

ENFORCEMENT GAPS AND SANCTIONS RESILIENCE: NORTH KOREA'S ADAPTATION UNDER U.S.-LED PRESSURE

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ABSTRACT

United States (U.S.) sanctions against the Democratic People's Republic of Korea (DPRK) have expanded significantly since the 1990s, yet Pyongyang has continued to advance its nuclear and missile programmes while adapting to sustained external pressure. Focusing on the first Trump administration (2017–2020), this article examines why intensified sanctions failed to produce denuclearization by analysing how North Korea navigated the sanctions environment rather than by assessing sanctions outcomes. The study identifies three interrelated factors: the DPRK's long-standing economic isolation, which limited vulnerability to external pressure; persistent enforcement gaps within the sanctions regime, shaped in part by selective compliance from major regional actors such as China and Russia; and increasingly sophisticated sanctions-evasion strategies, including cyber operations, alternative trade mechanisms, front companies, and covert financial networks. This period is particularly significant because it combined unprecedented sanctions escalation with high-level summit diplomacy between a sitting U.S. president and a North Korean leader. Drawing on United Nations Security Council resolutions, U.S. legislation, policy reports and scholarly literature, the article shows that sanctions alone were insufficient to alter North Korea's strategic calculus. The findings suggest that future policy would benefit from improved multilateral coordination, sustained diplomatic engagement, and more coherent sanctions implementation that recognises the DPRK's capacity for adaptation and resilience.

Keywords: North Korea, Sanctions enforcement, Regime resilience, Denuclearization, United States

INTRODUCTION

Despite being subjected to one of the most comprehensive and long-standing sanctions regimes in contemporary international relations, the Democratic People's Republic of Korea (DPRK) has neither collapsed politically nor abandoned its nuclear weapons programme. Instead, Pyongyang has continued to expand and refine its missile and nuclear capabilities through sustained testing and technological development. In 2012, the regime amended its constitution to designate itself a "nuclear-armed state," clearly signalling the central role of nuclear weapons in regime security (Ministry of Foreign Affairs, Republic of Korea, 2025). Between 2012 and 2025, the DPRK conducted more than 270 missile launches, unveiling increasingly diverse systems with extended range and improved capabilities (Center for Arms Control and Non-Proliferation, 2025). This trajectory was further reinforced in September 2023, when the Supreme People's Assembly

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adopted a constitutional amendment enshrining the “policy on building nuclear force” as the basic law of the state (Reuter, 2023). Taken together, these developments indicate that nuclear weapons have become a cornerstone of North Korea’s national defense strategy and a key guarantee of regime survival. This persistence raises a fundamental question: why have increasingly severe sanctions failed to achieve denuclearization?

The first Trump administration (2017–2020) marked a critical phase in sanctions policy toward the DPRK. Following a series of nuclear tests and long-range missile launches, the United Nations Security Council (UNSC) adopted some of its most stringent measures to date, including Resolutions 2371, 2375, and 2397. These resolutions targeted key sources of revenue such as coal exports, textiles, fuel imports, and overseas labour, and were reinforced by expanded unilateral sanctions imposed by the United States. At the same time, the first Trump administration pursued a dual strategy that combined “maximum pressure” with summit diplomacy, using sanctions both as punitive instruments and as leverage in negotiations over denuclearization.

Despite this unprecedented escalation of economic pressure, the Kim regime continued advancing its nuclear programme. While sanctions imposed material and social costs, their intended political impact remained limited. Trade disruptions and restrictions on humanitarian assistance worsened food insecurity and contributed to widespread hardship among the civilian population. The burden of sanctions fell disproportionately on ordinary citizens rather than regime elites, raising ethical concerns and complicating assessments of sanctions as an effective policy instrument.

Rather than capitulating, the DPRK adapted to the sanctions environment by expanding illicit networks, deepening economic reliance on neighbouring states, and exploiting divisions among sanctioning powers. Although Washington framed sanctions as the core instrument of coercive diplomacy, broader geopolitical dynamics shaped how pressure was applied and enforced. Diverging priorities among key actors weakened collective enforcement and further constrained the ability of sanctions to influence Pyongyang’s strategic decisions.

Guided by the question of why sanctions failed to produce denuclearization, this article examines sanctions on North Korea during the first Trump administration by focusing on how North Korea adapted to, responded to, and evaded sustained external pressure. This period is selected because it marked an unprecedented phase of high-level summit diplomacy between a sitting U.S. president and a North Korean leader, a development without precedent in earlier administrations. Using a qualitative approach drawing on UNSC resolutions, U.S. legislation, policy reports and scholarly literature, the study contributes to broader debates on the limits of sanctions and the challenges of sustaining collective pressure in an increasingly fragmented international system.

SANCTIONS IN INTERNATIONAL RELATIONS

Sanctions have long been recognized as a primary instrument of coercive diplomacy in international relations, although scholars differ in their interpretations of their purpose and effectiveness. Coercive strategies are generally divided into two types: deterrence and compellence (Muradli, 2015). Deterrence seeks to prevent undesirable actions through the threat of punishment, while compellence aims to force an adversary to take or halt a specific action within a defined timeframe to maintain credibility (Muradli, 2015).

Scholars conceptualize sanctions in various ways. Nossal (1989) views them as both a legal enforcement mechanism and a foreign policy tool, while Knorr (1975) defines them as “the means

of exercising power”. Knorr, Olson, and Losman describe sanctions, such as embargoes and boycotts as tools to influence state behaviour without military force (Nossal, 1989). Doxey (1987) frames sanctions as moral penalties for wrongdoing. International organizations similarly define them as coercive measures; the Spanish Ministry of Foreign Affairs (n.d.) notes that the UN, European Union (EU), and Organization for Security and Co-operation in Europe (OSCE) employ sanctions to weaken states threatening global order. Masters (2024) adds that sanctions coerce, deter, punish, or shame through trade restrictions, financial penalties, embargoes, and asset freezes. Sanctions on the DPRK reflect these understandings, as they are intended to compel behavioural change without military force. However, their effectiveness has been undermined by inconsistent enforcement, particularly by China and Russia. This has allowed Pyongyang to sustain revenue streams and access critical resources, enabling it to absorb or evade economic pressure without making meaningful policy concessions.

Sanctions can be imposed unilaterally or multilaterally. While sanctions have occasionally achieved success, their effectiveness largely depends on coordinated enforcement. Multilateral sanctions are generally more effective than unilateral ones because collective action reduces opportunities for evasion (Sustainability Directory, 2025). Karliuha (2025) defines unilateral sanctions as measures imposed independently by a single state without UNSC authorization. Meanwhile, multilateral sanctions involve coordinated action through institutions such as the UN or EU (Avallone, n.d.). The limitations of unilateral sanctions are evident when targeted states bypass restrictions by engaging alternative partners, thereby weakening the intended impact (Sustainability Directory, 2025). This dynamic is particularly relevant to the DPRK, where inconsistent enforcement by key allies, notably China and Russia, has constrained sanctions effectiveness.

Finally, enforcement partners play a crucial role in ensuring compliance and preventing evasion. While China and Russia are central due to their ties with Pyongyang, other actors including Japan, the ROK, and ASEAN members, also contribute through diplomatic coordination and trade controls. Effective enforcement, as argued by Sabatini and Isard (2025), requires close coordination in strategy, implementation, and third-party engagement to ensure consistency and close existing loopholes.

SANCTIONS IMPOSED UNDER THE TRUMP ADMINISTRATION (2017–2020)

During the first Trump administration, U.S. policy toward the DPRK was centred on the “maximum pressure” strategy, which aimed to compel denuclearization through intensified economic, diplomatic, and military pressure. This approach emerged amid a sharp escalation in North Korea’s nuclear and missile activities in early 2017, including successful intercontinental ballistic missile (ICBM) tests that suggested a potential capability to strike the US mainland (Revere & Pollack, 2017). Under Kim Jong Un, the DPRK tested its first ICBMs alongside short- and medium-range missiles and a hydrogen bomb, marking a significant advancement in its strategic capabilities (Stallard, 2020).

These developments reinforced President Trump’s view that earlier U.S. approaches, particularly the policy of “strategic patience,” had failed to constrain Pyongyang’s behaviour. In response, the administration adopted a more confrontational and transactional posture that relied heavily on coercive tools and economic pressure (Revere & Pollack, 2017). Following missile tests in July 2017, Trump publicly described the launches as a direct threat to US national security and pledged to intensify sanctions (Reuters, 2017). The administration pursued a dual strategy that

combined multilateral action through the United Nations Security Council (UNSC) with expanded unilateral measures, while mobilising support from partners such as Japan, South Korea, the EU, and several Southeast Asian states (Preble & Willis, 2021). Despite these efforts, uneven enforcement within the international system limited the effectiveness of the pressure campaign.

This experience highlights the broader structural limits of sanctions. Even when applied through both multilateral and unilateral channels, sanctions depend on sustained and coordinated enforcement to exert meaningful pressure. In the DPRK's case, continued trade ties with neighbouring states, both legal and illicit, allowed Pyongyang to cushion economic pressure and maintain essential revenue streams. As a result, the first Trump administration's experience suggests that sanctions alone, regardless of their scope or severity, are unlikely to produce significant behavioural change without consistent enforcement and complementary diplomatic engagement.

Multilateral Sanctions

Within the multilateral framework, the UNSC adopted a series of resolutions in 2017 that significantly expanded existing sanctions on the DPRK, most notably Resolutions 2371, 2375, and 2397. These measures were adopted in direct response to major nuclear and missile tests and represented the most stringent sanctions imposed on North Korea to date.

Adopted after the DPRK's July 2017 ICBM tests, Resolution 2371 broadened sector-specific sanctions by banning key mineral exports, prohibiting new joint ventures, restricting overseas DPRK labour deployments, and strengthening financial designations. It also enhanced maritime enforcement by authorising vessel designations and restricting port access. In addition, the resolution expanded cooperation with Interpol and strengthened the monitoring mandate of the UN Panel of Experts to improve compliance (Security Council Report, 2020; Davenport, 2022).

Following North Korea's sixth nuclear test later that year, Resolution 2375 introduced further restrictions by capping refined petroleum imports and imposing a near-total ban on textile exports. It also tightened controls on overseas labour and reinforced maritime interdiction measures. These steps were adopted amid heightened diplomatic tensions, including President Trump's confrontational speech at the UN General Assembly (Horsley, 2017; Borger, 2017). The resolution was intended to restrict the financial resources supporting Pyongyang's weapons programmes.

Beyond these headline measures, the UNSC continued refining the sanctions regime under the Resolution 1718 framework between 2017 and 2020. These updates included new designations targeting individuals, entities, and vessels involved in sanctions evasion. Resolution 2407, adopted in March 2018, extended the mandate of the Panel of Experts and clarified humanitarian exemption procedures while preserving the overall sanctions architecture.

Unilateral Sanctions

Alongside multilateral efforts, the United States expanded its unilateral sanctions regime through a combination of legislative and executive measures. Two instruments were central to this effort: the Countering America's Adversaries Through Sanctions Act (CAATSA) and Executive Order 13810. Together, these measures sought to intensify financial isolation, deter third-party cooperation with Pyongyang, and reinforce the broader maximum pressure strategy.

CAATSA strengthened restrictions related to illicit finance and the use of forced labour. It presumed that goods linked to overseas DPRK labour involved forced labour unless proven otherwise, shifting the burden of compliance onto firms and governments operating within global supply chains (Schmitt, 2017). The legislation also authorised secondary sanctions against foreign entities that supported North Korea's military or weapons-related activities and restricted their access to the US financial system (CFR Editors, 2022; Assent, n.d.). Through these provisions, CAATSA extended the reach of US sanctions beyond North Korea itself.

Executive Order 13810 further reinforced this framework by granting the US Treasury authority to freeze assets, deny access to US markets, and sanction foreign firms, vessels, and aircraft engaged in trade with the DPRK (Federal Register, 2024). The executive order prohibited designated entities from operating within US jurisdiction, effectively linking compliance with international sanctions to continued participation in the US-led global financial system. These measures increased the economic costs for both Pyongyang and external actors willing to engage with it.

Unilateral sanctions were further institutionalised with the passage of the Asia Reassurance Initiative Act (ARIA) in December 2018. ARIA reaffirmed denuclearization as a core objective of US policy and strengthened congressional oversight over any easing of sanctions (Manyin et al., 2020; Thayer, 2020). By limiting executive discretion, ARIA ensured that sanctions pressure remained embedded in US policy regardless of short-term diplomatic initiatives, making unilateral measures more durable and difficult to reverse (Manyin et al., 2020).

International and Regional Cooperation

The first Trump administration sought to strengthen the sanctions campaign through cooperation with a wide range of international and regional partners, including Japan, South Korea, the EU, China, Russia, and ASEAN member states. Among these actors, Japan consistently supported the maximum pressure strategy. Prime Minister Shinzo Abe strongly advocated strict sanctions enforcement, emphasising that normalisation or economic assistance should not proceed without tangible progress toward denuclearization (Holland, 2017; Bruton, 2019).

South Korea initially aligned closely with U.S. policy, particularly during the period of heightened military tension in 2017. Over time, however, Seoul adopted a more balanced approach that combined sanctions compliance with renewed efforts at inter-Korean dialogue (Padden, 2017; Bolton, 2020). While this dual-track strategy reflected domestic political priorities and security concerns, it also moderated the overall level of pressure on Pyongyang as diplomatic engagement gained prominence.

The EU reinforced the international sanctions framework by expanding its own restrictions in April 2017, introducing strengthened sectoral bans and additional designations that mirrored UNSC resolutions (Scavuzzo, 2017; News Agencies, 2017). Although these measures signalled diplomatic solidarity with U.S. objectives, the EU's limited economic interaction with North Korea constrained their practical impact.

By contrast, cooperation from China and Russia proved less consistent. Although both states initially supported UNSC sanctions, their level of enforcement declined over time. China applied restrictions more strictly during the early phase of the campaign but gradually shifted toward selective implementation, citing economic costs and compliance burdens (Suderman, 2023). By 2022 and 2023, both China and Russia vetoed proposals for additional sanctions and publicly advocated renewed dialogue instead (Lederer, 2022). Russia similarly expanded trade ties

and continued hosting DPRK labourers, arguing that sanctions disproportionately harmed civilians rather than the regime itself (Ryall, 2017; Bowen et al., 2025).

ASEAN member states generally complied with UN sanctions in formal terms, particularly following U.S. diplomatic engagement. However, uneven enforcement capacity across the region allowed certain illicit DPRK activities to persist, weakening the overall effectiveness of the sanctions regime (Hiebert, 2017; Brunnstrom, 2017). Taken together, these dynamics reveal a key limitation of the maximum pressure strategy. While broad international support existed in principle, differences in political priorities and strategic interests constrained enforcement in practice. As a result, sanctions during the 2017–2020 period struggled to generate the sustained and coordinated pressure necessary to influence Pyongyang’s strategic choices.

RESILIENCE OF NORTH KOREA IN DEALING WITH SANCTIONS

The limited impact of international sanctions on North Korea can be attributed to three interrelated factors: the DPRK’s prolonged economic isolation, its increasingly sophisticated sanctions-evasion networks, and inconsistent enforcement by key actors, particularly China and Russia.

North Korea’s Economic Isolation

Sanctions have had limited success in altering the DPRK’s behaviour largely because North Korea is weakly integrated into the global economy. With few formal trade linkages and minimal dependence on international financial markets, the country offers limited pressure points for sanctions to exploit, thereby constraining the ability of U.S.-led sanctions to influence decisions made by Kim Jong Un. Rather than compelling denuclearization, many sanctions have disproportionately affected ordinary North Korean citizens while leaving regime priorities largely intact (CFR Editors, 2022). Although weak enforcement and evasion have undermined sanctions effectiveness, the more fundamental challenge lies in North Korea’s structural isolation, which sharply limits the leverage sanctions can generate (Fefer, 2021).

In this respect, North Korea differs significantly from cases such as Iran. Whereas Iran retained partial integration into global economic and financial networks, and was therefore more vulnerable to external pressure, North Korea has operated under near-continuous sanctions and deep isolation for decades (Fefer, 2021). As a result, additional UN sanctions have only marginally increased pressure on a leadership long accustomed to economic constraint and international condemnation (Van Lennep, 2016).

This isolation is further mitigated by the DPRK’s heavy reliance on China, and to a lesser extent Russia, which together provide its primary economic lifelines. China alone accounts for approximately 90 per cent of North Korea’s foreign trade, while Russia has assumed a growing role in offering political and economic support (Silberstein & Cronin, 2018). These relationships enable Pyongyang to bypass many international restrictions and buffer the economy against sanctions-induced shocks. Moreover, China’s own development trajectory, alongside Vietnam’s, demonstrates that economic growth and improved living standards do not necessarily require political liberalization. As Ojeda (2009) argues, China has provided North Korea with a model of economic reform without the surrender of political authority.

Consequently, analysts at the Center for a New American Security (CNAS) argue that sanctions alone are insufficient and should be complemented by selective economic engagement, such as technical assistance aimed at improving economic governance (Silberstein & Cronin,

2018). This perspective aligns with Sabatini and Isard's (2025) contention that sanctions are most effective when embedded within a broader strategy that integrates diplomatic, economic, and humanitarian tools. A calibrated approach combining targeted pressure with limited engagement may therefore be better suited to addressing North Korea's entrenched isolation, which has long weakened the impact of sanctions.

Comparative studies of EU sanctions further suggest that coercive measures are least effective when the target state does not regard the sanctioning power as strategically significant (Novotná, 2024). For a deeply isolated state such as the DPRK, reactions to sanctions have largely remained rhetorical rather than policy-altering, underscoring the regime's high tolerance for isolation and external pressure. This helps explain why the intensified sanctions imposed between 2017 and 2020 failed to alter Pyongyang's nuclear trajectory despite unprecedented international effort.

North Korea's Sanctions Evasion Capabilities

Beyond economic isolation, sanctions have been undermined by the DPRK's ability to evade restrictions through three principal mechanisms: cyber operations, front companies and alternative trade channels, and covert banking networks. Together, these tools have allowed the regime to sustain revenue streams and continue developing its weapons programmes despite mounting external pressure.

Cyber operations have become a central pillar of North Korea's sanctions-evasion strategy. According to Nam Jae-joon, former director of South Korea's National Intelligence Service, Kim Jong Un has elevated cyber capabilities to a strategic level comparable to nuclear weapons, describing cyber warfare as an "all-purpose sword" alongside missiles and nuclear arms (Bartlett, 2020). Reflecting this assessment, senior U.S. intelligence officials have identified North Korea as one of the four principal cyber threats to the U.S., alongside Russia, China, and Iran (Amato, 2025). DPRK-linked cyber groups, including Lazarus, Kimsuky, APT37, and Andariel have engaged in a range of activities encompassing espionage, intelligence collection, and financially motivated cybercrime (Recorded Future Insikt Group, 2023).

Although these groups operate under different names, they are generally understood to function as sub-units of the Lazarus Group, which has been responsible for large-scale cyber thefts and disruptive attacks (Recorded Future Insikt Group, 2023). Since 2017, North Korea has increasingly relied on cybercrime to generate revenue and offset sanctions pressure (Reuters, 2024). During this period, Andariel conducted financially motivated cyber operations and infiltrated sensitive defence and nuclear-related facilities, including India's Kudankulam Nuclear Power Plant, to obtain classified information (Horschig, 2024).

The 2017 WannaCry ransomware attack, attributed to the Lazarus Group, demonstrated the scale of these capabilities. Affecting approximately 300,000 computers worldwide and causing an estimated USD 4 billion in damages, the attack exploited vulnerabilities in the Windows operating system to spread rapidly as a cryptoworm, disrupting healthcare systems and major corporations globally (Amato, 2025; Foresight News, 2025). Although financial returns were relatively limited, the operation showcased North Korea's technical sophistication and capacity to exploit systemic vulnerabilities, reinforcing the regime's adaptability under sanctions. Importantly, this attack marked one of the first large-scale ransomware incidents to employ cryptoworm propagation, signalling an evolution in cyber techniques (Foresight News, 2025).

Beyond cyberspace, the DPRK has relied on front companies and alternative trade mechanisms to bypass sanctions. Front companies registered abroad, often as shell entities have facilitated procurement and financial transactions while obscuring ultimate beneficiaries (Sanction Scanner, 2023). These entities operated alongside maritime networks that enabled the physical transfer of sanctioned goods. During the 2017–2020 period, North Korea increasingly employed foreign-flagged vessels, including large bulk carriers, to transport greater volumes of prohibited goods with reduced scrutiny (Ha & Stricker, 2020). The UN Security Council reported that over 50 vessels and 160 associated companies were investigated for sanctions violations related to petroleum transfers alone (United Nations Panel of Experts on North Korea, 2019).

Notable examples include Mingzheng International Trading Limited, a China- and Hong Kong-based front company designated by the U.S. Treasury in 2017 for facilitating sanctions evasion and money laundering on behalf of the DPRK (Financial Crimes Enforcement Network, 2017). North Korea has also employed self-propelled barges; low-cost, engine-powered vessels suitable for coastal and inland waterways, to export sand and other materials with minimal detection (Ha & Stricker, 2020; Ratson Shipbuilding, 2023). In 2019, the regime reportedly conducted a large-scale illicit sand export operation to China involving over 100 shipments valued at up to USD 22 million, using Haeju port as a logistical hub (Ha & Stricker, 2020). Despite enforcement efforts, the UN Panel of Experts estimated that coal exports in violation of sanctions generated approximately USD 370 million in revenue that year (Silberstein, 2023).

These trade activities depended on covert banking networks to process payments and conceal revenue flows. North Korea has systematically exploited weaknesses in the international financial system using embassies, forged documentation, and false identities (Kassenova, 2020). In January 2017, for example, the DPRK Embassy in Austria attempted to access frozen funds using fabricated labour contracts (United Nations Security Council, 2020). A 2019 UN report further documented how Reconnaissance General Bureau agents established clandestine financial networks across Europe, while the arrest of Mun Chol Myong in Malaysia exposed the laundering of funds through US correspondent banks using front companies and aliases (United Nations Security Council, 2019; U.S. Department of Justice, 2021).

China and Russia as Enforcement Constraints

Between 2017 and 2020, China and Russia played crucial yet distinct roles in shaping the enforcement of sanctions against the Democratic People’s Republic of Korea (DPRK). China, as North Korea’s primary economic partner, initially supported U.S.-led sanctions aimed at constraining Pyongyang’s nuclear and missile programmes. However, enforcement was selective rather than comprehensive. While China implemented restrictions on petroleum exports, textile trade, and certain financial transactions, enforcement gaps persisted, allowing the DPRK to exploit loopholes such as ship-to-ship transfers to sustain revenue streams (Cohen, 2019).

This pattern reflected China’s broader dual-track approach, which sought to balance denuclearization efforts with the promotion of dialogue and regional stability rather than maximum pressure (Kim, 2020). China restored closer ties with the DPRK in 2018 ahead of Kim Jong Un’s summit with Trump and, despite formally endorsing peace and denuclearization on the Korean Peninsula, refrained from exerting decisive leverage over Pyongyang to advance these objectives (Rasnake, 2025). On the one hand, Beijing viewed the DPRK issue as a limited area for cooperation with the United States amid intensifying strategic competition; on the other, it

remained wary of expanding U.S. and South Korean influence on the peninsula, which could undermine China's regional position (Kim, 2020).

Evidence of China's selective enforcement became apparent during the early phase of intensified sanctions. Between January and May 2018, North Korean tankers conducted at least 89 port calls linked to illicit ship-to-ship transfers of refined petroleum, with China identified as the primary facilitator (Cohen, 2019). At the same time, China increased exports of food and fertilizer to the DPRK in 2018 following improved bilateral relations, with exports rising further in 2019 before falling sharply in 2020 due to COVID-19 border closures (Li, 2021). These trends indicate that while Beijing formally complied with UN sanctions, partial enforcement allowed Pyongyang to sustain critical economic activity and blunt sanctions' impact. As Kim (2020) observes, China was reluctant to apply maximum pressure out of concern that excessive sanctions could destabilize the DPRK and trigger broader regional instability, which reflects its effort to balance international obligations with strategic and economic interests (Luo, 2025).

International pressure prior to the pandemic deepened North Korea's isolation from the global economy, leaving China as its dominant trade partner. In 2015, Chinese imports accounted for 85 per cent of North Korea's total imports; in subsequent years, this figure rose to 99 per cent as pandemic-related border closures further isolated the country (UN Comtrade, 2022). China also absorbed nearly 70 per cent of North Korea's exports (UN Comtrade, 2022). By 2023, North Korea's dependence on China exceeded 98 per cent, the highest level on record, up from 91.7 per cent in 2018 (KOTRA, 2023). This asymmetrical relationship rendered China a critical lifeline for food, fuel, and raw materials, particularly as Pyongyang faced a trade deficit of USD 2.12 billion in 2023. Despite international sanctions, China continued economic interaction with the DPRK, leveraging this dependence to maintain political and strategic influence in East Asia. Anchored in the 1961 mutual aid treaty, the relationship has repeatedly enabled North Korea to mitigate sanctions pressure and maintain regime resilience.

By comparison, Russia played a limited economic role, while remaining politically supportive of the DPRK through diplomatic engagement and selective enforcement. Between 2017 and 2020, evidence of large-scale or systematic Russian sanctions evasion was more limited than in China's case. The most visible diplomatic engagement was the April 2019 Vladivostok summit between Kim Jong Un and President Vladimir Putin, which emphasised political dialogue rather than sanctions enforcement (Reuters, 2024). Nonetheless, economic interaction persisted, with bilateral trade reaching approximately USD 34 million in 2018 despite international restrictions (Snyder, 2019).

Although Russia publicly supported compliance with UNSC resolutions and jointly promoted a diplomatic "road map" with China, this stance prioritised dialogue and regional stability over strict enforcement (The Ministry of Foreign Affairs of the Russian Federation, 2018). Reports from as early as 2017 indicated enforcement gaps, including the involvement of Russian vessels in ship-to-ship transfers of oil and petroleum products with North Korean ships (Deutsche Welle, 2017). The use of tactics such as disabling transponders and falsifying shipping routes suggested deliberate attempts to conceal these activities (Deutsche Welle, 2017). By 2019, reports indicated that Russian companies continued to re-export North Korean coal, oil, and petroleum in violation of UN measures, providing Pyongyang with critical fuel and resources that contributed to regime stability (Snyder, 2019).

These practices became increasingly significant as refined petroleum deliveries exceeded the annual cap of 500,000 barrels established under UNSCR 2397, with reports indicating that total shipments surpassed one million barrels per year (Reuters, 8 May 2024). The illicit oil trade

is widely believed to be linked to North Korea's provision of ammunition, missiles, and personnel in support of Russia's war in Ukraine, underscoring the growing strategic convergence between the two states. Access to fuel remains vital for North Korea's industrial output, including ammunition production and domestic price stabilisation.

Russia further weakened the sanctions regime by exercising its veto in 2024 to block the renewal of the UN Panel of Experts monitoring sanctions implementation (UN News, 28 March 2024). Russian Ambassador Vassily Nebenzia argued that the sanctions regime had become "detached from reality" and had lost relevance for preventing nuclear proliferation (UN News, 28 March 2024). The dissolution of this monitoring mechanism substantially complicated international enforcement efforts.

In addition to diplomatic support, Russia provided concrete economic benefits to the DPRK, particularly through labour cooperation. Facing labour shortages in its Far East, Russia continued to host North Korean workers despite UN prohibitions. Approximately 40,000 DPRK workers were reportedly deployed to Russia under state-sponsored labour programmes, primarily in construction, manufacturing, and agriculture, remitting hard currency to Pyongyang (Global Rights Compliance, 25 March 2026). These overseas labour deployments, generating an estimated USD 500 million annually, have long been a central pillar of North Korea's foreign-currency strategy.

Although the UN explicitly prohibited the hiring of new North Korean workers through UNSCR 2371 in August 2017 (Gladstone, 2017), reports indicate continued employment in Russia and China through sanctions-evasion practices. Russia has also been accused of unfreezing North Korean assets and permitting DPRK firms to open local bank accounts, facilitating access to the international financial system. In early 2024, intelligence officials reported that Russia released USD 9 million of frozen North Korean assets, which were allegedly used to purchase crude oil (KBS World, 7 February 2024; Moscow Times, 6 February 2024).

Taken together, these developments point to a persistent pattern of partial enforcement and tolerance of sanctions circumvention by both China and Russia. While Russia's role during this period was less economically consequential than China's, enforcement gaps by both states reduced cumulative pressure on the DPRK and contributed to the erosion of sanctions effectiveness (Financial Action Task Force, 2025). The experience of 2017–2020 thus demonstrates that sanctions failure cannot be attributed solely to North Korea's isolation or resilience; rather, it reflects uneven cooperation by its principal partners, particularly China, without whose support the Kim regime would struggle to survive (Ojeda, 2009).

POLICY IMPLICATIONS AND FUTURE DIRECTIONS

This section outlines policy implications derived from the limitations identified in US-led sanctions on North Korea, with relevance for the second Trump administration and future US governments. As J. Robertson noted (personal communication, 5 July 2025), a core weakness of past approaches has been the absence of a coherent and structured roadmap linking risk reduction, nuclear restraint, and the longer-term objective of denuclearization. Rather than treating sanctions as a stand-alone instrument, the analysis suggests that their effectiveness depends on how they are integrated with diplomacy. Two interrelated areas warrant particular attention: strengthening multilateral cooperation and diplomatic engagement, and improving sanctions enforcement through more coordinated implementation. Together, these dimensions offer a more realistic framework for recalibrating U.S. and allied policy toward North Korea.

Strengthening Multilateral Cooperation and Diplomatic Engagement

A more effective approach toward North Korea requires recalibrating U.S. strategy to place greater emphasis on multilateral cooperation alongside sustained diplomatic engagement. Sanctions derive their coercive power from international consensus, yet fragmented enforcement and diverging geopolitical priorities have consistently weakened their impact (Ivan, 2025). This limitation is compounded by North Korea's limited integration into the global economy and its reliance on a narrow group of partners, primarily China and increasingly Russia, which has enabled Pyongyang to blunt Western-led pressure (Brown, 2018; Silberstein, 2023). Following the collapse of negotiations in 2019, North Korea's strategic posture shifted further toward consolidation rather than concession, reflecting frustration with rigid negotiating positions and unmet expectations (Kluth, 2025; Manyin & Nikitin, 2023).

While sanctions remain an important policy tool, historical experience suggests that they cannot substitute for sustained diplomatic engagement. Earlier mechanisms, such as the Six-Party Talks, demonstrated that multilateral platforms, despite their eventual breakdown, were capable of producing concrete commitments and structured dialogue on denuclearization (Williams, 2022; Manyin & Nikitin, 2023). By 2025, North Korea operates with increased confidence, supported politically and economically by China and Russia, further diminishing the leverage of unilateral or Western-centric sanctions frameworks.

In this context, effective pressure depends less on isolation and more on coordinated engagement with regional stakeholders. Close alignment with South Korea and Japan remains essential, but engagement with Beijing and Moscow is equally critical. For the foreseeable future, China and Russia are the only actors with sufficient influence to exert meaningful leverage over Pyongyang on the nuclear issue. Although neither has openly endorsed a nuclear-armed North Korea, both remain concerned about the regional consequences of instability, including the prospect of intensified U.S. military deployments and the risk of wider nuclear proliferation involving Japan, South Korea, or Taiwan. These shared concerns suggest that space exists, however limited, for issue-specific cooperation oriented toward risk management and restraint rather than immediate denuclearization.

Enhancing Sanctions Enforcement through Coordinated Implementation

Sanctions effectiveness depends not only on legal measures but also on credible, coordinated enforcement. In the DPRK's case, evasive practices, including covert maritime transfers, falsified documentation, cyber operations, and the use of front companies, have significantly weakened U.S.-led sanctions regimes (Davenport, 2022). These challenges are exacerbated by outdated monitoring mechanisms, inconsistent reporting, and uneven enforcement by China, Russia, and parts of Southeast Asia.

Improving enforcement therefore requires a renewed emphasis on coordination rather than escalation. Advances in digital monitoring technologies, including satellite imagery, blockchain-based verification systems, and enhanced use of the Automatic Identification System (AIS) to track so-called "dark fleet" vessels, offer practical tools for detecting illicit activity (United States Coast Guard Navigation Center, 2025). Strengthening maritime cooperation through intelligence sharing, joint patrols, and expanded participation in the Proliferation Security Initiative (PSI) may further improve compliance and deterrence (Song, 2023). Transparency mechanisms, such as

comprehensive UN reporting and targeted inspections at high-risk ports, remain essential to sustaining international confidence in sanctions enforcement.

At the same time, enforcement measures are unlikely to succeed in isolation. Past diplomatic efforts illustrate that sanctions without clear pathways for negotiation risk entrenching policy stalemates. The Singapore and Hanoi summits revealed how disagreements over sequencing, verification, and sanctions relief can quickly undermine dialogue (Bolton, 2020). In contrast, incremental approaches, such as limited “small deals” tied to verifiable measures, have previously facilitated modest but tangible progress, as seen in the 1994 Agreed Framework and the 2012 Leap Day Deal (Manyin & Nikitin, 2023; Blakemore, 2025).

Taken together, these considerations suggest that sanctions are most effective when embedded within a broader strategy of calibrated pressure and engagement. Such an approach is unlikely to yield immediate breakthroughs, as it requires sustained coordination among the U.S., China, Russia, and regional allies. Nevertheless, a long-term framework that integrates enforcement, diplomacy, and confidence-building measures offers a more realistic pathway for managing nuclear risk on the Korean Peninsula than reliance on coercive tools alone.

CONCLUSION

This study has shown that the limited effectiveness of sanctions against the DPRK cannot be explained solely by their design or severity. Instead, sanctions failure during the 2017–2020 period reflected a combination of structural constraints and adaptive responses that together undermined their coercive potential. North Korea’s long-standing economic isolation reduced its exposure to external pressure, enabling the regime to absorb economic costs without experiencing the type of systemic disruption sanctions are intended to generate. At the same time, uneven enforcement and gaps in monitoring created conditions that the DPRK was able to exploit. Through increasingly sophisticated evasion strategies, ranging from cyber operations to covert trade and financial networks, Pyongyang sustained access to critical resources despite formal restrictions. These dynamics limited the ability of sanctions to alter the regime’s strategic calculations or constrain its nuclear ambitions.

The analysis also highlights how broader geopolitical conditions shaped the implementation environment in which sanctions operated. While international consensus existed in principle, differences in priorities among key actors weakened collective enforcement in practice. Limited and selective compliance by major regional stakeholders reduced the cumulative pressure on the DPRK and reinforced its ability to adapt. Rather than compelling policy change, sanctions became one element within a broader context that North Korea learned to navigate, manage, and ultimately withstand.

These findings carry important implications for future policy. First, improving multilateral coordination and sustaining diplomatic engagement remain essential, not as alternatives to sanctions, but as necessary complements. Without consistent enforcement and meaningful dialogue, sanctions risk reinforcing policy stagnation rather than generating leverage. Second, sanctions implementation must focus on coordination and credibility. Strengthening monitoring mechanisms, enhancing maritime and financial enforcement capacities, and improving intelligence-sharing can help reduce opportunities for evasion. At the same time, pressure strategies should be clearly linked to defined diplomatic pathways, with phased and verifiable incentives that avoid an all-or-nothing approach.

More broadly, this study underscores the limits of relying on sanctions as a stand-alone tool to shape North Korea's behaviour. The DPRK's experience suggests that resilience, adaptation, and geopolitical fragmentation can significantly blunt external pressure, even under conditions of unprecedented constraint. Meaningful progress toward denuclearization is therefore more likely to emerge from a stable and structured strategy that combines calibrated pressure with sustained engagement, and unilateral actions with broad international coordination. Such an approach does not promise rapid results, but it offers a more credible and sustainable framework for managing nuclear risk and pursuing long-term stability on the Korean Peninsula.

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