Asian Journal of Peacebuilding Vol. 13 No. 1 (2025): 41-72
doi: 10.18588/202505.00a538 Special Issue – Research Article

The Commitment Costs of Extended Deterrence and US Public Support for South Korea's Nuclear Development: Survey Experiments from South Carolina

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This study examines the alliance dilemma in the US-South Korea relationship, characterized as a patron state fearing entrapment and a client state fearing abandonment. We argue that a patron's support for allied nuclearization is determined by the costs of extended deterrence and the client's independent nuclear capabilities. We predict that a patron favors gradually withdrawing extended deterrence if the costs are high and the client lacks an independent nuclear deterrent. Two survey experiments with South Carolina voters support this hypothesis. Study 1 found that higher extended deterrence costs increased support for South Korea's nuclearization without affecting support for the US' immediate withdrawal of extended deterrence, while Study 2 showed increased support when respondents were informed of direct US security threats.

Keywords extended deterrence, abandonment, entrapment, commitment cost, nuclear proliferation

Introduction

Alliances inherently involve a strategic tension known as the "alliance dilemma," in which a patron state must balance the risks of entrapment and abandonment (Snyder 2007). A patron that provides strong commitments to its ally risks being drawn into unwanted conflicts, whereas weak commitments may lead the client state to fear abandonment and question the alliance's credibility (Snyder 2007; Yarhi-Milo, Lanoszka, and Cooper 2016). This fear of abandonment can be particularly consequential for non-nuclear client states, as it may push them toward developing nuclear weapons as a means of self-reliance (Yarhi-Milo, Lanoszka, and Cooper 2016, 90).

This dynamic presents a strategic puzzle: how do patron states respond

ISSN 2288-2693 Print, ISSN 2288-2707 Online

when both risks—entrapment in an ally's conflict and the ally's potential nuclear proliferation—are present? While limiting security commitments can reduce entrapment, it may exacerbate the client's proliferation incentives. Conversely, strengthening commitments to prevent nuclearization increases the likelihood of entrapment. Given this tradeoff, does a patron prioritize avoiding entrapment at the risk of proliferation? Or does it seek to prevent nuclear spread even if it deepens entrapment? This study examines how patron states respond to this dual challenge and what factors shape their responses.

We analyze the alliance between the US and the Republic of Korea (ROK, hereafter South Korea) as it illustrates a scenario where high risks of entrapment for the patron (the US) coexist with strong fears of abandonment for the client (South Korea). North Korea's capability to target the continental US with nuclear-armed intercontinental ballistic missiles (ICBMs) has amplified US concerns about the risks of entrapment and costs of providing extended deterrence to South Korea, both militarily and financially. These concerns have, in turn, heightened South Korea's doubts about the credibility of US security guarantees and fears of abandonment. Despite US nuclear security commitments, well over 60% of South Koreans support developing independent nuclear weapons to counter escalating threats from North Korea (Kim, Kang, and Ham 2023; Dalton, Friedhoff, and Kim 2022).

To examine how the US responds to growing entrapment risks amid South Korea's nuclear ambitions, we theorized that a patron's decisions—whether to support allied nuclear proliferation or adjust extended deterrence commitments—are influenced by the costs of commitment and the client's nuclear deterrent capabilities. Specifically, we predicted that if the patron faces high extended deterrence costs, partly due to entrapment risks, while the client lacks a sufficient nuclear deterrent, the patron will tolerate the client's independent nuclearization as a way to gradually reduce its extended deterrence commitments. To test this hypothesis, we conducted two related survey experiments in 2023 with representative samples of eligible voters in South Carolina. These experiments explored how respondents' attitudes toward South Korea's potential nuclearization and US policy adjustments in extended deterrence are shaped by North Korea's security threats to the US, which heighten entrapment risks as well as the financial and military costs of maintaining extended deterrence.

Our findings from Study 1 show that higher costs associated with extended deterrence increased support for South Korea's nuclear armament and US backing. However, rising security threats or extended deterrence costs had no impact on respondents' views of US policy responses, such as severing diplomatic and economic ties, withdrawing extended deterrence, or redeploying US nuclear weapons. Notably, when both security threats and cost information were presented together, increased security threats—whether directed at the US or not—did not affect respondents' support for South Korea's independent nuclearization. In

contrast, Study 2, which focused solely on security threats, found that respondents were more supportive of South Korea's nuclearization when informed of direct risks to the continental US from North Korea's nuclear capabilities. Together, the studies suggest that while some members of the US public are concerned about the financial and military costs of extended deterrence, they do not support an abrupt abandonment of close allies like South Korea. Rather, they favor a gradual reduction of costly commitments, potentially enabling allies to develop independent deterrent capabilities, including nuclear weapons.

This study focuses on public opinion rather than policymakers' preferences to examine US responses to allied nuclearization. While policy decisions are not solely shaped by public opinion, democratic leaders are incentivized to align their policies with voter preferences. Research indicates that public opinion plays a significant role in foreign policy decisions, even in specialized areas like foreign policy and security (Bausch 2017; Tomz, Weeks, and Yarhi-Milo 2020). Given that information asymmetry between the public and foreign policy elites contributes to divergent preferences on security policies (Kertzer and Zeitzoff 2017; Kertzer 2022; Son and Park 2023), we expect that providing clear information about the costs and burdens of a state's commitment to extended deterrence will narrow the preference gap on allied nuclearization and US responses to its deterrence commitments.

Alliance Dilemma and US Concerns over Entrapment

In an alliance, a patron state faces the alliance dilemma, which is a tension between entrapment and abandonment risks (Snyder 2007). Strong commitments increase the likelihood of being drawn into unwanted conflicts, whereas weak commitments may leave the client state fearing abandonment (Snyder 2007; Yarhi-Milo, Lanoszka, and Cooper 2016). This fear, if not adequately addressed, may push a non-nuclear client toward nuclear weapons development (Yarhi-Milo, Lanoszka, and Cooper 2016, 90; Debs and Monteiro 2016; Reiter 2014). To manage these risks, a patron state may limit or withdraw its extended deterrence commitments if entrapment concerns become too great. Conversely, if abandonment fears drive a client toward proliferation, the patron may respond by either reinforcing assurances or imposing punitive measures to deter nuclearization.

Yarhi-Milo, Lanoszka, and Cooper (2016) argue that the shared security interests between a patron and its client, along with the client's independent deterrence capabilities, influence the extent and nature of the patron's commitment. They provide historical evidence to support this argument. For instance, US-Taiwan relations illustrate how the US adjusted its commitments to Taiwan. Initially, the US maintained a formal defense pact supplemented with arms transfers. However, when shared US-Taiwan security interests regarding China

diverged—particularly as the US sought to avoid entrapment in a direct confrontation with China—the formal defense pact was replaced with arms transfers alone.

A patron state's entrapment concerns intensify when an adversary possesses the capability to threaten it directly. For instance, North Korea's development of ICBMs capable of striking US cities, such as New York and Washington, DC, significantly raises the risks of entrapment in conflict. These growing threats increase the financial and military costs of extended deterrence, potentially weakening the patron's commitment. At the same time, escalating risks to the client state may compel the patron to allocate additional financial, military, and personnel resources. These added burdens can diminish the patron's willingness to sustain its commitments, thereby increasing the probability of abandoning the client.

Entrapment, Fear of Abandonment, and South Korea's Nuclear Proliferation Desire

A patron state's concern about entrapment can ultimately drive a client state toward nuclear proliferation if the client fears abandonment. If the patron's commitment to providing a nuclear security guarantee is perceived as weak, its assurance may seem non-credible. This perception can prompt the client to seek additional security measures, such as developing nuclear weapons (Bleek and Lorber 2014; Sagan and Waltz 2013). Reassurance is considered more challenging than deterrence, as it relies on both the patron's deterrence capability and its demonstrated resolve (Blankenship and Lin-Greenberg 2022). Even if a client perceives strong deterrence capabilities, doubts about the patron's resolve can fuel abandonment fears. Efforts by the patron to mitigate entrapment risks or avoid costly commitments may signal waning resolve, raising concerns about the possible withdrawal of security guarantees. As discussed earlier, inadequate reassurance can push a non-nuclear client toward nuclearization (Bleek and Lorber 2014; Debs and Monteiro 2016; Reiter 2014).

This dynamic of entrapment, fear of abandonment, and the desire for independent nuclearization is exemplified by South Korea. Kim (2017) illustrates how the perception of US abandonment, shaped by two key events—the US opposition to South Korea's retaliation against North Korea's Commando Attack, which reached just one kilometer from the Blue House and led to a gunfight with South Korean forces, and the withdrawal of approximately twenty thousand US troops under the Nixon Doctrine—prompted South Korea to pursue nuclear weapons development in the 1970s under Park Chung-hee's administration. At the time, the US, burdened by the costly Vietnam War, sought to reduce its military commitments abroad to avoid further entrapments. Although US

pressure ultimately forced Park to abandon the nuclear program, this case clearly demonstrates how a client state's fear of abandonment can drive efforts toward independent nuclearization.

This dynamic persists today. Despite being under the US nuclear umbrella since the withdrawal of tactical nuclear weapons from South Korea in 1991, public support for independent nuclear acquisition remains well over 60% (Kim, Kang, and Ham 2023; Dalton, Friedhoff, and Kim 2022). This sentiment likely reflects doubts about the credibility of US security guarantees or concerns over North Korea's advancing nuclear capabilities, including ICBMs capable of reaching the US mainland. Many South Koreans fear abandonment due to the increasing costs and risks of maintaining extended deterrence (Chung 2024).

Reflecting these public concerns, South Korean President Yoon Suk-yeol suggested in early 2023 that South Korea might consider developing its own nuclear weapons or redeploying US nuclear weapons if North Korean threats escalated. Although this position was later reversed following the Washington Declaration—in which the US pledged to strengthen extended deterrence in exchange for South Korea forgoing nuclear weapons—the statement underscored South Korea's perception of US extended deterrence, including the nuclear umbrella, as insufficiently reliable to deter North Korea amid growing fears of abandonment.

Patron Decision-Making amid Entrapment Risks and Client Fears of Abandonment

We theorize how a patron state determines its course of action when confronted with an alliance dilemma and a client's strong push for independent nuclear armament. The patron evaluates the costs and benefits of maintaining or adjusting its extended deterrence commitments and must decide whether to support, oppose, or coerce the client's nuclear ambitions. This includes an assessment of whether a non-nuclear client should or should not develop indigenous nuclear weapons or, if already nuclear-capable, whether the client should strengthen or potentially reverse its nuclear status. The patron must also consider whether to maintain or withdraw extended deterrence, ultimately choosing the option that maximizes its strategic and political benefits.

Our theoretical framework adapts and builds on the model proposed by Yarhi-Milo, Lanoszka, and Cooper (2016), which examines a patron's dilemma between offering a defense treaty and transferring arms to its client. Their model is based on two dimensions: the alignment of shared interests between the patron and client (high vs. low) and the client's military capability (favorable vs. unfavorable). We refine this framework to focus specifically on the patron's decision to either support a client's pursuit of independent nuclearization or

Table 1. The Theoretical Relationship Linking the Costs of Extended Deterrence, a Client State's Independent Nuclear Deterrence, and the Patron State's Responses

	Client's nuclear deterrence capability: low	Client's nuclear deterrence capability: high
Cost of extended deterrence: low	Case A: Maintain or enhance extended deterrence to restrain the client state; oppose allied pursuit of nuclear capabilities.	Case C: Either withdraw or strengthen extended deterrence as a strategy to induce or coerce the client state into denuclearization; oppose allied nuclearization.
Cost of extended deterrence: high	Case B: Gradually disengage over the long term while permitting the client state to develop its independent deterrence capability; support or tolerate allied nuclearization.	Case D: Fully withdraw extended deterrence (abandonment); acknowledge allied nuclearization.

Source: Authors.

withdraw extended deterrence, particularly under conditions of high entrapment risks and heightened fears of abandonment.

Our model highlights two key factors: the cost of providing extended deterrence (low vs. high) and the client's independent nuclear deterrence capability (low vs. high), as illustrated in Table 1. A high level of independent nuclear capability indicates that the client has successfully developed nuclear weapons, creating a nuclear balance with its adversary. Conversely, low capability suggests continued reliance on the patron for nuclear deterrence. Our model predicts that, given the high risks of entrapment, the substantial costs of extended deterrence, and the potential strategic benefits of South Korea's nuclearization, the US is likely to pursue a gradual disengagement rather than an abrupt withdrawal. This approach would enable South Korea to develop an independent nuclear deterrence capability while the US either supports or, at minimum, tolerates this shift—without fully abandoning its extended deterrence commitments.

Costs and Benefits of South Korea's Nuclear Armament: The US Perspective

A patron state, such as the US, provides a client state with extended deterrence to achieve two primary objectives: deterrence and reassurance. The latter entails dissuading non-nuclear allies from pursuing nuclear weapons (Snyder 1984). South Korea's potential nuclearization could trigger a domino effect among non-nuclear states in East Asia, particularly Japan and Taiwan, both of which face distinct security threats from North Korea and China, respectively. Given its longstanding commitment to the global non-proliferation system as a cornerstone of its grand strategy, the US is unlikely to support South Korea's pursuit of nuclear weapons under normal circumstances (Gavin 2015).

The ripple effects of South Korea's nuclearization could pose a significant

challenge to the US-led non-proliferation regime. The potential collapse of this framework and the associated high costs make it likely that the US would oppose South Korea's independent nuclearization. To preserve the status quo, the US might employ harsh measures such as economic sanctions, the withdrawal of US troops, or the termination of extended deterrence agreements to pressure South Korea into denuclearization. However, under certain conditions, the increasing costs of entrapment and the dual imperatives of deterring adversaries while restraining allies could outweigh the benefits of maintaining the status quo.

Conversely, a client state's independent nuclearization could offer substantial advantages for the patron state. It would allow the patron to benefit from the client's independent nuclear deterrence without bearing the financial and military burdens associated with extended deterrence—particularly when the strategic and security interests of both states align. By reducing its extended deterrence commitments, the patron could also minimize the risk of entrapment in regional conflicts. For instance, if South Korea were to acquire nuclear weapons, the resulting nuclear balance on the Korean Peninsula could strengthen deterrence without requiring the US to sustain the costly provision of extended deterrence. Furthermore, South Korea's nuclear capability could serve as a counterweight to China's regional influence, deterring both North Korea and China without necessitating direct and costly US involvement, presenting a significant strategic advantage for the US. Therefore, whether the patron state will support a client's nuclearization will depend on the size of its net benefits to the patron state, and we characterize four likely scenarios of the patron state's responses to its client state.

Case A: Low Cost of Extended Deterrence and Low Client Nuclear Deterrence Capability

For a client state lacking independent nuclear deterrence, a patron state will maintain extended deterrence as long as the costs remain low. This ensures security assurances while discouraging the client from pursuing its own nuclear weapons. To reinforce deterrence and prevent proliferation, the patron may enhance its commitments. For instance, the US might redeploy nuclear weapons to South Korea under such circumstances to increase reassurance.

Case B: High Cost of Extended Deterrence and Low Client Nuclear Deterrence Capability

If the costs of maintaining extended deterrence become unsustainable—due to risks of entrapment, adversary advancements, or heightened client demands—the patron may reconsider its commitment. An abrupt withdrawal, however, could severely undermine the client's security and damage the patron's credibility (Gibler 2008). In response, the patron may pursue a gradual disengagement, allowing the client to develop its own nuclear capability. It might even tacitly support

or tolerate allied nuclearization without openly endorsing it. For example, if the financial and military burden of the US-South Korea alliance becomes unsustainable, the US might tolerate South Korea's pursuit of nuclear weapons while avoiding punitive measures like severing ties or imposing sanctions. This scenario forms the basis of the empirical analysis in this study.

Case C: Low Cost of Extended Deterrence and High Client Nuclear Deterrence Capability

If a client state attains independent nuclear capability, the patron may see extended deterrence as unnecessary and consider withdrawing. However, if the cost of deterrence remains lower than the risk of a domino effect in allied nuclear proliferation, the patron may attempt to negotiate denuclearization. This could involve strengthening deterrence through nuclear deployments or sharing agreements. Alongside incentives, the patron may also use coercive measures, such as diplomatic isolation or economic sanctions, to pressure the client into denuclearization. Ultimately, the patron remains opposed to the client's nuclearization and prioritizes efforts to reverse it.

Case D: High Cost of Extended Deterrence and High Client Nuclear Deterrence Capability

When a client state has a strong nuclear deterrent while the cost of extended deterrence is high, conditions favor the patron's withdrawal. In this scenario, the patron prefers the client to assume full responsibility for its defense. Since the client's security no longer depends on external guarantees, the patron's withdrawal carries minimal reputational costs. As a result, the patron is unlikely to oppose or attempt to reverse the client's nuclearization, as its independent capability eliminates the need for costly extended deterrence.

Hypotheses: US Public Perceptions of Allied Nuclearization and Extended Deterrence

Research suggests that information asymmetry between the public and foreign policy elites contributes significantly to differences in preferences regarding security policies (Kertzer and Zeitzoff 2017; Kertzer 2022; Son and Park 2023). The public often lacks a clear understanding of the costs and burdens associated with their state's commitment to extended deterrence. Closing this gap by providing clear and detailed information—such as the risks posed by North Korea's advancing nuclear capabilities, the threat of entrapment, and the financial and military costs of maintaining extended deterrence—could help align public preferences with those of policymakers. This information is expected to influence US public opinion on whether to continue extended deterrence for South Korea or support

its nuclear ambitions. This alignment could lead to more informed and democratic decision-making regarding security policies.

Building on this, we chose to provide survey respondents with detailed information about the direct security threats posed by North Korea to the US, along with the financial and military costs of sustaining extended deterrence. If addressing this information gap aligns public preferences with those of US policymakers, we can formulate testable hypotheses about how US respondents perceive these risks and costs in relation to their attitudes toward South Korea's nuclearization and the US' extended deterrence posture toward South Korea, including potential withdrawal or extension. Guided by the theoretical framework in Case B, as summarized in Table 1, we propose the following testable hypotheses.

Hypothesis 1a (Security Risks and Support for South Korea's Nuclearization): Survey respondents are more likely to support South Korea's decision to develop nuclear weapons when informed about increasing security risks potentially targeting the US compared to when such information is not provided.

Hypothesis 1b (Security Risks and Extended Deterrence): Information about increasing security risks to the US will not influence respondents' support for withdrawing extended deterrence measures, such as severing ties with South Korea and withdrawing US extended deterrence, or extending them, such as redeploying US nuclear weapons.

Hypothesis 2a (Financial and Military Costs and Support for South Korea's Nuclearization): Respondents are more likely to support South Korea's decision to develop nuclear weapons when informed about the growing financial and military costs of maintaining extended deterrence compared to when this information is not provided.

Hypothesis 2b (Financial and Military Costs and Extended Deterrence): Information about the increasing financial and military costs of maintaining extended deterrence will not influence respondents' support for withdrawing extended deterrence measures, such as severing ties with South Korea and withdrawing US extended deterrence, or extending them, such as redeploying US nuclear weapons.

Table 2 summarizes the anticipated relationships between the independent variables—direct security risks to the US, which may heighten entrapment risks, and the financial and military costs of extended deterrence commitments, which increase as entrapment risks rise—and the dependent variables. These dependent variables reflect public attitudes toward allied nuclearization and responses to extended deterrence. Specifically, they include: (1) public support for South Korea's nuclearization and for US support of this decision (columns 1 and 2);

Table 2. Summary of Hypotheses Predicting the Gradual Abandonment and Tolerance of Allied Nuclearization (Case B)

	(1) Support South Korea's nuclearization	(2) Support the US policy of backing South Korea's nuclearization	(3) Support the US decision to sever ties with South Korea	(4) Support the US decision to withdraw from extended deterrence	(5) Support the US decision to redeploy nuclear weapons to South Korea
Increasing direct threat to the continental US	Positive (+) (H1a)	Positive (+) (H1a)	Neutral (0) (H1b)	Neutral (0) (H1b)	Neutral (0) (H1b)
Financial and military costs	Positive (+) (H2a)	Positive (+) (H2a)	Neutral (0) (H2b)	Neutral (0) (H2b)	Neutral (0) (H2b)

Source: Authors.

(2) public support for reducing extended deterrence commitments, including severing ties with South Korea and withdrawing deterrence (abandonment) (columns 3 and 4); and (3) public support for increasing reassurance through redeploying US nuclear weapons to South Korea (column 5).

Two Survey Experiments

We conducted two related survey experiments in South Carolina in 2023 as part of the Winthrop Poll, an initiative of the Center for Public Opinion & Policy Research at Winthrop University. The poll aims to inform policymakers about the attitudes and opinions of South Carolinians through regular surveys, with occasional expansions to include the broader southern region. While the findings from a single state have limited generalizability, they will serve as a valuable comparison when the survey is later expanded to a nationally representative sample. Below, we outline the experimental design, data collection, and results for each study.

Study 1: Experimental Design

To examine how factors that increase the costs of US extended deterrence and entrapment risks influence South Carolinians' perceptions of South Korea's nuclear weaponization and the US response, we conducted a vignette experiment using a three-by-three factorial design. One advantage of using a three-by-three factorial design, which creates nine scenarios, instead of a simple experimental design with nine conditions (one control and eight treatment) is its increased statistical power. In the three-by-three factorial design, random assignment

occurs independently for each factor across three conditions, in this case, rather than nine. This design incorporates two factors:

The first factor, *security threats*, varies based on the specificity of threat information. Before being randomly assigned to any security threat condition, all respondents received the same introduction about US foreign policy toward its allies, particularly South Korea: "We want to ask your views about US foreign policy toward its allies—particularly the security alliance between the US and South Korea. Since the end of the Korean War in 1953, South Korea has been one of the US' closest allies." After this introduction, respondents were randomly assigned to one of three conditions:

- Control condition: No additional information was provided.
- Treatment condition 1 (increasing threat): Information was provided about North Korea's growing nuclear threat: "In recent years, North Korea's nuclear capacity has grown substantially, and its provocations and frequency of missile tests have rapidly increased."
- Treatment condition 2 (direct threat to the US mainland): Information was provided about North Korea's direct security threat to the US, specifying that North Korea's nuclear and missile technology can target areas beyond South Korea: "North Korea's nuclear capacity has grown substantially, and the threat now extends beyond South Korea. North Korea can reach anywhere in the US using its nuclear weapons."

The second factor, which varied based on information about the costs of continued commitment to extended deterrence, was presented randomly after the common information was shared with all respondents. This common information included the South Korean President's public statement and the long-standing US government position opposing nuclear proliferation. Respondents were told, "The South Korean President publicly stated that if North Korea's provocations and security threats continue to escalate, the South Korean government will consider developing nuclear weapons. The US government has consistently opposed efforts by other nations to develop nuclear weapons." This is followed by: "Suppose the South Korean government decides to develop its own nuclear weapons."

After this, respondents were randomly presented with one of three types of information about the burden placed on the US by its extended deterrence commitment to South Korea. This burden, which could be alleviated by supporting South Korea's nuclearization, was presented in one of the following ways:

- Control condition: No additional information was provided.
- Treatment condition 1 (financial cost): Information was provided that emphasized that allowing South Korea to develop nuclear weapons could reduce US financial obligations for extended deterrence: "Some US Members of Congress argue that the US should allow South Korea to develop its own nuclear weapons, citing the

Table 3. Three-by-Three Factorial Experimental Design

	Factor 1: Security threats	Factor 2: Cost of extended deterrence
Level	1. Control (no information)	1. Control (no information)
	2. Increasing nuclear threat of North Korea	2. Financial burden
	3. Increasing North Korea's direct nuclear threats to the continental US	3. Military burden

Note: The control condition does not contain any information.
Source: Authors.

increasing financial burden on the US government to provide security for its allies, including South Korea."

- Treatment condition 2 (military cost): Information was provided that suggested that supporting South Korea's nuclear development could reduce US military commitments for extended deterrence: "Some US Members of Congress argue that the US should allow South Korea to develop its own nuclear weapons for its security and nuclear deterrence, thereby relieving the US of the military burden of defending South Korea in the event of a North Korean attack."

Table 3 summarizes the three-by-three factorial design of Study 1. With three levels for each factor, there are nine possible scenario combinations. Randomization occurs independently within the three levels of each factor across both factors, increasing statistical power compared to a conventional design that randomizes across all nine scenarios (one control and eight treatment conditions).

Once a respondent was presented with the information in the vignette, they were asked a set of questions measuring outcome variables. The first outcome variable assessed respondents' preferences and perceptions regarding South Korea's independent nuclear weaponization based on the answer to the question, "Do you support or oppose the South Korean government's development of nuclear weapons?" Responses were measured on a four-point Likert scale ranging from "I oppose strongly" to "I support strongly."

The next set of outcome variables measured respondents' agreement with US government policies in response to South Korea's nuclear acquisition, which varied among three categories: supporting South Korea's decision, reducing the extended deterrence commitment or abandoning it entirely, or strengthening the extended deterrence to increase reassurance. After the question, "Do you agree or disagree with the following statement?" respondents were presented with a set of statements. Each statement described a specific US government decision: (1) supporting South Korea's independent nuclearization publicly (The US government should publicly support the South Korean government's decision to develop nuclear weapons); (2) ending or reducing ties with South Korea (The

US government should end or reduce current economic and diplomatic ties with South Korea); (3) reducing or withdrawing security protection (The US government should no longer provide any security protection to South Korea, such as the nuclear umbrella, which guarantees a US military response on behalf of South Korea if an adversary attacks South Korea, US troops, and military assets, and withdraw all the support that has been provided); and (4) increasing reassurance, such as redeployment of US nuclear weapons (The US government should increase its commitment to its security assurances to South Korea by deploying US nuclear weapons in South Korea if South Korea decides not to develop its own nuclear weapons). Respondents were asked to indicate their level of agreement on a four-point Likert-type scale, from "strongly disagree" to "strongly agree." We recoded all five outcome variables as binary indicators (1 for strong or somewhat support, 0 for all other responses) to enable logit estimation.

Study 1: Data Collection

We conducted our survey experiment as part of the April 2023 Winthrop Poll, a public opinion survey of a representative sample from South Carolina's general population. The poll, conducted from March to April 2023, included 1,657 weighted respondents aged eighteen and older, with a margin of error of ±2.41%. Data were collected using a mixed-mode approach: 63.6% participated in an online survey through random sampling, and 36.4% took part in a phone survey using random probability sampling. The phone survey, conducted between March 25 and April 1, 2023, comprised 91.44% cell phone respondents and 8.56% landline respondents.

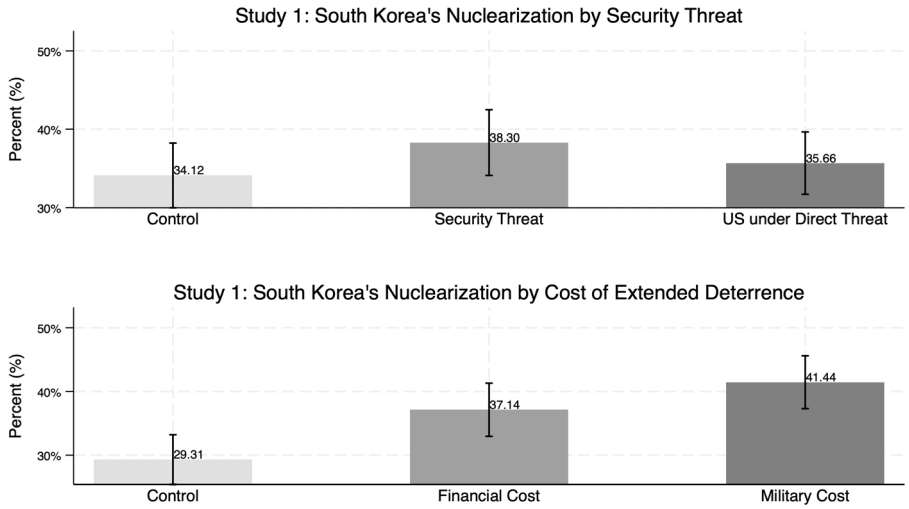
Study 1: Results

Study 1 revealed that information about the financial and military costs of maintaining extended deterrence significantly increased respondents' support for South Korea's nuclearization. In contrast, information about North Korea's growing nuclear threat had less impact, even when the US was identified as a potential target.

Figure 1 shows respondents' average support for South Korea's independent nuclear acquisition under all control and treatment conditions related to security threats and deterrence costs. Regarding security threats, the lowest average support (34.12%) occurred in the control group, which received no additional information. Compared to the control condition, support rose slightly when respondents were informed about North Korea's growing threats. Interestingly, the average support peaked at 38.30% when the threats were framed as not directly implicating the US as a potential target. This was higher than the average support (35.66%) when respondents were told that North Korea's nuclear capabilities could target any location in the US.

In terms of the costs of extended deterrence, the lowest average support

Figure 1. Average Support for South Korea's Independent Nuclearization (Study 1)



Source: Authors.

(29.31%) was observed in the control condition with no additional information. Support increased to 37.14% when respondents were informed of the financial costs and reached its highest level (41.44%) when military costs were emphasized. Overall, respondents' average support was more influenced by information about the costs of maintaining extended deterrence than by details on the threat posed by North Korea's nuclear capabilities, even when the US was explicitly identified as a target.

Table 4 presents the logit estimation results, analyzing the treatment effects of various conditions on five dependent variables. The analysis includes robust standard errors, survey weights, and controls for demographic and pre-treatment variables—gender, age categories, race/ethnicity (White), party affiliation, education, and income—though these controls have minimal impact on the results.

The findings indicate that security threat conditions, such as portraying the US mainland as at risk, had no significant effect on the dependent variables. However, the costs of extended deterrence commitments, whether financial or military, significantly increased support for South Korea's independent nuclearization (column 1: $p < 0.05$ and $p < 0.01$, respectively) and US public support for South Korea's nuclearization (column 2: $p < 0.01$). These costs, however, did not significantly influence support for other US responses, such as ending ties with South Korea (column 3), withdrawing extended deterrence (column 4), or strengthening it by redeploying US nuclear weapons to South Korea (column 5), all with $p > 0.1$. Respondents were more likely to support South Korea's nuclearization when faced with costly US commitments, but these costs did not

Table 4. Logit Estimation Results for Study 1

	(1) Support for South Korea's nuclearization	(2) Support for US response: Endorse South Korea's nuclearization	(3) Support for US response: Ending ties with South Korea	(4) Support for US response: Reducing extended deterrence	(5) Support for US response: Redeployment of US nuclear weapons
Factor 1					
T1-Increasing threats	.17 (.138)	.093 (.145)	.082 (.152)	.118 (.148)	.019 (.141)
T2-Increasing direct threats to the US	.05 (.135)	.136 (.139)	-.204 (.155)	-.035 (.147)	.09 (.14)
Factor 2					
T1-Financial costs	.348** (.14)	.47*** (.144)	.191 (.15)	.117 (.147)	.041 (.141)
T2-Militaty costs	.484*** (.139)	.439*** (.142)	-.135 (.155)	.026 (.145)	.1 (.138)
Female	-.51*** (.113)	-.739*** (.117)	.046 (.126)	.02 (.121)	-.686*** (.116)
2. Age *(25-44)*	-.438** (.185)	-.238 (.191)	.57*** (.2)	.424** (.191)	-.048 (.191)
3. Age *(45-64)*	-.351* (.182)	-.172 (.19)	.073 (.206)	-.189 (.198)	-.166 (.188)
4. Age *(65+)*	-.157 (.201)	-.079 (.211)	-.845*** (.266)	-.652*** (.239)	-.153 (.214)
Race *(White)*	.075 (.135)	.091 (.14)	-.293** (.146)	-.162 (.14)	.168 (.14)
Party affiliation *(Democrats)*	.445*** (.143)	.698*** (.148)	.836*** (.159)	.57*** (.152)	.713*** (.146)
Party affiliation *(Republican)*	.156 (.136)	.347** (.142)	.315* (.162)	.155 (.152)	.244* (.142)
2. Education *(high school graduate/ GED)*	.393 (.371)	-.099 (.344)	.371 (.35)	.057 (.355)	-.102 (.326)
3. Education *(some college)*	.45 (.372)	.065 (.344)	.157 (.357)	.008 (.357)	-.195 (.328)
4. Education *(two-year tech college grad)*	.59 (.39)	.135 (.368)	.269 (.38)	-.026 (.378)	-.033 (.352)
5. Education *(four-year college grad)*	.388 (.377)	-.078 (.351)	-.108 (.358)	-.178 (.359)	-.016 (.331)

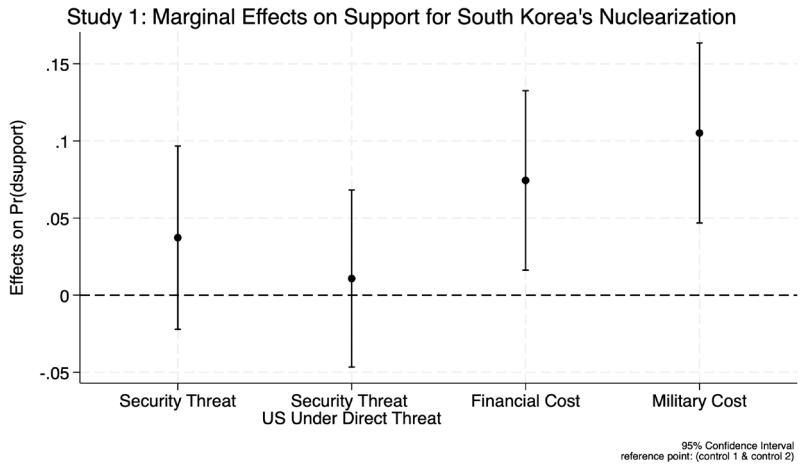
Table 4. (continued)

	(1) Support for South Korea's nuclearization	(2) Support for US response: Endorse South Korea's nuclearization	(3) Support for US response: Ending ties with South Korea	(4) Support for US response: Reducing extended deterrence	(5) Support for US response: Redeployment of US nuclear weapons
6. Education *(post-graduate)*	.446 (.39)	.217 (.365)	.268 (.369)	.193 (.37)	.122 (.346)
7. Education *(prefer not to answer)*	.203 (.811)	.196 (.781)	.393 (.792)	.272 (.856)	.681 (.993)
2. Income *($15,000-$20,000)*	-.389 (.316)	-.204 (.311)	.072 (.329)	.044 (.32)	.347 (.311)
3. Income *($20,000-$30,000)*	-.189 (.275)	-.276 (.278)	.024 (.294)	.418 (.278)	.261 (.277)
4. Income *($30,000-$40,000)*	-.142 (.277)	-.441 (.285)	-.23 (.312)	-.202 (.302)	.162 (.292)
5. Income *($40,000-$50,000)*	.308 (.271)	.05 (.279)	-.076 (.307)	.298 (.293)	.233 (.282)
6. Income *($50,000-$75,000)*	.167 (.245)	-.256 (.253)	-.476* (.279)	.105 (.26)	.243 (.257)
7.Income *($75,000-$100,000)*	.027 (.257)	-.372 (.266)	-.318 (.286)	-.025 (.272)	.363 (.263)
8. Income *($100,000-$125,000)*	.197 (.299)	.026 (.303)	-.337 (.331)	-.161 (.326)	.046 (.31)
9. Income *($125,000-$175,000)*	.54* (.281)	.154 (.289)	-.033 (.306)	.468 (.289)	.465 (.287)
10. Income *($175,000-$250,000)*	.325 (.34)	-.251 (.361)	.116 (.349)	.629* (.338)	.393 (.345)
11. Income *(over $250,000)*	.538 (.34)	-.024 (.354)	.255 (.373)	.311 (.351)	.684* (.354)
12. Income *(don't know/prefer not to answer)*	-.143 (.343)	-.65* (.373)	-.453 (.423)	-.916** (.441)	-.662* (.377)
Constant	-1.151*** (.431)	-.841** (.412)	-1.373*** (.421)	-1.224*** (.43)	-.936** (.399)
Observations	1567	1567	1567	1567	1567
Log likelihood	-1002.903	-956.479	-828.03	-890.597	-967.771

Note: Robust standard errors are in parentheses; survey weights are used; ***p < 0.01, **p < 0.05, *p < 0.1.

Source: Authors.

Figure 2. Marginal Effects on the Likelihood of Supporting South Korea's Independent Nuclear Development and Acquisition (Study 1)



Note: N = 1,567; based on logit estimation; point estimates with 95% confidence intervals are presented; and survey weights were applied. The baseline conditions serve as control conditions for both treatments.

Source: Authors.

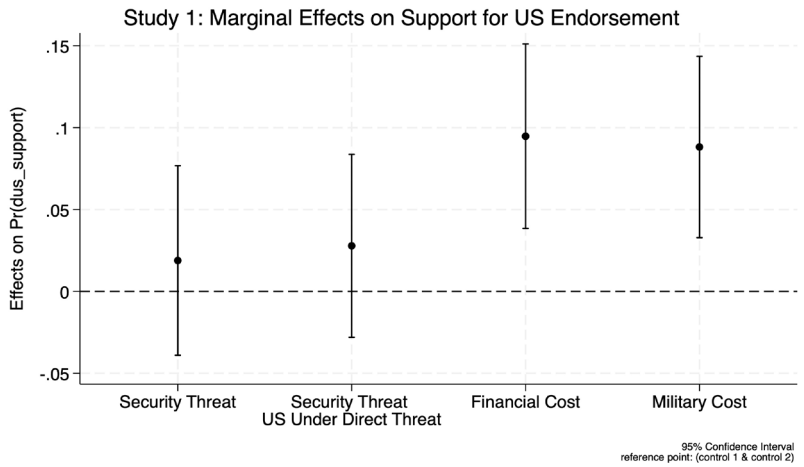
drive immediate support for reducing, withdrawing, or intensifying extended deterrence, aligning with Hypotheses 2a and 2b.

To better understand the substantive implications of the statistically significant treatment effects identified above, we present the marginal effects of each treatment condition on respondents' likelihood of supporting South Korea's independent nuclearization (Figure 2) and their likelihood of supporting the US decision to publicly endorse South Korea's nuclearization (Figure 3). These marginal effects reflect the change in the predicted probability of support when respondents are exposed to specific treatment information, compared to the baseline probability of support when no information is provided for both factors. The effects presented here are based on treatment conditions that were statistically significant at the 95% confidence level in the previously reported logit estimation.

Regarding respondents' likelihood of supporting South Korea's independent nuclearization (Figure 2), exposure to information about financial and military costs increased the predicted probability of support by 7.44% and 10.51%, respectively, compared to the baseline, which did not include details about these costs or the rising security threats from North Korea. These results are statistically significant at $p < 0.05$ and $p < 0.001$, respectively.

Regarding respondents' likelihood of supporting the US government's public endorsement of South Korea's independent nuclearization (Figure 3), exposure to information on the financial and military costs of extended deterrence increased

Figure 3. Marginal Effects on Likelihood of Support for US Government Endorsement of South Korea's Independent Nuclearization



Note: N = 1,567; based on logit estimation; point estimates with 95% confidence intervals are presented; and survey weights were applied. The baseline conditions serve as control conditions for both treatments.

Source: Authors.

the predicted probability of support by 9.5% and 8.8%, respectively, compared to a baseline condition that did not include details on North Korea's growing security threats or the costs of extended deterrence. Both effects are statistically significant ($p < 0.01$). These findings suggest that awareness of these costs strengthens public support for the US government's approval of South Korea's independent nuclearization.

The results of Study 1 indicate that while the financial and military costs of extended deterrence increased respondents' support for South Korea's independent nuclear weaponization, security threats—including their direct impact on US security—had no significant effect. The null effects of security threats suggest that even when these threats directly implicate the continental US, they do not influence respondents' support for South Korea's nuclearization. Alternatively, this outcome may reflect respondents' difficulty in fully understanding the provided information.

One possible explanation is that the perceived impact of security threats diminishes when presented alongside information about the costs of extended deterrence. In other words, security threats may have a weaker effect when paired with cost information. Additionally, providing both types of information simultaneously may overwhelm respondents, leading them to focus on the information they find more influential or easier to process. If cost information is clearer or more salient, respondents may rely on it more, especially since it

already reflects the increased risks of entrapment. To determine whether the null effects of North Korea's security threats indicate a genuine lack of concern about growing risks to both South Korea and the US or simply a reliance on more accessible or impactful information, such as cost considerations, we conducted a follow-up experiment.

Study 2: Experimental Design

We conducted a follow-up experiment to examine whether presenting information solely about the US being directly targeted by North Korea's growing nuclear capabilities would increase respondents' support for South Korea's independent nuclear development. Study 2 used a simplified design with three conditions: a control group and two treatment groups, each presented different information about who is directly threatened by North Korea's nuclear capabilities. Unlike Study 1, this experiment excluded additional factors that could moderate or amplify the effects of perceived security threats. The study focused on one post-treatment question to measure the dependent variable: respondents' support for South Korea's independent nuclearization.

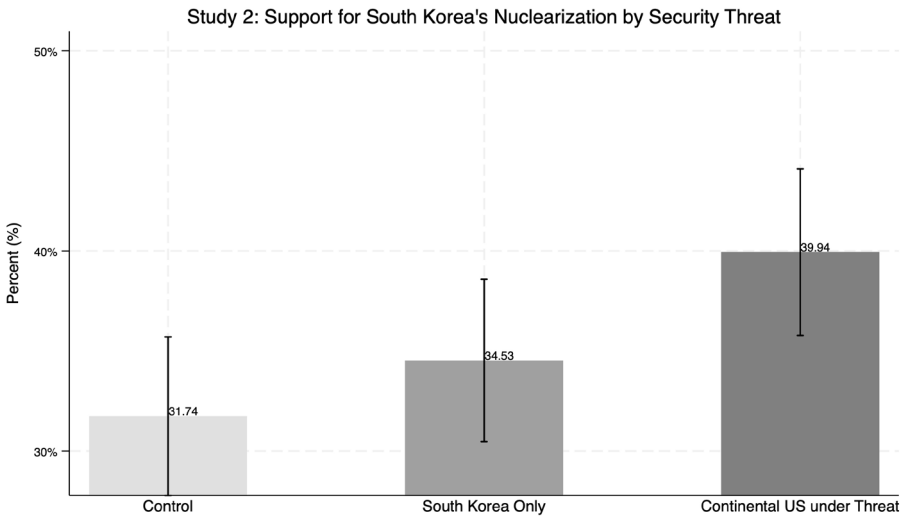
The experiment began with a standardized introduction presented to all participants: "We want to inquire about your views on US foreign policy toward its allies, particularly the security alliance between the US and South Korea, one of its closest allies." Following the introduction, respondents were randomly assigned to one of three conditions concerning North Korea's nuclear threat:

- Control condition: No information was provided about North Korea's advancing nuclear technologies.
- Treatment condition 1 (South Korea only): Participants were told that North Korea's growing nuclear capability has heightened tensions with South Korea: "In recent years, North Korea's nuclear capacity has substantially increased, and its provocations and missile tests have rapidly risen, intensifying tensions with South Korea."
- Treatment condition 2 (direct threat to the US mainland): Participants were informed that North Korea's nuclear threat extends to the US mainland: "In recent years, North Korea's nuclear capacity has grown substantially, and the threat now extends beyond South Korea. North Korea can now reach any part of the United States with its nuclear weapons."

Each vignette concluded with the same statement about South Korean public opinion: "Lately, the majority of the South Korean public has supported their government in developing its own nuclear weapons."

After reading their assigned vignette, respondents were asked whether they supported South Korea's independent nuclearization. The question was phrased: "Do you support or oppose the South Korean government's development of nuclear weapons? Do you feel that way strongly or somewhat?" Responses

Figure 4. Average Support for South Korea's Independent Nuclearization (Study 2)



Source: Authors.

were recorded on a four-point Likert scale, ranging from "I oppose strongly" to "I support strongly." This measure served as the primary outcome variable. Consistent with Study 1, the variable was recoded as a binary indicator for logit regression analysis, with support (strong or somewhat) coded as 1 and opposition (strong or somewhat) coded as 0.

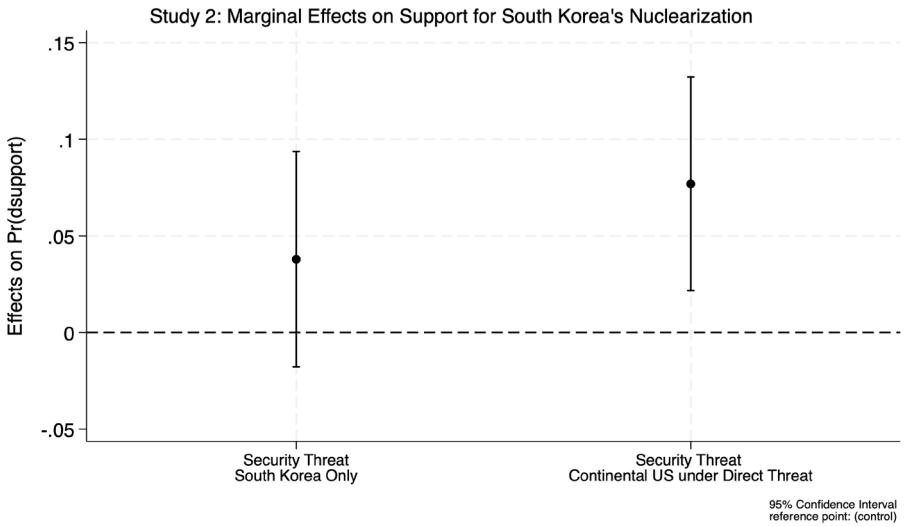
Study 2: Data Collection

For Study 2, we conducted an online survey experiment as part of the November 2023 Winthrop Poll, which ran November 4-12, 2023. The poll surveyed 1,655 registered voters in South Carolina aged eighteen or older, with a weighted sample and a margin of error of ±2.41%. Unlike Study 1, which used a mixed-mode approach combining phone-based and online surveys, Study 2 relied entirely on online data collection. This shift addresses concerns that phone-based surveys might introduce biases, such as interviewer effects, that could influence responses. The mixed-mode approach in Study 1 raised questions about whether the different collection methods affected the findings. These biases could either reduce or amplify treatment effects.

Study 2: Result

The average support for South Korea's nuclear armament in Study 2 was 35.51%, averaged across treatment conditions. Figure 4 shows the average support for South Korea's independent nuclearization by treatment condition. Support was 31.7% in the control condition, where no information about the increasing

Figure 5. Marginal Effects on Likelihood of Support for South Korea's Independent Nuclear Acquisition (Study 2)



Note: N=1,586; estimates are based on logit regression; point estimates and 95% confidence intervals are presented; and survey weights were applied. The baseline condition is the control group, where no information is provided.
Source: Authors.

security threats posed by North Korea's nuclear capabilities was provided. Support increased to 34.53% when information indicated that South Korea's security risks had risen (South Korea only) and further rose to 39.94% when the information suggested that the security risks extended beyond South Korea, affecting the US (direct threat to US).

Table 5 presents treatment effects from the logit analysis, which examines how security threat information influences respondents' support for South Korea's independent nuclearization. As in Study 1, the analysis incorporates robust standard errors, survey weights, and the same demographic and pre-treatment controls. The results show that information about increased security threats from North Korea's growing nuclear capabilities significantly raised support for South Korea's nuclearization, but only when the information specified that North Korea's actions could threaten any location in the US ($p < .01$), consistent with Hypothesis 1a. In contrast, information focusing solely on heightened tensions in South Korea had no significant effect on support for nuclear weaponization ($p = 0.183$).

The estimated marginal effects of the security threat information conditions on respondents' likelihood of supporting South Korea's independent nuclearization, derived from the logit estimation (see Figure 5), highlight the treatment effects' substantive implications. When respondents were informed of a heightened

Table 5. Logit Estimation Results for Study 2

	(1) Support for South Korea's nuclearization
T1-Increasing threats (South Korea only)	.185 (.139)
T2-Increasing threats (continental US)	.367*** (.135)
Female	-.938*** (.114)
2. Age *(25-44)*	-.603** (.248)
3. Age *(45-64)*	-.749*** (.252)
4. Age *(65+)*	-.553** (.258)
Race *(White)*	.281** (.143)
Party affiliation *(Democrats)*	.197 (.147)
Party affiliation *(Republican)*	.235* (.137)
2. Education *(high school graduate/GED)*	.051 (.55)
3. Education *(some college)*	.176 (.55)
4. Education *(two-year tech college grad)*	.279 (.557)
5. Education *(four-year college grad)*	.392 (.551)
6. Education *(post-graduate)*	.528 (.557)
7. Education *(prefer not to answer)*	-1.168 (1.106)
2. Income *($15,000-$20,000)*	-.071 (.395)
3. Income *($20,000-$30,000)*	.096 (.339)
4. Income *($30,000-$40,000)*	.028 (.339)
5. Income *($40,000-$50,000)*	.366 (.339)

Table 5. (continued)

	(1) Support for South Korea's nuclearization
6. Income *($50,000-$75,000)*	.175 (.309)
7.Income *($75,000-$100,000)*	.282 (.319)
8. Income *($100,000-$125,000)*	.517 (.335)
9. Income *($125,000-$175,000)*	.587* (.343)
10. Income *($175,000-$250,000)*	.364 (.387)
11. Income *(over $250,000)*	.141 (.414)
12. Income *(don't know/prefer not to answer)*	-.027 (.384)
Constant	-.567 (.622)
Observations	1586
Log likelihood	-981.743

Note: Robust standard errors are in parentheses; survey weights are used; ***p < 0.01, **p < 0.05, *p < 0.1.
Source: Authors.

security threat directed solely at South Korea, their predicted probability of supporting nuclearization increased by 3.8% compared to the control condition, which provided no specific information about the country at risk (31.85%). However, this increase was not statistically significant (p = 0.183). In contrast, when respondents were told that the US could also be targeted, the predicted probability of support increased significantly by 7.7% relative to the control condition (p = 0.006).

These results differ from Study 1, which examined multiple factors and found no statistically significant treatment effects from security threat information. By focusing solely on security threat information and clearly identifying the country under threat, Study 2 respondents seemed to better understand the security implications for the US. These findings suggest that the potential for the US to become a target significantly increases support for South Korea's nuclearization among South Carolinians, in line with Hypothesis 1a, which posits that heightened entrapment risks can lead to support for allied nuclear proliferation.

However, heightened security threats to South Korea alone do not appear to have the same effect.

Subgroup Analyses: Party Affiliation and Respondents' Support for South Korea's Independent Nuclearization

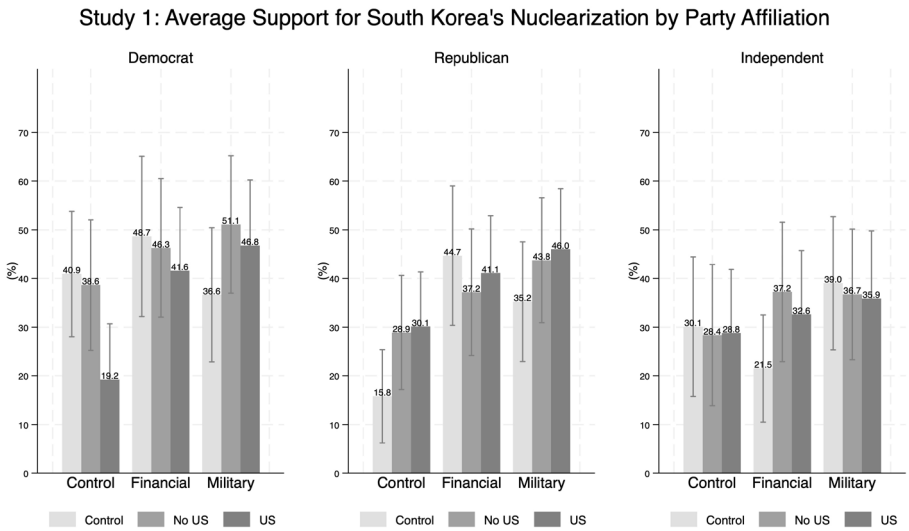
South Carolina is traditionally a Republican stronghold, and the treatment of military alliance costs and burdens in our vignettes aligns with President Trump's stance during his first administration. Trump emphasized increasing burden-sharing by allies and reducing US financial and military support if this sharing does not improve (Thompson 2024). In contrast, the Biden administration consistently reaffirmed its commitment to extended deterrence for allies like South Korea and opposed its pursuit of independent nuclearization. These differing positions may reflect partisan divisions in the US approach to extended deterrence and alternative measures, such as allied nations pursuing independent nuclear armament.

Previous survey experiments have shown that support for military alliances can vary significantly based on party affiliation and elite cues (Lee and Goidel 2022; Alley 2023). Given the similarity between our vignettes and Trump's rhetoric, respondents' reactions are likely influenced by their political leanings. To explore this, we present subgroup analyses of our treatment assignments by party affiliation, focusing on how political affiliation affects respondents' evaluation of security threats and the costs of extended deterrence. While South Carolina may not perfectly reflect national opinion, analyzing responses from Republicans, Democrats, and Independents provides valuable insights into public perceptions of allied nuclearization, conditioned on political affiliation, within a US sample.

We first present the results of Study 1. On average, Democrats (41.5%) showed greater support for South Korea's nuclearization than Republicans (34.9%) and Independents (32%). This variation by party affiliation was also evident in earlier logit estimations, where party affiliation was included as a control variable. Figure 6 shows the average support for South Korea's independent nuclear armament by party affiliation across all treatment conditions. Exposure to heightened security threat information reduces support for nuclearization among Democrats but increases it among Republicans in the absence of cost information (control condition). It decreases support among both Democrats and Republicans when financial cost information is provided and increases support among both partisan groups when military cost information is presented.

Exposure to information about the financial cost of extended deterrence increases support among both Democrats and Republicans, regardless of the details of the security threat. However, exposure to military cost information has varying impacts depending on the security threat information presented

Figure 6. Average Support for South Korea's Independent Nuclearization by Party Affiliation (Study 1)



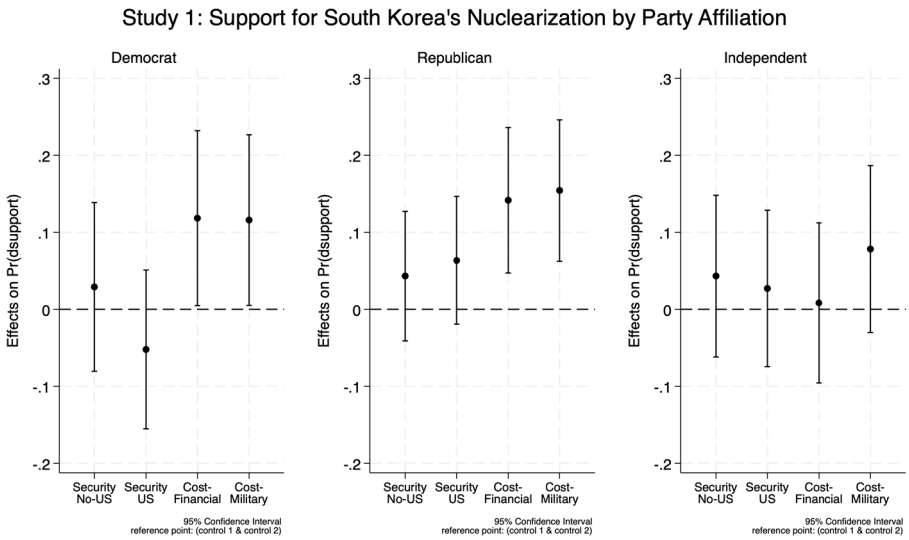
Source: Authors.

and party affiliation. First, it decreases support among Democrats but increases it among Republicans when no security threat information is provided. Second, it increases support among both parties when information about a heightened security threat is presented (whether concerning South Korea or the continental US). In sum, support for South Korea's nuclearization varies by party affiliation and is influenced by the interaction between security threats and extended deterrence costs. However, detecting statistically significant differences across all treatment conditions and party affiliations may be challenging due to limited statistical power.

Figure 7 presents the marginal effects from logit estimations of support for South Korea's independent nuclear armament across subgroups—Democrats, Republicans, and Independents (details in Appendix A.1). Although earlier results showed that average support varied by treatment groups and party affiliation, justifying the inclusion of interaction terms, their addition significantly reduced statistical power, making it harder to detect significant treatment effects. Therefore, our baseline logit estimation, which generated the marginal effects, excludes interaction terms. Additionally, to preserve degrees of freedom and maintain statistical power, we excluded control variables due to smaller sample sizes in these subgroup analyses.

Predicted support for South Korea's independent nuclearization increased among both Democrats and Republicans after exposure to information about financial and military burdens, with Republicans exhibiting a greater rise in

Figure 7. Marginal Effects on Likelihood of Support for South Korea's Independent Nuclearization by Party Affiliation (Study 1)



Note: N = 458 for Democrats, 542 for Republicans, and 431 for Independents; estimates are based on logit regression; point estimates and 95% confidence intervals are presented; and survey weights were applied. The baseline condition is the control group for both factors, where no information is provided.

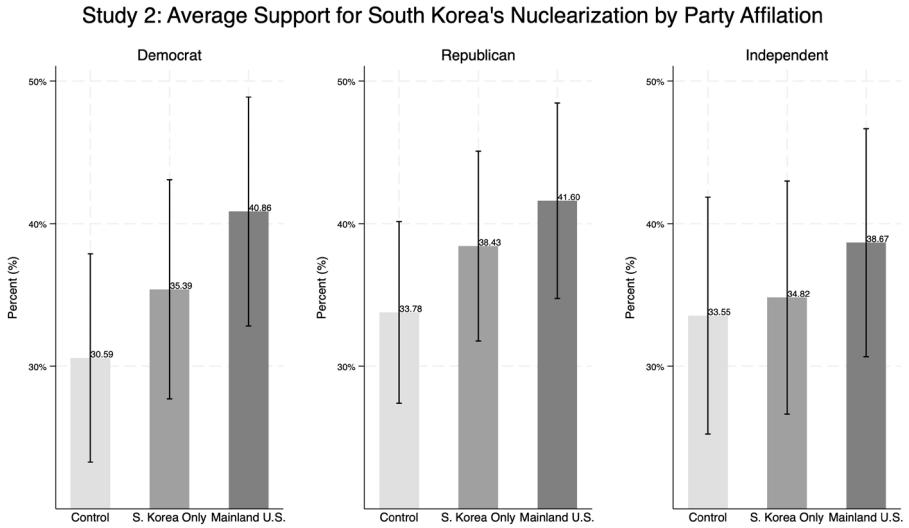
Source: Authors.

support. Independents, however, remained unaffected by these treatments. Specifically, compared to the baseline condition, where no information about security threats or the costs of extended deterrence was provided, Democrats' predicted support increased by 11.8 percentage points after financial cost cues ($p < 0.05$) and by 11.6 percentage points after military cost cues ($p < 0.05$). Republican predicted support rose by 14.1 percentage points and 15.4 percentage points following the same cues, with statistical significance at $p < 0.01$ and $p < 0.001$, respectively.

In Study 2, overall support for South Korea's nuclearization showed minimal variation by party affiliation, with 36.5% of Democrats, 37.6% of Republicans, and 35.5% of Independents expressing support. Republicans showed slightly higher support, contrasting with Study 1, where Democrats were more supportive. Figure 8 compares average support across security threat information treatments by party affiliation, revealing similar patterns among Democrats and Republicans.

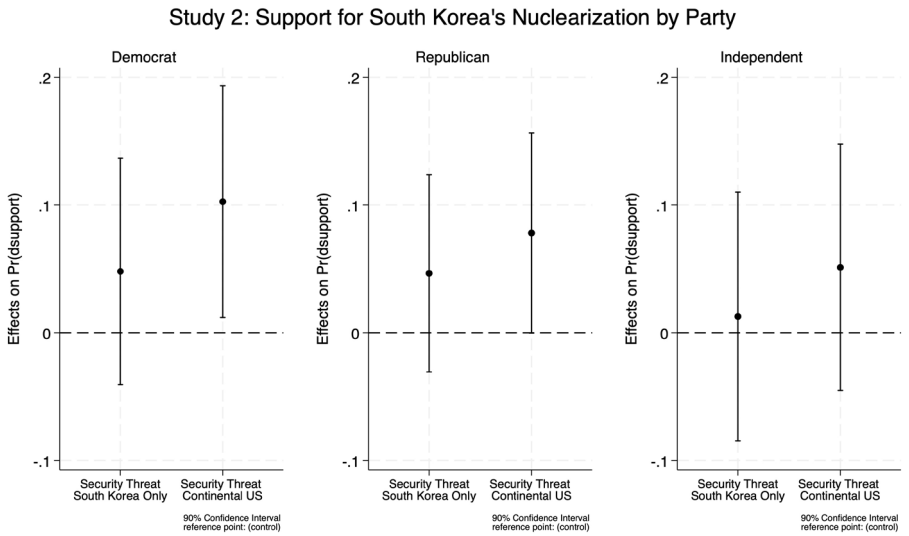
Figure 9 presents the marginal effects from logit estimations for subgroups—Democrats, Republicans, and Independents (details in Appendix A.2). To preserve degrees of freedom and maintain statistical power, especially with smaller sample sizes, we excluded control variables from the analysis. The reduced

Figure 8. Average Support for South Korea's Independent Nuclearization by Party Affiliation (Study 2)



Source: Authors.

Figure 9. Marginal Effects on Likelihood of Support for South Korea's Independent Nuclearization by Party Affiliation (Study 2)



Note: N = 455 for Democrats, 628 for Republicans, and 408 for Independents; estimates are based on a logit regression; point estimates and 90% confidence intervals are presented; and survey weights were applied. The baseline condition is the control group, in which no information is provided.

Source: Authors.

statistical power in this subgroup analysis limited the detection of treatment effects to around a 90% confidence level.

We find that predicted support for South Korea's nuclearization increased among both Democrats and Republicans after exposure to information about escalating security threats targeting the US, with Democrats showing a slightly greater increase. Specifically, Democrats' predicted support rose by 10.3 percentage points after being informed about threats to any part of the US ($p = 0.06$), while Republican support increased by 7.8 percentage points ($p = 0.101$), compared to the baseline control condition with no security threat information. Independents were unaffected by the security threat information treatments.

Conclusions

This study explored how a patron state might respond when its fear of entrapment and its client state's fear of abandonment—together forming an alliance dilemma (Snyder 2007)—coexist. We focused on the US-South Korea alliance, where the US faces high entrapment risks while South Korea fears abandonment. North Korea's potential to target the US with nuclear-capable ICBMs has heightened US concerns about the costs of extended deterrence to South Korea, leading to doubts in South Korea about the credibility of US security guarantees and fueling fears of abandonment. Recent surveys show that well over 60% of South Koreans support acquiring nuclear weapons, reflecting this widespread fear (Kim, Kang, and Ham 2023; Dalton, Friedhoff, and Kim 2022).

We theorized that a patron's decision-making on balancing entrapment risks with abandonment fears depends on two factors: the costs of maintaining extended deterrence and the client's nuclear deterrence capability. We predicted that if extended deterrence costs were high and the client lacked an independent nuclear deterrent, the patron might support or tolerate the client's nuclear armament to gradually reduce costly commitments.

We tested this prediction through two survey experiments with South Carolina voters. Findings from Study 1, where participants were presented with both security threats and extended deterrence costs simultaneously, showed that higher extended deterrence costs increased support for South Korea's nuclear armament and US backing of such measures. However, there was no significant shift in support for South Korea's independent nuclearization in response to heightened security threats. Views on US policy responses—such as ending diplomatic and economic ties, withdrawing extended deterrence, or redeploying US nuclear weapons—remained largely unchanged, regardless of security threats or deterrence costs. In contrast, Study 2, which focused solely on security threats, found that respondents were more likely to support South Korea's nuclearization when informed about direct risks to the US mainland from North Korea's nuclear

capabilities.

Taken together, these findings suggest that while some members of the US public are concerned about the financial and military costs of extended deterrence and increased security risks, they do not advocate for abruptly abandoning close allies like South Korea. Instead, they favor a gradual reduction in commitments, allowing allies to develop independent nuclear deterrents, broadly supporting our theoretical prediction. Our results imply that the US public is sensitive to both entrapment risks and the need to maintain strong alliances.

Although the study's focus on South Carolina limits its generalizability, subgroup analyses by political affiliation offer valuable insights into a more nationally representative sample. Study 1 found that Democrats showed higher overall support for South Korea's nuclearization, but their support increased less after financial and military cost cues compared to Republicans, suggesting a potential ceiling effect. Neither Democrats nor Republicans showed increased support in response to information about heightened security threats to the US mainland. These results suggest that framing allied nuclearization as a response to security threats would shift public opinion nationwide less than framing it as a way to reduce extended deterrence commitments. Additionally, opinion shifts on allied proliferation are likely greater in Republican-majority states than in Democrat-majority ones. In contrast, Study 2 showed only minor differences across party affiliations, with slightly stronger responses from Democrats to security threat cues. Framing the issue solely in terms of security threats is likely to increase support more in Democrat-majority states than in Republican-majority ones. Independents had the lowest overall support for South Korea's nuclear armament and no significant changes in response to any treatment, suggesting that the impact of framing on allied nuclearization is less effective as the percentage of Independents increases.

Our findings contribute significantly to the literature on alliance politics. This study is among the first to experimentally investigate how a patron state responds to allied proliferation efforts. The US-South Korea alliance is a critical case, highlighting the dual challenges of entrapment risks for the US and abandonment fears for South Korea. To our knowledge, no prior studies have empirically tested a patron state's preferences regarding allied nuclearization under these conditions. Moreover, given the significance of South Korea's nuclear ambitions and the role of US extended deterrence in current foreign policy debates, our findings provide valuable evidence to inform policy decisions in both countries.

Acknowledgments

This work was supported by the Institute for Peace and Unification Studies (IPUS) at Seoul National University under the project of "Revisiting the North Korean

Nuclear Crisis: Strategic Responses Among Countries on the Korean Peninsula [0563B-20230016]."

Appendices

A.1 Logit Estimation of Support for South Korea's Nuclear Development by Party Affiliation Subgroups (Study 1)

	(1) Democrat	(2) Republican	(3) Independent
Factor 1			
T1-Increasing threats	.126 (.243)	.238 (.236)	.21 (.261)
T2-Increasing direct threats to the US	-.239 (.242)	.343 (.227)	.134 (.257)
Factor 2			
T1-Financial costs	.494** (.242)	.703*** (.234)	.042 (.269)
T2-Militaty costs	.484** (.238)	.758*** (.229)	.37 (.264)
Constant	-.642*** (.22)	-1.289*** (.219)	-1.008*** (.256)
Observations	458	542	431
Log likelihood	-328.178	-338.773	-273.242

Note: Dependent variable is support for South Korea's nuclear proliferation; robust standard errors are in parentheses (weighted estimation); ***p < 0.01, **p < 0.05, *p < 0.1.
Source: Authors.

A.2 Logit Estimation of Support for South Korea's Nuclear Development by Party Affiliation Subgroups (Study 2)

	(1) Democrat	(2) Republican	(3) Independent
T1-Increasing threats (South Korea only)	.218 (.245)	.202 (.204)	.056 (.264)
T2-Increasing threats (continental US)	.449* (.243)	.334 (.204)	.222 (.256)
Constant	-.819*** (.175)	-.673*** (.145)	-.683*** (.19)
Observations	455	628	408
Log likelihood	-310.742	-413.989	-271.033

Note: Dependent variable is support for South Korea's nuclear proliferation; robust standard errors are in parentheses (weighted estimation); ***p < 0.01, **p < 0.05, *p < 0.1.
Source: Authors.

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Submitted: September 15, 2024; Revised: February 04, 2025; Accepted: February 27, 2025