equipment procurement; and several regional governors and customs officials. Zelenskyy declared that there would be "no tolerance" for corruption, underscoring to both domestic and foreign audiences that wartime was not going to be an excuse for kleptocracy.

In May 2023, another bombshell: the head of Ukraine's Supreme Court, Vsevolod Knyazev, was detained in a $2.7 million bribery case (allegedly for ruling in favour of a billionaire). This was Ukraine's highest-ranking judge, and his arrest by NABU in the middle of the war was a strong sign that anti-corruption institutions were functioning. He remained in custody through year's end. Around the same time, NABU uncovered a scheme of embezzlement of humanitarian aid funds involving a deputy minister of agrarian policy and a former deputy economy minister; this investigation, made public in August 2023, showed that even war relief funds had been targeted by corrupt actors. The alleged theft of aid that was meant for civilians and troops was particularly egregious, but the fact it was exposed indicates watchdogs were active.

In August 2023, President Zelenskyy took the dramatic step of firing all regional military recruitment heads across Ukraine after the SBU found widespread bribery in the conscription system. These dismissals came after cases where draft officers were caught illicitly enriching themselves (one notorious example: an Odessa enlistment officer amassed millions of dollars and properties in Spain by selling exemptions to the draft). The State Bureau of Investigation (DBR) reported later that in 2024 alone, 120 officials were suspected of involvement in schemes to smuggle draft-eligible men abroad or fake medical deferments; dozens were indicted, with bribes totalling over ₴11.4 million documented. Such figures illustrate how systemic the problem was—a classic wartime corruption issue (people paid to avoid frontline service)—and the scale of the crackdown.

In September 2023, another shake-up at the top: Defence Minister Oleksii Reznikov was dismissed, along with all six deputy defence ministers, amid accumulating allegations of mismanagement and corruption in military procurement. The departure was significant because Reznikov, a key figure in liaising with Western defence officials, had not been personally proven corrupt, but the ministry had several scandals (besides the food contracts, there were accusations about overpriced military jackets from Turkey, etc.). His removal showed Zelenskyy responding to public outcry and preempting donor concerns by installing a new team (Rustem Umerov took over as defence Minister with a mandate to reform procurement). As Freedom House noted, these actions in 2023 were "in part to reassure allies… that the country was making good on a promise to tackle the issue" of corruption.

Furthermore, in October 2023, Ukraine's Parliament adopted and Zelenskyy signed a law restoring asset declaration requirements for officials (which had been suspended in 2022 for security). Initially, there was a clause to keep declarations closed to the public for another year, but civic pressure led to a veto override making them public again. This legal move was important for transparency and was among the reforms the EU wanted to see.

The cumulative effect of 2023's anti-graft efforts was noted by international observers: Ukraine was delivering on some governance reforms even as the war raged. However, critics also cautioned about overreach or mistargeting. An interesting debate from April 2023 (as reported by The Guardian) was that some anti-corruption cases might have been politically motivated or targeting reformist figures, raising concerns that the clampdown could be misused. For example, charges against former Naftogaz CEO Andriy Kobolyev for a bonus payment were seen by some as excessive zeal that could deter technocrats from public service. Transparency International Ukraine welcomed that big names were being pursued "despite being in the middle of a war" but also pointed out "serious problems in how anti-corruption bodies operate". This underscores that Ukraine's anti-corruption drive, while necessary, was walking a fine line – it needed to punish wrongdoing without scaring off competent officials or being perceived as witch-hunts. Overall, though, 2023 ended with Ukraine having taken more anti-corruption actions in one year than in many previous years, which likely contributed to an improved CPI score and kept Western aid flowing without major scandal.

- **2024**: In contrast to 2023, 2024 was somewhat less tumultuous on the corruption front, perhaps because many of the known problematic officials had already been purged. Also, the government, military, and society were intensely focused on prosecuting the war (Ukraine launched another counteroffensive effort in summer 2024, albeit with limited success). Still, some developments occurred:

Early 2024 saw continued follow-through on cases opened in 2023 – e.g., trials for those accused in the military food procurement case and ongoing investigations into the recruitment bribery networks. President Zelenskyy

also had to address perceptions of corruption in the humanitarian sphere and reconstruction planning, emphasising that Western-funded projects would be under strict monitoring. In September 2024, a minor scandal erupted over a Ministry of Defence official's handling of equipment procurement, leading to another dismissal. Additionally, Ukraine finally passed a judicial reform law (another EU requirement) to clean up the selection of judges, indirectly tackling corruption in the court system that can shield corrupt officials.

One major corruption case that did break in 2024 was the indictment of Ihor Kolomoisky, a once-powerful oligarch (and ironically a one-time backer of Zelenskyy). In September 2023 he had been detained on fraud charges unrelated to war, but in 2024 he was additionally charged with embezzlement and possibly stripped of Ukrainian citizenship. It was not a wartime aid case, but it signalled that even oligarchs were not off-limits. These likely pleased Western partners, as Kolomoisky was sanctioned by the U.S. for corruption.

However, late 2024 into 2025 revealed some backlash or fatigue. In July 2025, a quiet attempt was made to curtail the independence of NABU/SAPO via legislation—seemingly an effort by some in the presidential circle to reassert control over anti-corruption agencies. This legislation was poorly received: the EU and civil society reacted strongly, and street protests erupted in Kyiv (notably the first mass protests since the war began) with citizens and even mayors demonstrating in defence of the anti-corruption institutions. The backlash forced Parliament to repeal the law within days. The episode hinted at a tug-of-war: even as Ukraine fights corruption, elements of the establishment may resist if investigations begin to encroach on very powerful figures. Indeed, it foreshadowed what was to come with the Energoatom scandal in late 2025.

- **2025**: The year 2025 proved that corruption was still present at the highest levels but also that Ukraine's anti-corruption agencies (and societal demand for accountability) were potent. The big story was the exposure of a massive corruption scheme in the energy sector (Operation "Midas"), unveiled by NABU and SAPO in November 2025. Investigators revealed that since early in the war, a group of individuals—including executives in Energoatom (the nuclear energy operator) and facilitators tied to a businessman friend of Zelenskyy—had extracted kickbacks of 10–15% on contracts, amounting to at least $100 million syphoned. This scheme implicating Timur Mindich (a media mogul and informal associate of Zelenskyy) and officials up to the energy minister was arguably "unprecedented in scale" for wartime. It "shook the Ukrainian public sphere to its core" when the details emerged. Particularly troubling was evidence that members of the President's Office might have known or even been involved (recordings suggested an "Ali Baba" figure directing the scheme, alleged by an opposition MP to be a codename for Andriy Yermak, Zelenskyy's chief of staff, whose initials are A.B.). Though these allegations needed proof, they created enormous pressure on Zelenskyy to act.

within days of NABU's revelations, he fired two Cabinet ministers mentioned (the energy minister Herman Halushchenko, who had just been shuffled to Justice Minister in a controversial appointment, and his successor at Energy). He publicly condemned corruption and urged cooperation with the investigation. The Prime Minister announced a full audit of the energy and defence sectors. And critically, by early December 2025, Zelenskyy removed Andriy Yermak from his role as Chief of Staff. The timing was extraordinary: Yermak was often described as the second most powerful man in Ukraine, a key architect of war strategy and negotiations. Western officials had reportedly pressed Zelenskyy for months to sideline Yermak if corruption evidence mounted. His resignation (officially framed as voluntary) amid a $100m scandal and an SBU search of his home sent shockwaves—as one observer put it, "Corruption is a hydra…" We all knew Yermak. He's been cut off, but many more will grow in his place." This passage captures the enduring nature of the corruption challenge: even after years of efforts, it can regenerate in new forms or via new actors.

The Yermak saga shows the war's paradoxical effects. On one hand, a figure so influential might have been untouchable in peacetime, but war both elevated his power and ultimately led to his downfall when public and international tolerance for graft in the middle of a national survival fight was zero. The Brookings Institution analysis criticised Zelenskyy for initially doubling down on protecting Yermak (he had even put Yermak in charge of peace talk delegations as late as Nov 2025, which the analyst argued undermined credibility). The analyst warned that failing to remove compromised insiders "undermines Zelenskyy's legitimacy at home and credibility abroad". It seems Zelenskyy heeded this warning in the nick of time by letting Yermak go, thus

potentially preserving Western willingness to continue high-level support and averting what could have become a larger crisis of confidence. Western governments, who themselves face sceptical publics, likely pointed to these removals as evidence that "Ukraine is addressing corruption, so our aid isn't going into a black hole."

In sum, the pattern of 2022–2025 is not one of a corrupt free-for-all under the fog of war, but rather a heightened struggle against corruption, with significant victories (many prosecutions and preventative reforms) and some sobering reminders of entrenched interests.

- **2022**: Few major cases (several top security officials removed; SAPO head appointed).
- **2023**: At least 40+ officials dismissed or charged across various scandals (15 in January, ~25 in recruitment and other cases mid-year), plus a major judicial corruption case.
- **2024**: Dozens of lower-level prosecutions (esp. follow-ups); one attempt at weakening anti-graft bodies quickly reversed by protests; oligarchs targeted.
- **2025**: ~10+ individuals at high levels indicted (Energoatom case), and multiple ministers and the President's chief aide ousted due to corruption allegations.

These actions had implications for aid: Throughout 2023–25, U.S. and EU officials regularly cited Ukraine's anti-corruption progress when advocating for continued assistance. For example, in mid-2023, the U.S. Ambassador praised Zelenskyy's "zero tolerance" policy after the January purge. In 2025, the EU made anti-corruption one of seven criteria for EU membership talks – Ukraine's moves to strengthen NABU/SAPO and prosecute top cases helped lead the European Commission in late 2023 to recommend opening accession negotiations. Such linkage underscores that Ukraine's fight against corruption was effectively part of its strategy to secure its future, both in winning the war and integrating with the West.

Military Outcomes: Territorial Changes, Casualties, and Equipment Losses

The state of the war through December 2025 can be summarised as one of hard-fought equilibrium, with Ukraine thwarting Russia's initial objectives but still far from expelling the invaders completely. Here we detail the territorial ebb and flow and the toll of the conflict, linking where relevant to aid and governance factors.

Russia's invasion on February 24, 2022, saw rapid territorial advances on multiple axes (north toward Kyiv, east, and south). By late March 2022, Russian forces occupied approximately 22% of Ukraine's territory, up from about 7% (Crimea + parts of Donbas held pre-invasion). These developments included large swathes of the Kherson, Zaporizhzhia, and Kharkiv regions and the encirclement of key cities (Mariupol fell in May 2022). Ukraine's forces, though initially on the back foot, regrouped and received an influx of Western weaponry by summer 2022. In April 2022, Russia, having suffered heavy losses and facing logistical overstretch (thanks in part to Western intelligence and Ukrainian resistance), withdrew from northern Ukraine (Kyiv, Chernihiv, and Sumy regions), reducing its occupied territory to roughly 15–18% by mid-2022.

The frontline then shifted to the Donbas and south. Russia made incremental gains over summer 2022 (notably capturing the twin cities of Sievierodonetsk and Lysychansk by July, thereby occupying nearly all of Luhansk province). However, come September 2022, Ukraine launched a surprise offensive in Kharkiv province (aided by newly acquired long-range rockets like HIMARS and by improved coordination) that liberated about 9,000 km² in a matter of weeks. This incident was a turning point – it proved Russia's gains were reversible and showcased effective use of Western aid. In November 2022, a second Ukrainian offensive compelled Russia to abandon the west bank of Kherson, liberating Kherson city and adjacent areas (~5,000 km²). By the end of 2022, Russia controlled approximately 17-18% of Ukraine, which included Crimea and the land corridor along the Azov Sea, but it had significantly retreated from its peak.

2023 saw more grinding combat. Russia, after mobilising ~300,000 additional troops in late 2022, went back on the offensive in winter 2023, focusing on the city of Bakhmut in Donetsk. In an infamous battle (August 2022–May 2023), Russian forces (spearheaded by Wagner mercenaries) captured Bakhmut at enormous cost, with tens

of thousands of casualties on both sides. The net territorial change was small (a single medium-sized city, perhaps 100 km² in area), but symbolically this allowed Russia to claim its first capture of a major town in many months. Through spring 2023, Russia also made very minor advances elsewhere in Donetsk (around Avdiivka and Maryinka) at high cost. By contrast, Ukraine was largely on the defensive in early 2023, conserving troops for a planned counteroffensive once new Western arms (like Leopard tanks and Patriot air defences) arrived. This counteroffensive began in June 2023 along two main axes: the southern front (Zaporizhzhia region, aiming to drive toward Melitopol or Berdyansk and sever the land bridge to Crimea) and the eastern front (around Bakhmut's flanks). Progress proved slower than in 2022 due to dense Russian minefields, fortified trenches, and a lack of air superiority. By September 2023, Ukraine had liberated several villages and reached near the small town of Robotyne in Zaporizhzhia, gaining perhaps 300 km² and making positional gains south of Bakhmut. These were important but not breakthrough achievements; Russia still held the main defence line further south.

Casualties

The human cost is staggering. While precise numbers are secret, multiple sources indicate hundreds of thousands of military casualties on each side. U.S. officials in late 2022 had estimated ~100,000 killed or wounded on each side; these figures roughly tripled by late 2025. For Russia, the figure of 790,000 killed or injured suggests combat losses an order of magnitude higher than in any Russian conflict since WWII. If roughly a quarter of those are KIA, that's ~200,000 Russian soldiers killed in action in under 3 years. For Ukraine, 400,000 killed or injured (Zelenskyy's Jan 2025 disclosure) might imply approximately 60,000 killed. These losses, though slightly lower than Russia's, are devastating for a nation with a smaller population. Ukraine has had multiple waves of mobilisation to replace losses, and corruption in the draft process (as discussed) was partly fuelled by the immense fear of injury or death at the front.

Civilian casualties also mounted, largely due to Russian bombardment of cities and infrastructure. Over 14,000 Ukrainian civilians were confirmed killed by the UN by late 2023 (the true number is likely higher). Russian civilians have also been killed by occasional Ukrainian strikes or drone attacks (e.g., border regions, the Kerch bridge attacks), but those numbers are very low by comparison (one source lists 652 Russian civilian deaths, likely including those in border towns and occupied areas).

We should note that casualty figures are not just statistics but affect the war's trajectory: high Russian losses contributed to domestic discontent (e.g., the June 2023 Wagner Group mutiny was partly born out of frustration with the conduct of war), while high Ukrainian losses put pressure on Ukraine's manpower and make continued Western training and perhaps the provision of modern fighter jets (to reduce attrition on the ground) crucial.

Equipment losses

The war has seen a material war of attrition unprecedented in recent times. Thanks to Western replenishment, Ukraine's military as of 2025 is in many ways better equipped (qualitatively) than in 2021, fielding Western tanks, artillery, and soon aircraft. But it has also lost a huge amount of its Soviet-era equipment. Meanwhile, Russia's pre-war equipment advantages have been greatly diminished: losing over 2,000 tanks (verified) out of an initial fleet of ~3,000 operational tanks mean Russia has had to pull out obsolete reserves from storage.[xxvi] Western-supplied anti-tank weapons and Ukraine's adept use of them (often guided by drones) explain much of these losses.[xxvii] Similarly, Russian aircraft losses (332) have significantly reduced Russia's air force capacity, although Russia still retains enough to pose a threat. Ukraine's aircraft losses (188) are also heavy[xxviii], but Western contributions of replacement parts and potentially new aircraft mitigate this. Notably, Ukraine's air defence (much of it Western-supplied) has prevented Russia from using its air force to full effect; instead, Russia resorted to long-range missiles and Iranian-made drones to strike Ukrainian cities. Ukraine's shoot-down rates for those drones and missiles improved over time as more Western air defence arrived (by 2023, Ukraine was intercepting the majority of incoming cruise missiles).

Aid and Corruption Relevance

Equipment losses have been replenished largely by Western aid – for example, by 2025 Ukraine had received an estimated 400+ modern tanks from allies (a mix of Soviet-era tanks from Eastern Europe and Western MBTs

like Leopards), filling the gap of those destroyed. Financial aid allowed Ukraine to fix damaged equipment domestically (the state-owned Ukroboronprom company ramped up repairs) and even develop domestic drone programmes to offset some disadvantages. On the corruption side, there were fears that some military aid could be stolen or sold – however, there have been relatively few confirmed cases of Western weapons diversion (and Ukraine instituted end-use tracking with U.S. personnel's help). One corruption case in 2023 did involve a Ukrainian military procurement officer who was accused of embezzling funds meant for body armour and other gear. Quick action was taken to prosecute this. Ukraine inviting auditors and establishing an online system to track logistics (with U.S. Defence attachés on the ground) helped alleviate allies' concern.

In the exploratory quantitative sample, the simple Pearson correlation between contemporaneous total aid allocations and monthly change in Russian-occupied area is modest and negative ($r = -0.219$). Because the dependent variable is coded as an increase in Russian occupation, that negative sign is substantively consistent with H1: higher aid coincides with less Russian territorial expansion or modest Ukrainian recovery. At the same time, the lagged OLS models reported in the appendix are statistically insignificant and unstable, so they should be interpreted as descriptive rather than causal. The corruption–military relationship is more difficult to summarize with a single coefficient because detection lags, case heterogeneity, and severity differences make event counts an imprecise proxy for immediate battlefield performance. For that reason, the paper interprets corruption primarily through process tracing and sector-specific case evidence rather than through a stand-alone linear estimate.

DISCUSSION

The findings yield several important insights and have implications for both scholarly understanding and policy. In this section, we interpret the results in light of our theoretical framework and discuss what they mean for Ukraine and its partners moving forward.

1. Western Aid as a Critical (but Not Sufficient) Factor in Military Success

The evidence strongly supports the view that Western aid was indispensable to Ukraine's survival and continued resistance. The descriptive record is especially persuasive: major Ukrainian battlefield improvements followed major external deliveries, and broader fiscal support helped sustain the state under wartime strain. The exploratory quantitative results point in the same direction, but they should be interpreted cautiously. In the matched monthly sample, the aid–territorial relationship is directionally consistent with H1 once the occupied-territory variable is interpreted correctly, yet the coefficients are statistically weak and sensitive to specification. The stronger conclusion is therefore qualitative rather than econometric: aid mattered greatly, but its effect depended on timing, military adaptation, and Russian countermeasures.

2. Ukraine's Anti-Corruption Efforts Gained Momentum Under Wartime Pressure

Contrary to a cynical expectation that war would simply obscure corruption, Ukraine took notable steps to combat it, arguably because the war raised the stakes of corruption. The evidence shows that Zelenskyy's government purged many corrupt officials and pursued cases even at high levels, in part due to the need to maintain Western trust (supporting Hypothesis H2's converse: reducing corruption was considered necessary to improve war-fighting capacity and secure aid). It appears that Ukraine's leadership recognised how damaging any corruption scandal could be – not only could it sap domestic morale ("why should soldiers die while officials steal?") but also hand fodder to Russian propaganda and possibly weaken Western resolve. The crackdown in 2023, for example, can be seen as a pre-emptive measure to "keep the Hydra at bay", aligning with the Freedom House observation that it was meant to reassure allies.

From a theoretical lens, Ukraine exemplifies the concept of "rallying anti-corruption as a weapon of war" – using improved governance to strengthen the state in wartime. This aligns with historical cases where existential threats prompted internal reforms (e.g., South Korea in the 1950s rooting out some corruption post-Korean War, or Finland during WWII reducing political infighting). The discussion must acknowledge, though, that corruption was not eradicated. The emergence of the Energoatom/Yermak scandal in 2025 shows that even amid war,

entrenched interests found ways to exploit loopholes. It's a reminder that building integrity is a long-term institutional process; war can galvanise it, but it also provides new illicit opportunities (like war contracts).

The corruption–military link is more visible in case evidence than in simple aggregate statistics. This is consistent with the measurement strategy proposed above: corruption events differ greatly in severity, many are discovered after the relevant harm has occurred, and some matter mainly because they shape donor confidence rather than frontline outcomes in the same month. Accordingly, the absence of a strong linear coefficient should not be read as evidence of irrelevance. The more defensible inference is that corruption affected wartime performance through specific channels—mobilization, procurement, morale, and external credibility—that are best captured through process tracing.

3. Importance of Governance for Sustaining Aid (Aid Conditionality in Practice)

The paper period demonstrates a real-time example of aid conditionality: Western donors did not impose formal conditions like IMF programmes might, but there was an implicit conditionality. When Ukraine's Parliament tried to curb NABU's powers in July 2025, the vehement Western reaction and domestic protests forced a U-turn. This indicates that any sign of backsliding could jeopardise aid or EU prospects, and Ukrainian authorities are keenly aware of this. Policy-wise, it suggests a mutually understood bargain: the West provides aid, and Ukraine progresses on reforms – a positive conditionality loop. From the donors' perspective, continuing this approach is wise: it leverages assistance to encourage Ukraine's transformation into a cleaner, more modern state, which in the long run will benefit Ukraine's reconstruction and integration. For Ukraine, the lesson is that anti-corruption is not just a domestic issue but a cornerstone of its foreign alliances and security. Failing on that front could risk losing vital support, which could be existential.

This dynamic also has an academic implication: it provides a case where foreign aid did not simply fuel corruption (as pessimistic theories often predict), because the recipient government had strong incentives – both normative and survivalist – to fight corruption concurrently with receiving aid. It's a counterpoint to experiences in some other conflicts (e.g., Afghanistan, where huge aid coincided with worsening corruption – though Afghanistan lacked both the institutional groundwork and perhaps the leadership will that Ukraine has demonstrated). Factors making Ukraine different include its EU candidacy incentive, a robust civil society that kept pressure on (protests in wartime about corruption are remarkable), and the generally high level of education and awareness among officials that the eyes of the world are watching.

4. Military Stalemate and the Efficiency of Aid Utilization

By end-2025, we observe a stalemate, suggesting that while Western aid prevented defeat, it has not yet enabled decisive victory. The discussion arises: *are there diminishing returns to aid, or are other factors constraining outcomes?* One could argue that corruption in Ukraine's defense sector *could* be one factor limiting the effectiveness of aid – for example, if a portion of resources were siphoned off, that could blunt operational capacity. However, given the intense oversight, the share lost to corruption seems relatively small (no evidence of systematic diversion of weapons; mostly isolated graft in procurement). More significant constraints are likely the sheer scale of Russian mobilization (Russia's larger population and defense industry), and operational factors like terrain and fortifications. Nonetheless, it remains crucial for Ukraine to maximize *efficiency* of each aid dollar/euro. Continued reforms in procurement – e.g., digitizing purchasing, competitive tenders with public oversight, involving NGOs in monitoring military aid distribution – could further reduce opportunities for graft and ensure the frontline units get everything intended for them. This matters especially as some Western policymakers, facing economic pressures at home, ask whether the funds are well spent. Ukraine's Ministry of Defense in late 2023 introduced changes such as publishing certain procurement prices and engaging external experts in oversight committees, directly responding to past scandals. These are positive steps.

5. Broader Impact on Post-War Trajectory

Looking beyond the war, how Ukraine handles corruption now will affect its post-war reconstruction and EU accession path. Estimates for rebuilding Ukraine run into hundreds of billions of dollars – even larger sums than wartime aid. If donors and investors are to commit those resources, Ukraine will need to have proven its

commitment to transparency and rule-of-law during the war. The progress made in 2022–25 (like strengthening anti-corruption agencies, public procurement reforms, etc.) could lay a foundation for a cleaner reconstruction process than, say, what happened in Iraq or Afghanistan post-conflict. However, the risks will also be high: sudden influx of reconstruction funds, a fatigued society, and potential warlords or monopolies formed during the war could pose corruption risks. Ensuring institutions like NABU and SAPO remain independent and well-resourced, and that new anti-corruption courts (like the High Anti-Corruption Court established in 2019) continue to function credibly, will be essential. In that sense, the war accelerated some reforms that might make post-war Ukraine more resilient against corruption than pre-war.

6. Implications for Conflict Theory and International Relations

Ukraine's case illustrates that international support in a conflict can hinge on the recipient's internal politics. Traditional realist views might focus just on power balances and material aid, but Ukraine shows the ideational aspect – values and governance – plays a part in alliance cohesion. The narrative of Ukraine as a nation defending not just territory but democratic values and cleaning up corruption has been powerful in maintaining Western public support so far. Any significant lapse (e.g., a scenario where Western media headlines read "U.S. weapons ending up on black market" or "Ukrainian elites embezzle war aid") could have seriously eroded that support. That it largely didn't happen is a testament to Ukrainian efforts and the oversight measures in place.

7. Unresolved Challenges

The discussion would be incomplete without noting that some areas of corruption may have been neglected due to the war. For example, *judicial reform* – critical for long-term anti-corruption – progressed slowly (though some moves were made in 2023–24). Wartime unity also meant less criticism of government to avoid aiding the enemy, which can inadvertently reduce scrutiny in some areas. As the war drags on, maintaining the same zeal in anti-corruption might become harder – fatigue can set in, and the public's focus may shift more to simply ending the war. Moreover, new corruption risks have arisen: the huge defense budget (Ukraine increased defense spending massively; in 2023 over 30% of GDP was defense-related, creating many contracts) and the secret nature of many expenditures under martial law can tempt opportunists. Thus, Ukraine and its allies will need to double down on anti-corruption as much as on military strategy if the conflict continues.[xxix]

Key Findings

Extending the analysis through December 2025 reinforces the central claim of this article: Ukraine's wartime resilience depended on both external support and institutional integrity. The revised measurement strategy also clarifies that these relationships are visible through different kinds of evidence. Aid effects are most evident in descriptive trends and in the broader military narrative, whereas corruption is most convincingly captured through event history, sectoral coding, and process tracing rather than through a single monthly coefficient.

Key conclusions include:

Western support remains the linchpin of Ukraine's war effort. By the end of 2025, Western aid commitments exceeded $300 billion, a scale reflecting the high stakes of the conflict for the international order. This aid materially enabled Ukraine's survival and moderate successes on the battlefield. However, the levelling-off of new aid in late 2025 warns that maintaining external support cannot be taken for granted; it will depend on both geopolitical decisions and continued confidence in Ukraine as a worthy recipient. Our analysis suggests that consistent aid, adapted to Ukraine's evolving needs (e.g., more air defence and training for advanced systems), will be essential for any decisive shift in the war's stalemate.

Ukraine's internal battle against corruption, far from pausing during the war, accelerated in many respects. High-profile crackdowns in 2023 and 2025 demonstrate a political will to address graft at even the highest levels, from cabinet ministers to judges to the presidential office. These actions were driven by a combination of civic activism, media reporting, and top-down directives and were crucial for preserving Ukraine's credibility. While corruption obviously did not vanish – and indeed, some deeply entrenched schemes only came to light later in the war – Ukraine's responsiveness in dealing with these incidents highlights an important aspect of its political

maturation. In effect, Ukraine treated anti-corruption as part of its strategy to secure Western alignment and to strengthen the home front. This approach appears to have paid dividends in the form of sustained aid and public trust: despite inevitable scandals, there was no mass collapse of donor support or internal collapse of morale attributable to corruption. That said, the challenge is ongoing: as Ukraine potentially moves toward recovering more territory or entering peace negotiations, continuing to build robust institutions (rule of law, independent judiciary, transparent procurement) will be vital for long-term stability and reconstruction.

Military outcomes through 2025 reflect a hard-fought impasse, with immense human and material costs. Ukraine succeeded in preventing strategic collapse and in recovering significant territory, due in large part to external assistance and domestic adaptation. The exploratory quantitative exercise does not establish a strong causal model of battlefield movement, but it is consistent with the broader qualitative conclusion that aid reduced Ukraine's vulnerability. By contrast, the corruption–performance relationship is best understood qualitatively: corruption in mobilization, procurement, and logistics threatened effectiveness even when its effects were not immediately visible in aggregate monthly data.

In conclusion, the extended period of analysis affirms that Ukraine's fight for its territorial integrity has been accompanied by a fight for institutional integrity. Both battles are far from over as of December 2025. The coming phase – be it continued military confrontation or the challenging process of post-war rebuilding – will test the durability of the gains made. If Ukraine can emerge from this trial not only independent and secure but also more just and transparent, it will have achieved a victory that resonates beyond its borders, striking a blow to the narrative that corruption is destiny in post-Soviet states. Instead, Ukraine's story would exemplify how a society's commitment to democratic values and good governance can endure even under the most severe assaults, lighting the path for a more accountable and stable future. The empirical record from 2022–2025, as analyzed in this paper, gives cautious optimism that Ukraine is moving in that direction – upheld by its people's sacrifice, its soldiers' courage, its reformers' persistence, and the unwavering support of international partners who believe in Ukraine's cause.

Appendix

A1. Regression dataset used for estimation

Units

- Aid variables are **monthly allocations in € billions** (Kiel Support Tracker).

date	delta_occupied_new_km2	occupied_new_km2	aid_total_alloc_bil_eur	aid_total_alloc_lag1	mil_alloc_bil_eur	mil_alloc_lag1	fin_alloc_bil_eur	fin_alloc_lag1	hum_alloc_bil_eur
2022-05	44888.396	122731.49	5.385	9.377	1.303	5.668	2.89	2.384	1.192
2022-06	1587.462	124318.952	7.533	5.385	5.42	1.303	1.408	2.89	0.706
2022-07	520.499	124839.451	6.929	7.533	2.239	5.42	3.773	1.408	0.917
2022-08	340.267	125179.718	12.257	6.929	6.392	2.239	5.765	3.773	0.1
2022-09	-9577.793	115601.925	4.698	12.257	3.386	6.392	0.557	5.765	0.754

2022-10	-2388.944	113212.981	5.808	4.698	2.848	3.386	2.696	0.557	0.264
2022-11	-4654.796	108558.185	11.481	5.808	3.813	2.848	7.069	2.696	0.599
2022-12	190.85	108749.035	6.321	11.481	3.27	3.813	1.365	7.069	1.686
2023-01	226.353	108975.388	13.456	6.321	10.27	3.27	3.001	1.365	0.185
2023-02	164.722	109140.11	9.202	13.456	5.867	10.27	2.363	3.001	0.972
2023-03	54.224	109194.334	5.336	9.202	2.846	5.867	1.691	2.363	0.799

B. Descriptives and correlation matrices

B1. Summary metrics

model	**n**	**R2**	**Adj_R2**	**AIC**	**BIC**	**Durbin_Watson**
Model 1: Δoccupied ~ aid_total_lag1	11	0.003	-0.108	244.648	245.444	0.992
Model 2: Δoccupied ~ mil_lag1 + fin_lag1	11	0.044	-0.195	246.185	247.378	0.975

B2. Pearson correlation matrix

	delta_occupied_new_km2	**aid_total_alloc_bil_eur**	**aid_total_alloc_lag1**	**mil_alloc_bil_eur**	**mil_alloc_lag1**	**fin_alloc_bil_eur**	**fin_alloc_lag1**
delta_occupied_new_km2	1	-0.219	0.054	-0.329	0.104	-0.001	-0.175
aid_total_alloc_bil_eur	-0.219	1	-0.357	0.811	-0.312	0.669	-0.207
aid_total_alloc_lag1	0.054	-0.357	1	-0.178	0.806	-0.486	0.629
mil_alloc_bil_eur	-0.329	0.811	-0.178	1	-0.201	0.123	-0.109
mil_alloc_lag1	0.104	-0.312	0.806	-0.201	1	-0.326	0.067
fin_alloc_bil_eur	-0.001	0.669	-0.486	0.123	-0.326	1	-0.317
fin_alloc_lag1	-0.175	-0.207	0.629	-0.109	0.067	-0.317	1

B3. Spearman correlation matrix

	delta_occupied_new_km2	**aid_total_alloc_bil_eur**	**aid_total_alloc_lag1**	**mil_alloc_bil_eur**	**mil_alloc_lag1**	**fin_alloc_bil_eur**	**fin_alloc_lag1**
delta_occupied_new_km2	1	0.245	-0.091	-0.1	-0.3	0.2	-0.1
aid_total_alloc_bil_eur	0.245	1	-0.364	0.764	-0.6	0.636	-0.064
aid_total_alloc_lag1	-0.091	-0.364	1	-0.145	0.818	-0.436	0.573
mil_alloc_bil_eur	-0.1	0.764	-0.145	1	-0.409	0.136	0.255
mil_alloc_lag1	-0.3	-0.6	0.818	-0.409	1	-0.418	0.1
fin_alloc_bil_eur	0.2	0.636	-0.436	0.136	-0.418	1	-0.427
fin_alloc_lag1	-0.1	-0.064	0.573	0.255	0.1	-0.427	1

C. Full model matrices

C1. Model 1

Equation

$$\Delta Occupied_t = \alpha + \beta_1 \cdot AidAlloc_{t-1} + \varepsilon_t$$

Matrix form

$$\mathbf{y} = \mathbf{X}\boldsymbol{\beta} + \boldsymbol{\varepsilon}$$

where $\mathbf{y}$is 11×1, $\mathbf{X}$is 11×2, and $\boldsymbol{\beta}$is 2×1.

Outcome vector $\mathbf{y}$

date	**delta_occupied_new_km2**
2022-05	44888.396
2022-06	1587.462
2022-07	520.499
2022-08	340.267
2022-09	-9577.793
2022-10	-2388.944
2022-11	-4654.796
2022-12	190.85

2023-01	226.353
2023-02	164.722
2023-03	54.224

Design matrix X(intercept column implied)

date	**aid_total_alloc_lag1**
2022-05	9.377
2022-06	5.385
2022-07	7.533
2022-08	6.929
2022-09	12.257
2022-10	4.698
2022-11	5.808
2022-12	11.481
2023-01	6.321
2023-02	13.456
2023-03	9.202

C2. Model 2

Equation

$$\Delta Occupied_t = \alpha + \beta_1 \cdot MilAlloc_{t-1} + \beta_2 \cdot FinAlloc_{t-1} + \varepsilon_t$$

Design matrix X(intercept column implied)

date	**mil_alloc_lag1**	**fin_alloc_lag1**
2022-05	5.668	2.384
2022-06	1.303	2.89
2022-07	5.42	1.408
2022-08	2.239	3.773
2022-09	6.392	5.765
2022-10	3.386	0.557
2022-11	2.848	2.696

2022-12	3.813	7.069
2023-01	3.27	1.365
2023-02	10.27	3.001
2023-03	5.867	2.363

D. Full estimation results

Estimator: OLS with HAC (Newey–West) robust standard errors, maxlags = 1.

D1. Model 1 coefficient table

	coef	**std_err**	**z**	**p_value**	**ci_low**	**ci_high**
const	665.552	4370.183	0.152	0.879	-7899.85	9230.954
aid_total_alloc_lag1	259.936	763.856	0.34	0.734	-1237.193	1757.066

D2. Model 1 variance–covariance matrix

	const	**aid_total_alloc_lag1**
const	1.90985e+07	-2509498.955
aid_total_alloc_lag1	-2.509499e+06	583475.342

D3. Model 1 coefficient correlation matrix

	const	**aid_total_alloc_lag1**
const	1	-0.752
aid_total_alloc_lag1	-0.752	1

D4. Model 2 coefficient table

	coef	**std_err**	**z**	**p_value**	**ci_low**	**ci_high**
const	3902.786	5145.29	0.759	0.448	-6181.796	13987.369
mil_alloc_lag1	667.672	1006.546	0.663	0.507	-1305.122	2640.465
fin_alloc_lag1	-1361.007	1161.701	-1.172	0.241	-3637.899	915.886

D5. Model 2 variance–covariance matrix

	const	**mil_alloc_lag1**	**fin_alloc_lag1**
const	2.647401e+07	108689.6	-5028153.926
mil_alloc_lag1	1.086896e+05	1013134.322	-472375.208

fin_alloc_lag1	-5.028154e+06	-472375.208	1349549.578

D6. Model 2 coefficient correlation matrix

	const	**mil_alloc_lag1**	**fin_alloc_lag1**
const	1	0.021	-0.841
mil_alloc_lag1	0.021	1	-0.404
fin_alloc_lag1	-0.841	-0.404	1

E. Full fitted values and residual outcomes

date	**delta_occupied_new_km2**	**model1_fitted**	**model1_resid**	**model2_fitted**	**model2_resid**
2022-05	44888.396	3102.942	41785.453	4442.892	40445.504
2022-06	1587.462	2065.389	-477.927	839.642	747.82
2022-07	520.499	2623.761	-2103.262	5605.043	-5084.544
2022-08	340.267	2466.655	-2126.388	263.024	77.243
2022-09	-9577.793	3851.481	-13429.274	323.998	-9901.791
2022-10	-2388.944	1886.63	-4275.574	5405.182	-7794.126
2022-11	-4654.796	2175.344	-6830.14	2135.099	-6789.895
2022-12	190.85	3649.862	-3459.013	-3172.413	3363.263
2023-01	226.353	2308.573	-2082.22	4228.65	-4002.297
2023-02	164.722	4163.222	-3998.5	6675.669	-6510.947
2023-03	54.224	3057.381	-3003.157	4604.453	-4550.229

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