

Do U.S. Security Assurances Dampen Public Support for Nuclear Weapons Acquisition?

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Abstract

Under what conditions do mass publics in non-nuclear weapon states support the acquisition of nuclear weapons? We field a survey experiment in Brazil, a possessor of uranium-enrichment capabilities with a long history of nuclear ambitions. Experimental results broaden our understanding of the proliferation process. We show that changes in the external security environment are a major driver of public preferences for proliferation: when international security deteriorates, public support for nuclear proliferation grows to form a high minority of the population, splitting society in half. Yet, results also show that the introduction of security assurances by the United States considerably dampen domestic support for nuclear-weapon acquisition, restoring a majority view that opposes proliferation. We additionally find that American protection affects public preferences irrespective of local government endorsement, suggesting that U.S. behavior can inform mass publics without the mediation (or manipulation) of national authorities. Together, these results carry important implications in an era of renewed great power competition.

1 Introduction

In this research note we experimentally explore the conditions under which citizens in a non-nuclear possessor will support the acquisition of nuclear weapons. Up to date, the bulk of experimental scholarly work on public opinion and nuclear weapons has focused on public support for nuclear-weapon use among citizens in nuclear-weapon states (Press et al. 2013; Sagan and Valentino 2017; Rathbun and Stein 2019; Carpenter and Montgomery 2020). By adding to the nascent literature on public support for nuclear-weapon acquisition in non-nuclear weapon states (Son and Park 2020; Ko 2019; Sukin 2020; Son and Yim *forthcoming*), we shed new light onto one of the most important questions afflicting international security in an age of great power competition: As the

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global security environment deteriorates, what policy decisions might best contribute to a world without further nuclear proliferation? In order to provide an answer, our study tackles three sets of issues. First, we explore the extent to which the external security environment shapes preferences in non-possessors for nuclear proliferation among mass publics. Second, we address whether the provision of security assurances by the United States in scenarios of security scarcity mitigates public support for proliferation. Finally, we explore whether endorsement by national authorities is at all necessary for U.S. security assurances to shape public attitudes on the ground. Making sense of public preferences around these issues matters because even if the critical decisions about nuclear proliferation are made by small groups of policy-makers in tightly-controlled elite circles, the choice to ‘break out’ is so revolutionary that it requires wider social legitimation.

We address these questions using a survey experiment fielded to a national representative sample of adults in Brazil, an ideal setting for this study. Brazil is a non-nuclear possessor that features significant nuclear technology capabilities, increasing the plausibility of a ‘break out’ scenario. The country has facilities for uranium milling and mining, uranium conversion, nuclear energy generation, and uranium enrichment (Kassenova 2014). With the materials and technical expertise required to indigenously produce fissile material (Spektor et al. 2019), Brazil is a highly ‘latent’ nuclear state (Herzog 2020). Furthermore, heated domestic contention around nuclear choices has raged in Brazil for the past six decades, reinforcing the plausibility of a scenario in which the decision to explore nuclear-weapon acquisition is made (for a review, see Spektor 2016 and 2019; for a history, see Patti 2021). In terms of its external security environment, Brazil has for generations lived under the shadow of U.S. hegemony in the Western Hemisphere, making Washington the obvious source of protection against potential or actual hostile powers. Finally, public assessments of the external threat environment split Brazilian public opinion in two: while one half of the population believes the international environment to be benign and safe, the other half sees it as fundamentally malign and threatening (Haerpfer et al. 2020). These features allow for great variation on our dependent variable of interest – i.e., support among mass publics for an indigenous nuclear deterrent.

Our survey respondents were presented with a scenario in which they need to support or oppose a government decision to build nuclear weapons against different levels of external security threats, the presence or absence of U.S. security guarantees, and the presence or absence of government endorsement of such guarantees. We obtain three sets of experimental results. First, we find

empirical support for the long-standing theoretical intuition according to which support for nuclear proliferation turns on the nature of the external security environment (Sagan 1996/1997): in our experimental setting, when international security is plentiful, support for proliferation is limited to a low minority of the public, but a turning of the tide that makes international security scarce, expands the pool of members of the public that support nuclear-weapon acquisition to a high minority of the public, polarizing society as a whole.

Second, our results provide empirical support to the idea that nuclear proliferation is best studied through the prism of strategic interactions (Monteiro and Debs 2014; Debs and Monteiro 2017): we show that individual-level preferences for nuclear proliferation depend on the relationship between a nuclear aspirant, her allies, and her surrounding security environment. More specifically, the provision of security assurances by the United States in a setting of high external threat markedly shrinks the well of domestic support for proliferation. Third, our results show that the dampening effects of U.S. security assurances on public support for proliferation do not depend on government endorsement, suggesting patron cues can inform the public in protégé states without the mediation (or manipulation) of national authorities. Preferences in our sample are homogeneous across different social groups when controlling for age, education, gender, income, region of origin, and relative position on a conservatism scale.

The next section presents our theoretical expectations and hypotheses. We then lay out our experimental design before presenting the experimental results. The concluding section discusses results and explores the implications that follow.

2 Theoretical Expectations

Acquiring nuclear weapons is a costly and dangerous endeavor in a world where sensitive technologies are hard to develop, great-power patrons can turn against the proliferating plans of their weaker clients, and where adversaries will not hesitate to attack a potential proliferator preemptively before their nascent capabilities become fully operational (Knopf 2012; Monteiro and Debs 2014; Debs and Monteiro 2017). Under such conditions, states living in a benign external security environment have less incentive to pursue nuclear weapons than their peers confronting an existential security threat (Sagan 1996/1997; Paul 2000; Singh and Way 2004; Jo and Gartzke 2007; Fuhrmann 2009; Bleek and Lorber 2014). By the same logic, states confronting an existential

threat will be less inclined to proliferate if and when a powerful ally offers them credible protection to attenuate the insecurity (Bleek and Lorber 2014; for contrasting arguments, see Singh and Way 2004; Jo and Gartzke 2007). To create the conditions for our experimental test, we hypothesize that these logics operating at the level of the state will also obtain at the level of the individual. We therefore hypothesize:

[H1:] Public support for nuclear proliferation will be higher in the presence of an external security threat than in the absence of such a threat.

[H2:] Given an external security threat, public support for proliferation will decrease in the presence of security guarantees from a powerful ally compared to the absence of such security guarantees.

Because previous research shows that elites are in an advantageous position to shape public perceptions in national security matters (e.g., Myrick Forthcoming), one should also consider the possibility that national authorities in the protégé might seek to influence public preferences for nuclear proliferation by endorsing or questioning the credibility of a patron's security guarantee. For example, a Brazilian leader bent on developing a nuclear-weapon program might publicly question the credibility of U.S. security guarantees in an attempt to rally public support for her endeavor. We therefore hypothesize:

[H3:] Given an external security threat, public support for proliferation will decrease in the presence of government-endorsed security guarantees from a powerful ally.

[H4:] Given an external security threat, public support for proliferation will increase in the absence of government-endorsed security guarantees from a powerful ally.

3 Experiment Design

We ran our survey experiment on a nationally representative sample of 2001 Brazilians in December 2019. Respondents were recruited by the Datafolha Institute, which used quota sampling. The quotas were based on the following pre-treatment variables: age, education, gender, income, and region.¹ After participants consented to participate in the survey, we asked them standard demographic questions. We then administered the experimental portion of the study by telling

¹A full description of the sample's composition, sampling strategy, and sample representativeness is presented in the Supplementary Material, items 1 and 2.

participants they would be asked to respond to a hypothetical situation about their country's acquisition of nuclear weapons.² Respondents were randomly split into six groups. In the first group (N = 288), respondents heard that Brazil does not face an external security threat. They were then asked about their support for the acquisition of nuclear weapons. This treatment enabled us to determine the baseline public opinion on nuclear proliferation. A second group (N = 284) heard that Brazil confronts levels of external threat that are low, and a third group (N = 285) heard that levels of external threat are high, before being asked about whether they support the acquisition of nuclear weapons. By randomizing different levels of security threats, these initial treatments allowed us to uncover the independent effects that external security threats have on public support for proliferation. We also informed a fourth group of respondents (N = 283) that Brazil faces a scenario of high security threat without a U.S. security guarantee. We did this to maximize the internal validity of the experiment, since in a condition of high threat without an explicit cue of the absence of U.S. protection, many respondents may have inadvertently assumed the U.S. would protect the country in such scenario, potentially biasing the results.

To determine whether support for proliferation is affected by the protection of a powerful ally, we informed a fifth group of respondents (N = 283) about the existence of a protecting powerful ally in a scenario of high security threat. We then asked respondents to indicate their level of support for the decision to proliferate. We primed the United States as the powerful ally in the vignette to increase its ecological validity. Our choice of country is informed by both theory and evidence. Theoretically, the United States is the obvious choice of protector because it has for several decades been, and to this day remains, the sole hegemon in the region Brazil inhabits. In the event of a significant military threat to Brazil, it is plausible to expect that Washington rather than any other capital city would boost its security commitment to the country, thereby mitigating Brazil's potential disposition to nuclearize. Empirically, we fielded an observational question in a related study asking what country would most likely act as Brazil's security patron: a clear majority spontaneously chose the United States (51,29 %), with China trailing in the second position far behind (5.5 %) (Spektor et al. 2021). This finding attenuates potential concerns about the schema-inconsistency of the country in the treatment - that is, whether respondents are likely to perceive the treatment as consistent with the choice of actor (Brutger et al. 2020).

Finally, the remaining respondents were assigned to treatments that sought to determine

²The Supplementary Material (item 4) replicates question phrasing and the flow of the experiment in detail.

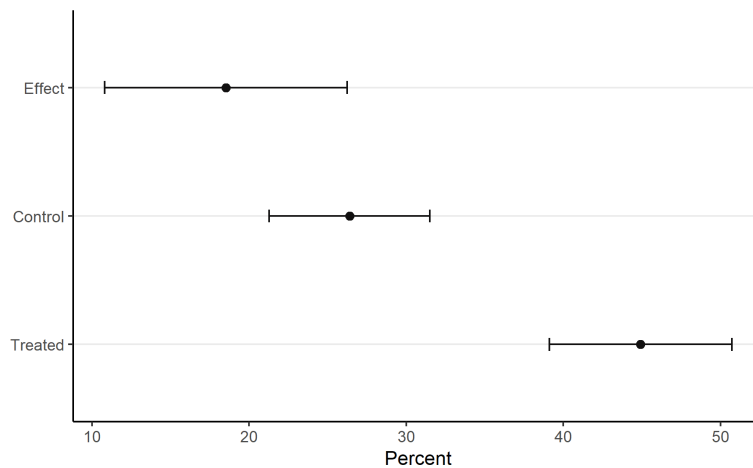
whether in a scenario of high security threat the endorsement of American protection by Brazil's government affects public support for proliferation. Respondents assigned to the endorsement treatment ($N = 284$) heard that the Brazilian government endorses U.S. security protection, while those assigned to a no endorsement condition heard that government officials did not endorse the U.S. security guarantee ($N = 290$). After administering these vignettes, we asked participants whether they support proliferation or not.

4 Experimental Results

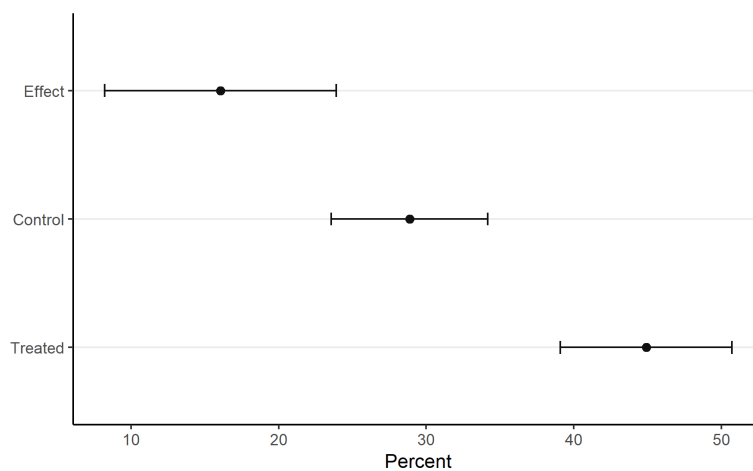
4.1 Level of External Security Threat and Support for Proliferation

Figure 1 shows how individuals responded to three different levels of external security threat: no threat, low threat, and high threat. Overall, we find that when levels of external threat grow markedly, support for proliferation also increases. More specifically, support for proliferation in the 'no threat' scenario is limited to a low minority of 26.4%. In the 'low threat' scenario, low minority support for proliferation was maintained with a minor, statistically insignificant increase of 2.5 percentage points when compared to the no-threat scenario, reaching 28.9%. Conversely, in the 'high threat' scenario support for proliferation is 18.7 percentage points higher than the baseline (no threat scenario), reaching a high minority of 45.1%. This result is statistically significant at the $p\text{-value} < 0.01$, and it is robust to a number of control variables. Results were stable when we changed the baseline scenario of comparison: support for proliferation rose 16.2 percentage points ($p < 0.01$, $SE = 0.041$) when levels of security moved from the 'low threat' to the 'high threat' scenario. We therefore conclude, in line with hypothesis 1, that a deterioration in the external security environment markedly increases public support for nuclear proliferation in our sample.

Figure 1: Estimated Effect of Level of External Security Threat on Support for Proliferation



(a) High Security Threat vs No security Threat



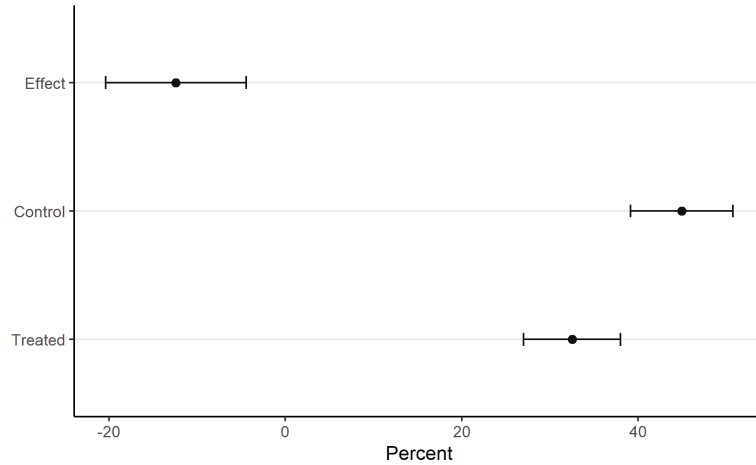
(b) High Security Threat vs Low security Threat

Note: In Panel 1a the control group is “No security threat”, and in Panel 1b the control group is “Low security threat”. In both panels the treatment group is “High security threat”. The points are estimates and the horizontal bars are 95% confidence intervals.

4.2 U.S. Security Assurances and Support for Proliferation

Our experimental results confirm hypothesis 2 on the effect of U.S. security assurances on public support for nuclear-weapon acquisition. As Figure 2 shows, when respondents heard that American protection was in place in a context of high security threat, support for proliferation was 13.1 percentage points less popular than in the baseline scenario of comparison (‘high threat’). Security assurances from the United States shrink support for proliferation from 45.2% to 32.1% among respondents in this group of comparison. This effect was statistically significant at the $p < 0.01$ level and robust to a variety of control variables.

Figure 2: *Estimated Effect of U.S. Protection on Support for Proliferation*

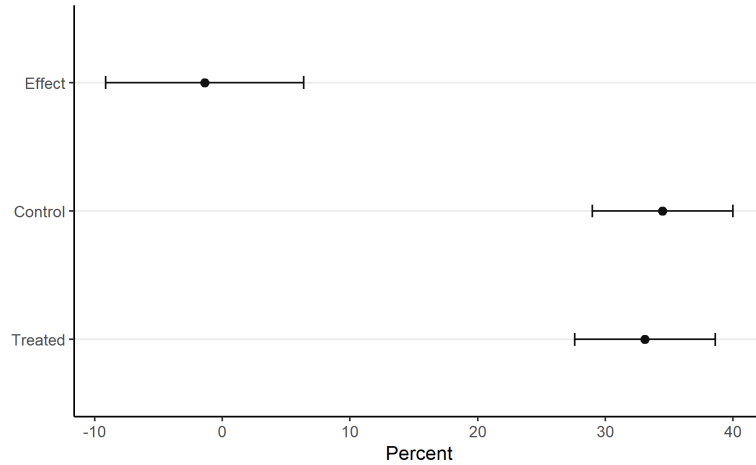


Note: The control group is “High security threat”, and the treatment group is “High security threat and U.S. Protection”. The points are estimates and the horizontal bars are 95% confidence intervals.

4.3 Government Endorsement and Support for Proliferation

Finally, we estimate whether the effect of U.S. protection on public support for proliferation is moderated by Brazil’s government endorsement. Figure 3 shows that government endorsement of U.S. protection in a high threat scenario (and the absence of endorsement) do not affect public attitudes in any significant way. Average support for proliferation is only slightly higher (1.9 percentage points) when respondents heard about the absence of government endorsement (34%) than in its presence (32.2%), but these results are statistically insignificant at conventional levels ($p < 0.01$).

Figure 3: *Estimated Effect of Gov. Endorsement on Support for Proliferation*



Note: The control group is “High security threat and U.S. Protection without Government Endorsement”, and the treatment group is “High security threat and U.S. Protection with Government Endorsement”. The points are estimates and the horizontal bars are 95% confidence intervals.

5 Discussion, Implications, and Future Research

Experimental results in this study show that changes in the external security environment shape public support for nuclear proliferation. This is in line with a long-standing tradition in the study of nuclear politics that posits the centrality of security considerations in processes of nuclear weapon acquisition. A marked increase in the level of external threat drives support for proliferation from a low minority to a high minority of the population, splitting the sample in two roughly equal camps – one supporting proliferation, another opposing it. This is worrisome because it is in contexts of extreme polarization that skillful politicians who cater for their own political interests can best exploit and manipulate public opinion (Carothers and O’Donohue 2019).

Our second set of results point to the causal role that protection from the United States has on public support for nuclear proliferation. We find that the availability of protection markedly mitigates such support. Citizens are likely to make up their minds about the desirability of acquiring nuclear weapons by assessing the dynamics of protection and abandonment that are typical of patron-protégé relationships. Allies – when they have the power to protect – can play a key direct role in hindering public support for proliferation. These findings provide experimental evidence to existing explanations of Brazil’s nuclear forbearance in the expert literature (Debs and Monteiro 2017). More generally, in a global context of deteriorating international security, these results also suggest that promises of protection by the great powers of the day are likely to be a valuable non-proliferation tool in a world where sensitive nuclear technologies are widely

spread. Our finding is particularly relevant because it points in the opposite direction of recent experimental research on whether and how U.S. security assurances temper support for nuclear weapon acquisition in South Korea.

Scholars conducting experimental research in South Korea have found cause to question the notion that patron protection improves the odds of nuclear forbearance, albeit for different reasons and through different mechanisms. Son and Yim (2021), for example, argue that protection only mitigates public support for proliferation when it is credible. In turn, Ko (2019) finds that the dampening effect of U.S. security assurances on support for nuclear weapons is heterogeneous across different social groups. Sukin (2020) shows that U.S. security assurances can backfire: American protection may awaken public feelings of entrapment when individuals fear the United States may precipitously escalate a conflict or may even use nuclear weapons in an unnecessary preventative attack. Under such circumstances, U.S. security assurances might counterintuitively incentivize mass publics to support the acquisition of an indigenous nuclear deterrent. The contrast between these findings from South Korea and our experimental results from Brazil raises the issue of scope conditions, that is, the boundaries determining the types of empirical phenomena to which theory applies. One possibility is that, in settings of high external security threat, whether the presence of U.S. protection dampens public support for nuclear-weapon acquisition turns on individual-level assessment of past and current American behavior.

Future work should better specify these scope conditions, a task that can be done thanks to the range of non-possessors with nuclear tech capabilities, long histories of nuclear ambitions, and a patron-protégé relationship with the United States. Consider for instance cases as diverse as Germany, South Africa, Sweden, Japan, Taiwan, and Argentina. The administration of experimental techniques to these cases would help scholars detect the circumstances in which individuals may take U.S. security assurances to be a source of protection, as well as identify the critical components of U.S. behavior that individuals must internalize in order to translate the presence of security assurances into a personal preference for non-proliferation. Such research would benefit from engaging with recent experimental research on credibility (Jervis et al. 2021; Kertzer et al. 2021). Such findings would help adjudicate between existing theoretical expectations on the effect of security guarantees in a nuclear world (Bleek and Irober 2014; Singh and Way 2004; Jo and Gartzke 2007; Debs and Monteiro 2017; Garzhoy 2015; Lanoszka 2018; Knopf 2012).

Our third set of findings – that American security assurances dampen support for proliferation independent of government endorsement – might be explained by the very low levels of public trust in political institutions that has been a hallmark of Brazil’s democratic experience.³ Trust in domestic political institutions is so low that government endorsement might not make a difference in how individuals perceive a foreign nation’s commitments. Be as it may, our results suggest that leaders who govern societies that count on U.S. protection against external threats are likely to be curtailed in their ability to manipulate public preferences for nuclear proliferation. For this reason, leaders in the United States and other major powers can (and should) communicate with mass publics in their protégés with a view to enhance the odds of nuclear forbearance. This dovetails with empirical research suggesting that foreign leaders can indeed act as cue givers to foreign publics (Hayes and Guardino 2011; Murray 2014). To further refine these ideas, future work could test the effect of endorsement by players other than government officials, and preferably those whom mass publics trust more (e.g. the Armed Forces or religious leaders).

Moving forward, scholars should also strive to fill the void our experimental design has left behind. Our contribution to the understanding of public support for proliferation in this research note is limited by the fact that we do not experimentally vary the behavior of the source of security threat. For example, we could have created a scenario in which the source of external threat has the capacity to preemptively strike Brazil’s existing nuclear facilities in anticipation of a decision to proliferate. The reason we did not pursue this avenue is that the experiment would have lost its ecological validity: in experimental settings, there is a premium on scenarios that are plausible to the respondents. Furthermore, due to limitations in our testing power, our design did not include an assessment of how publics might react to the information that any indigenous nuclear-weapon program might incur in sanctions, abandonment, or a preventive attack from the United States itself. Experimental work in the future should add variations to the behavior of both the source of threat and to the United States with a view to induce respondents to more clearly take into account the costs of proliferating.

Finally, future work would do well to experimentally explore what mix of security and non-security factors best accounts for elite and public preferences among non-possessors for nuclear latency – that is, the acquisition of nuclear technologies short of weaponization. As Mehta Whitlark

³Datafolha Institute. 2019. “Grau de confiança nas instituições”. <http://media.folha.uol.com.br/datafolha/2019/07/10/9b9d682bfe0f1c6f228717d59ce49fdcfi.pdf>.

(2021) have pointed out, while scholars tend to assume that the logic driving the pursuit of nuclear weapons is the same that governs the quest for nuclear latency, the fact remains that we simply do not know. Finding what moves leaders and their publics to strive for nuclear latency is essential if scholars are to actively contribute to a future world where the spread of nuclear technology is unavoidable, but the spread of nuclear weapons is not.

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