SECURITY GUARANTEES AND ALLIED NUCLEAR PROLIFERATION

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ARGUMENT

- Are states that receive formal security guarantees from nuclear-armed allies less likely proliferators?

- "Security guarantees make their recipients substantially less likely to engage in *all levels* of proliferation activity" (430)

- Quantitative Analysis & Case Study

LIMITATIONS

- Policy literature is broad, focusing on more than specifically guarantees

- Assumes security guarantees can be effective in stemming allied proliferation

- "…growing quantitative literature addresses the question of why states do and do not proliferate, but reaches contradictory conclusions on security guarantees." (430)

Table 1. Quantitative Studies of Proliferation and Security Guarantees.

Study	Estimator(s)	DV	IV	Findings Explore	Findings Pursue	Findings Acquire
Singh and Way (2004) (SW)	Hazard and logit	SW	SW	NR/−	NR	NR/−
Jo and Gartzke (2007) (JG)	Probit	JG	JG	n/a	NR	−
Kroenig (2009b/2010)[a]	Hazard	GK[b]	SW	n/a	n/a	−/NR
Fuhrmann (2009)	Probit and RElogit	SW	SW	n/a	NR	NR

Note: NR = no relationship; − = statistically significant negative relationship; n/a = not applicable.

[a] Kroenig (2010) data are unavailable, so it is not possible to explore why Kroenig's (2009b, 2010) studies, which appear similar in all important respects, reached differing conclusions on the relationship between security guarantees and acquisition of nuclear weapons.

[b] GK = Gartzke and Kroenig (2009), which included a new coding for nuclear weapons acquisition, but did not code exploration or pursuit.

RECENT STUDIES

- Singh and Way (2004)

  - Hazard analysis

  - Conclusion: states with nuclear-armed allies were neither less nor more likely to explore nuclear weapons options, launch weapons programs, or acquire weapons

  - No relationship between guarantees and states' likelihood of launching weapons programs, but found a robust negative relationship to both exploration and acquisition (431)

- Jo and Gartzke (2007)

  - Probit regression analysis

  - Conclusion: states receiving security guarantees were no less likely to have active nuclear weapons programs, though less likely to possess nuclear weapons

- Kroenig (2009b) and Fuhrmann (2009)

  - Both scholars "tweaked" Singh and Way's work

  - Kroenig: reported that two of the three hazard models found a negative relationship between guarantees and acquisition, while one found no relationship

  - Fuhrmann: reported that all of his models found no relationship between guarantees and nuclear weapons program initiation or acquisition

SECURITY GUARANTEES AND NUCLEAR PROLIFERATION

- Allying with a state that has nuclear weapons → benefits of nuclear weapons without the cost

- "A security guarantee serves as a substitute for a state obtaining nuclear weapons; a potential challenger to the protégé state will observe that a nuclear-armed patron protects the protégé and will therefore be less likely to threaten or attack the protégé" (432)

- Perceived high risk of abandonment or technological, economic, and political constraints on proliferation are low → security guarantees less likely to be viewed as viable substitutes for proliferation

HYPOTHESIS 1:

- Countries receiving formal security guarantees from nuclear-armed allies are less likely to explore nuclear weapons options, launch programs to obtain weapons, and acquire nuclear weapons. (432)

QUANTITATIVE EMPIRICAL ANALYSIS

- Modified versions of Jo and Gartzke's (2007) data set as well as Singh and Way (2004) data set
- Independent Variable: Security Guarantees
- Dependent Variable: Proliferation
- Period Analyzed: 1939 – 1992
  - 1939: earliest nuclear proliferation activity
- Behavior of states coded in four categories:
  - No discernable nuclear proliferation behavior
  - Exploring weapons options
  - Launching programs to pursue weapons
  - Acquiring at least rudimentary deliverable weapons

DEFINITIONS (433)

- **Exploration**:"authorization by national leaders to conduct cost/benefit assessments of potential proliferation or engage in low-level proliferation activities"

- **Pursuit**:"authorization by national leaders to launch programs to acquire nuclear weapons, or evidence that states are engaged in such activities even when information on authorization by national leaders is lacking"

  - Regarded as the most important of the three stages

- **Acquisition**:"obtaining at least rudimentary deliverable nuclear explosive devices"

CONTROLLING FOR OTHER FACTORS

- Primary goal: examine how security guarantees affect proliferation while also aiming to explain proliferation broadly

- Focus on formal, bilateral security guarantees (434)

- States considered as having guarantees when there exists formal defense pacts with nuclear-armed allies
  - Defense pacts identified using Correlates of War (COW) alliance data set

- "Core" models vs. "fully specified" models
  - "Core" includes 4 control variables
  - "Fully specified" includes 14 control variables

Table 2. Core Multivariate Hazard Modeling Results.

Independent variable	Explore	Pursue	Acquire
Security guarantee	−1.534 (0.480)****	−2.030 (0.714)***	−1.880 (0.872)**
Economic capacity	20.300 (6.263)****	8.833 (1.399)****	8.397 (2.018)****
Nuclear capacity	0.5850 (0.102)****	0.548 (0.120)****	1.274 (0.764)*
Conventional threat	0.700 (0.188)****	1.148 (0.387)***	0.545 (0.590)
Nuclear threat	1.340 (0.487)***	−0.757 (1.325)	1.378 (0.933)
Constant	−6.447 (0.821)****	−8.132 (1.071)****	−13.741 (4.045)****
Log likelihood	−60.877	−39.957	−16.710
Number of countries[a]	160	164	164
Total observations	4,840	5,326	5,557

Note: Coefficients are estimates for parametric survival models with a Weibull distribution. Robust standard errors, adjusted for clustering by country, are in parentheses. Statistically significant parameter estimators are denoted by *($p = .10$), **($p = .05$), ***($p = .01$), and ****($p = .001$).

[a]The *n* changes because four countries that later pursued and acquired, the United States, France, Israel, and India, lack data prior to their exploration, and are therefore dropped from the risk pool for exploration.

Table 3. Fully Specified Multivariate Hazard Modeling Results.

Independent variable	Explore	Pursue	Acquire
Security guarantee	−1.759 (0.604)***	−1.765 (0.770)**	−2.119 (1.116)*
Economic capacity	31.533 (19.191)*	−7.341 (20.081)	11.261 (3.774)***
Nuclear capacity	0.575 (0.166)****	0.391 (0.204)*	1.506 (1.432)
Conventional threat	0.307 (0.337)	0.978 (0.392)**	2.743 (0.863)****
Nuclear threat	1.928 (1.078)*	−1.108 (1.617)	−0.214 (2.742)
Sens nuclear assistance	6.002 (0.980)****	0.400 (1.443)	−0.217 (1.012)
Civil nuclear assistance	0.139 (0.590)	1.059 (0.855)	−3.342 (3.531)
NPT ratification	−1.892 (0.872)**	−1.869 (1.020)*	−31.650 (2.142)****
NPT system effect	−1.55e-06 (0.009)	0.017 (0.013)	−0.0003 (0.018)
Major power	−1.253 (0.819)	3.044 (1.414)**	5.733 (2.737)**
Regional power	1.233 (0.602)**	0.205 (1.100)	3.427 (0.929)****
Democracy	−0.018 (0.077)	0.019 (0.078)	0.254 (0.251)
Openness	−0.003 (0.008)	−0.011 (0.015)	0.037 (0.025)
Liberalization	0.011 (0.015)	0.003 (0.050)	0.015 (0.030)
Constant	−4.878 (1.724)***	−6.627 (1.470)****	−33.930 (9.267)****
Log likelihood	−35.891	−26.029	1.073
Number of countries[a]	124	129	132
Total observations	3,782	4,249	4,474

Note: NPT = Nuclear Non-Proliferation Treaty. Coefficients are estimates for parametric survival models with a Weibull distribution. Robust standard errors, adjusted for clustering by country, are in parentheses. Statistically significant parameter estimators are denoted by *($p = .10$), **($p = .05$), ***($p = .01$), and ****($p = .001$).

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FINDINGS

- 444: "Confident in our results that states receiving security guarantees from nuclear-armed allies will be less likely to explore, pursue, and acquire nuclear weapons"

- Table 2 indicates that states receiving security guarantees are less likely to explore, pursue, and acquire nuclear weapons (438)

- Statistical significance differs between the findings in Table 2 and Table 3

  - However, the core result on security guarantees remains strong

- Relationship between security guarantees and proliferation is statistically significant and substantively large (440)

- "Robustness checks"

CASE STUDY: SECURITY GUARANTEES AND SOUTH KOREA'S ABORTED WEAPONS PROGRAM

TIMELINE

- Oct 1953: the United States and the Republic of Korea signed the Mutual Defense Treaty

- Summer 1968: President Richard Nixon announces the Guam Doctrine

- 1970: United States pulled one of two infantry divisions from South Korea

- 1975: United States announces Pacific Doctrine

- 1977: President Jimmy Carter calls for reduction in US forces in South Korea

- 1981: Reagan Administration proposes incentive-punishment deal to South Korea

CASE STUDY TAKEAWAY

- Credible security guarantees can prevent allied nuclear proliferation

- The decision to develop nuclear weapons reflected the country's consideration of the likelihood of abandonment versus the costs of embarking on its own nuclear weapons program

- Reagan Administration offer worked because it lowered the likelihood of abandonment and significantly raised the cost of pursuing a nuclear weapons program

CONCLUSION

- Study supports the conventional wisdom among policy makers that security guarantees can reduce the risk of nuclear proliferation (447)

- Statistical analysis suggests "extreme confidence" in the notion that security guarantees will make states that have not yet launched their own nuclear weapons programs less likely to do so

- Case study analysis suggests that a country weighs fears of abandonment with the costs of pursuing a nuclear program in its decision whether or not to proliferate