

Collusion and the Nuclear Nonproliferation Regime

Online Appendices

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Theory Appendix

This appendix contains proofs of the results quoted in the main body of the paper.

Proof of Proposition 1

First suppose that the two conditions in the proposition hold: we will show that a universal nonproliferation equilibrium exists. Consider the following strategy profile and set of beliefs as a candidate for equilibrium. Play according to this profile is divided into two phases: the enforcement phase and the abandonment phase. The game begins in the enforcement phase, and remains there so long as no state has nuclear weapons, every state that has ever been detected seeking them is a spoiler, and no superpower has ever been observed to allow a state to get them. If a state gets nuclear weapons, a non-spoiler is observed to seek them, or a superpower is observed to allow a state to get them, then the game enters the abandonment phase, which is permanent. During the enforcement phase, every state will refrain from seeking nuclear weapons, and both superpowers will try to stop any spoiler that is detected seeking them. If the abandonment phase begins, every state will seek nuclear weapons, and neither superpower will try to stop any state from getting them. At each point in time, each and every player believes that all players are following their prescribed strategies, except for those which presently are observed to be deviating (by seeking or getting nuclear weapons or allowing a state to get them).

Consider any subgame during the abandonment phase. The candidate equilibrium requires all players to believe that, either now or in the immediate next period, universal proliferation will have begun, which is clearly consistent with the specified strategy profile. The expectation that one superpower will not try to stop any future proliferation leads the other superpower to strictly prefer to do the same, no matter what the other states do, since a lone attempt to stop any state would be costly and have no effect. The Breakdown

Assumption implies that no state that does not have (and is not on the verge of getting) nuclear weapons, nor any coalition of such states, can profitably deviate from seeking them.

Now back up to a subgame in the enforcement phase, in which a subset T of the spoilers is detected to be seeking nuclear weapons, and neither superpower is observed to allow any of these spoilers to get them. The candidate equilibrium requires that each state outside of T believes that no other state outside of T is pursuing nuclear weapons. This belief is consistent with the specified strategy profile, which calls for no state outside of T to seek nuclear weapons. For a spoiler $j \in S^1 \setminus T$, deviating to seeking weapons yields the value:

$$\sigma \left[\frac{1}{1-\delta} v_j(\emptyset) - d \right] + (1-\sigma) \left[(1+\delta)v_j(j) + \frac{\delta^2}{1-\delta} v_j(S) \right]$$

which, by re-arranging condition 1 from the statement of the proposition, is guaranteed to be no greater than the value from not seeking weapons, or $\frac{1}{1-\delta} v_j(\emptyset)$. Thus, no individual spoiler would want to deviate. A coalition of spoilers $T' \subseteq S^1 \setminus T$ seeking nuclear weapons together would do no better, since each deviating spoiler would face the same consequences if detected and, upon going undetected, would be merely one of a coalition of states that obtained nuclear weapons ($v_j(j)$ in the above expression would be replaced with $v_j(T') \leq v_j(j)$). A state j that was not a spoiler would, upon deviating to pursuing nuclear weapons, receive the value:

$$v_j(j) + \delta [\sigma v_j(S) + (1-\sigma)v_j(j)] + \frac{\delta^2}{1-\delta} v_j(S)$$

which, by the definition of spoilers, is less than its value from the candidate equilibrium, $\frac{1}{1-\delta} v_j(\emptyset)$. No coalition T'' of non-spoilers could do any better, since this would merely replace $v_j(j)$ in the above expression with $v_j(T'') \leq v_j(j)$. Moreover, any possible coalition including both spoilers and non-spoilers that deviated together to seeking nuclear weapons would also leave the non-spoilers worse off, and thus they cannot be induced to join such a coalition, regardless of whether either superpower joined it. We will show below that a

coalition composed of some or all of the spoilers, and one of the superpowers, would also not have a mutually profitable deviation.

Finally, back up to a subgame in the enforcement phase, in which a subset T of the spoilers is detected to be seeking nuclear weapons. The candidate equilibrium requires each superpower and each state outside of T to believe that no other state outside of T is pursuing nuclear weapons and that each superpower will stop all the states in T from getting them, which is consistent with the specified strategy profile. Under the candidate equilibrium, each superpower receives a value of $\frac{1}{1-\delta}v_a(\emptyset) - |T|c$. Suppose that superpower a would receive a strictly greater value from instead not stopping the members of T' , where $\emptyset \subset T' \subseteq T$. This value would be:

$$v_a(T') - |T' \setminus T'|c + \delta(1 - \tau)^{|T'|}v_a(T') + \delta \left[1 - (1 - \tau)^{|T'|} \right] v_a(S) + \frac{\delta^2}{1 - \delta}v_a(S)$$

Setting this value to be greater than the value a receives under the candidate equilibrium, and re-arranging, we have:

$$\frac{1}{1 - \delta}v_a(\emptyset) - |T'|c < v_a(T') + \delta(1 - \tau)^{|T'|}v_a(T') + \delta \left[1 - (1 - \tau)^{|T'|} \right] v_a(S) + \frac{\delta^2}{1 - \delta}v_a(S)$$

This inequality implies that when faced with a subset T' of the spoilers that has been detected seeking nuclear weapons, superpower a would strictly prefer not to stop them. But this inequality contradicts condition 2 from the statement of the proposition. Thus, condition 2 implies that given any subset of spoilers detected in pursuit of nuclear weapons, neither superpower has a profitable deviation to allowing any of them to proceed. Moreover, the Breakdown Assumption implies that neither superpower can form a coalition with some of the other states, in which the superpower allows some or all of the detected spoilers to get nuclear weapons and the other states in the coalition refrain from seeking nuclear weapons in response, since this would leave at least some of these refraining states individually worse

off. (Namely, those that would strictly prefer to seek nuclear weapons given the subset of spoilers allowed to get them and the other states not in the coalition who would seek them in response. Such states are guaranteed to exist by the Breakdown Assumption.)

Condition 2 also implies that no coalition including some or all of the spoilers and one of the superpowers can deviate to mutual profit. To induce the coalition's spoilers (say, those whose acquisition of nuclear weapons would be favorable to the coalition's superpower) to seek nuclear weapons, the coalition's superpower has to not try to stop at least one of them if they are detected. But condition 2 implies that the superpower cannot commit to do this, and thus cannot induce his favored spoilers to seek nuclear weapons in coalition, since these states would expect to be betrayed if they are detected seeking nuclear weapons.

Thus, conditions 1 and 2 in the statement of the proposition imply that a universal nonproliferation equilibrium exists. Next we show the converse: given a universal nonproliferation equilibrium, it must involve the superpowers colluding to stop any detected subset of the spoilers, so long as only spoilers are detected seeking weapons, and the two conditions given in the proposition must hold. We do this by showing that the two conditions are equivalent to requiring that the superpowers and the spoilers will prefer to comply with the regime when faced with the best possible equilibrium reward for doing so and the worst possible equilibrium punishment for defecting from the regime. Thus, any equilibrium that is supported by any reward for compliance and any punishment for defection must imply conditions at least as stringent.

In equilibrium, no state or set of states should have a profitable deviation to seeking nuclear weapons. The best possible equilibrium reward for a state that complies with nonproliferation is that no other states will seek them, now or in the future (since if any did so, by assumption the first state would be worse off). There are only two possible punishments that could deter a state (or set of states) from seeking weapons. First, other states might seek nuclear weapons, and be allowed to do so by the superpowers, in response to the first

state (or set of states) being detected pursuing or having the weapons. The first state (or set of states) would be worst off if *all* other states responded in this way, and we have assumed that this forms an equilibrium. By construction, this is sufficient to deter any state that is not a spoiler, or any set of such states, but it is not enough to deter a spoiler. The conditions defining the spoilers, specify that they prefer seeking nuclear weapons to complying with nonproliferation, even anticipating this punishment and even if other spoilers are simultaneously seeking nuclear weapons.

Thus, if a universal nonproliferation equilibrium exists, then it must entail the superpowers colluding to stop all detected spoilers from getting weapons. Since stopping a state from getting nuclear weapons is costly, it can only be in equilibrium for a superpower to do so if the resulting continuation value is higher than that from not stopping the state. Consider a subgame in which superpower a has allowed at least one spoiler to get nuclear weapons. In equilibrium, this superpower would only enforce again in some future subgame if doing so left it at least as well off as not enforcing. But then there is an alternative equilibrium of that subgame, in which neither superpower enforces (since enforcement in any particular case only makes sense if both superpowers do it), that would leave a no better off and so be at least as severe a punishment equilibrium. Thus, if a superpower allows a spoiler to get nuclear weapons, a worst possible equilibrium punishment is for neither superpower to try to stop any further proliferation, leading all other states to seek nuclear weapons in accordance with the Breakdown Assumption. By contrast, under a universal nonproliferation equilibrium, the best possible reward for the superpowers stopping all spoilers from getting nuclear weapons is for all states to refrain from seeking nuclear weapons, now and in the future. Otherwise, either the superpowers would be called upon to bear further costs of enforcement, or the regime would break down, producing the same result as if one or both superpowers had not stopped the original detected spoilers.

Thus, the best possible equilibrium value for a spoiler j of refraining from seeking nuclear

weapons is $\frac{1}{1-\delta}v_j(\emptyset)$, while the worst possible equilibrium value of individually deviating to seeking them is $\sigma \left[\frac{1}{1-\delta}v_j(\emptyset) - d \right] + (1-\sigma) \left[(1+\delta)v_j(j) + \frac{\delta^2}{1-\delta}v_j(S) \right]$. Equilibrium requires that the former value be at least as high as the latter, and this is equivalent to condition 1 in the statement of the proposition.

For the superpowers' part, the best possible equilibrium value for a superpower a trying to stop a subset T of the spoilers from getting nuclear weapons is thus $\frac{1}{1-\delta}v_a(\emptyset) - |T|c$, while the worst possible equilibrium value of individually deviating to allow all these spoilers to get nuclear weapons is $v_a(T) + \delta(1-\tau)^{|T|}v_a(T) + \delta \left[1 - (1-\tau)^{|T|} \right] v_a(S) + \frac{\delta^2}{1-\delta}v_a(S)$. Since equilibrium requires that no such deviation would be profitable, condition 2 in the statement of the proposition must hold. \square

Proof of Proposition 2

We deal with each parameter in turn. First we show that if $\alpha = 0$, there can be no universal nonproliferation equilibrium. When $\alpha = 0$, the sum of the superpowers' utilities $v_{US}(\cdot) + v_{SU}(\cdot)$ is the same no matter which states have nuclear weapons; any instance of proliferation can hurt at most one superpower. In any subgame of a universal nonproliferation equilibrium in which the superpowers are called upon to stop some detected state(s) from getting nuclear weapons, it must be that the future continuation value of doing so exceeds that of allowing the state(s) to succeed, for both superpowers, in order to compensate each superpower for the positive cost of stopping the state(s). But this cannot be true: if the proliferation that will follow from either superpower allowing the state(s) to get the weapons hurts one superpower, it must help the other. The latter superpower thus has a profitable deviation to allowing the detected states to get the weapons, and superpower collusion to enforce nonproliferation is not possible in equilibrium. The proof of Proposition 1 established that a universal nonproliferation equilibrium can only exist if both superpowers can credibly commit to stopping spoilers from getting nuclear weapons. Since they cannot when $\alpha = 0$,

and S^1 is not empty, there can be no universal nonproliferation equilibrium.

As α rises above zero, the definition of the spoilers and the first condition in Proposition 1 are not affected. The left side of the second condition is also unaffected, but the right side will change since α affects $v_a(\cdot)$. Consider this condition for the US; the argument is very similar for the SU. Using the definition of $v_{US}(\cdot)$ and our assumptions on its values, the right side is equivalent to:

$$[1 + \delta(1 - \tau)^{|T|}] [p(T) + \alpha (i(T) - l_{US}(T))] - \left[\frac{\delta^2}{1 - \delta} + \delta (1 - (1 - \tau)^{|T|}) \right] \alpha l_{US}(S)$$

Observe that the right side will decline in α , making the condition easier to satisfy and the nonproliferation equilibrium more likely to exist, so long as:

$$[1 + \delta(1 - \tau)^{|T|}] [i(T) - l_{US}(T)] < \left[\frac{\delta^2}{1 - \delta} + \delta (1 - (1 - \tau)^{|T|}) \right] l_{US}(S)$$

This inequality is implied by our assumption in the model's setup that $(1 + \delta) |i(T)| \leq \frac{\delta^2}{1 - \delta} l(S)$.

Next we turn to σ . If $\sigma = 0$, then condition 1 in the statement of the proposition can be re-written as $\frac{1}{1 - \delta} v_j(\emptyset) \geq (1 + \delta) v_j(j) + \frac{\delta^2}{1 - \delta} v_j(S)$. But the condition defining the set of spoilers is precisely the opposite inequality when $\sigma = 0$. Thus, condition 1 cannot be satisfied when $\sigma = 0$, and since S^1 is non-empty, there can be no universal nonproliferation equilibrium.

As σ rises from zero, observe first that the definition of the spoilers becomes no less restrictive. The right side of the defining inequality is unchanged, but on the left side, probability weight is transferred from $v_j(j)$ to $v_j(S)$. Since $v_j(j) \geq v_j(S)$, and the left side is required to be no smaller than the right, the inequality becomes weakly more restrictive. Condition 1 becomes strictly easier to satisfy if the set of spoilers is reduced in size, but even if it is not, it is strictly easier to satisfy since the left side, which is required to be no smaller than the right side, strictly increases while the left side strictly decreases. Condition

2 becomes less restrictive if the set of spoilers is reduced in size, but is otherwise unaffected. Thus, as σ rises, a universal nonproliferation equilibrium becomes more likely to exist.

Now on to c . Fixing the other parameters, and given that S^1 is not empty, there is always a finite c that is high enough to ensure that condition 2 does not hold, since c affects only the left side, which declines in c . As c decreases from this level, the same condition becomes easier to satisfy, while condition 1 and the definition of the spoilers is unaffected.

Next notice that τ affects only condition 2, and only its right side. As τ rises, probability weight is shifted from $v_a(T)$ to $v_a(S)$. If $v_a(T) > v_a(S)$, this lessens the right side of condition 2 and the condition is more easily satisfied. Suppose instead that $v_a(T) \leq v_a(S)$. Observe that $v_{US}(S) + v_{SU}(S) < v_{US}(T) + v_{SU}(T)$ for all $T \subseteq S$ and $\alpha > 0$. (We ignore the case where $\alpha = 0$, since as shown above, no universal nonproliferation equilibrium is possible and thus τ is irrelevant.) This implies that if, say, $v_{US}(T) \leq v_{US}(S)$, then it must be that $v_{SU}(T) > v_{SU}(S)$. Since $v_{US}(\emptyset) = v_{SU}(\emptyset)$ and $v_{US}(S) = v_{SU}(S)$, the only thing that varies in condition 2 from one superpower to the other, for a given T , is $v_a(T)$. Thus, if for one superpower $v_a(T) \leq v_a(S)$, then condition 2 is more stringent for the other superpower, for whom $v_a(T) > v_a(S)$, and so raising τ makes condition 2 easier to satisfy.

Finally consider $|S^1|$. By construction, this can be no larger than $|S|$. For $|S^1|$ to decrease from $|S|$, it must be that states in S that were spoilers no longer are. Thus, condition 1 becomes easier to satisfy, as fewer states are required to meet it and the individual condition for each state is unaffected. And condition 2 becomes easier to satisfy since fewer subsets of S are required to meet it, and the individual condition for each is unaffected.

Empirical Appendix A

Observations of Superpower Collusion

This appendix provides additional historical information for Hypothesis 1, on observations of superpower collusion.

Collusion on NPT negotiations

The superpowers sought to coordinate their mutual efforts to corral states into the treaty. In a November 1967 meeting between ACDA Director William C. Foster and Soviet Ambassador Anatoliy Dobrynin, each side called for flexibility on specific treaty language, but then expressed ongoing mutual concern over whether key states would sign, as well as measures the superpowers were undertaking to promote their signature.¹ In a later meeting with Secretary of State Dean Rusk, First Deputy Foreign Minister Vasili Kutznetsov, “urged that the US do everything it could to bring the Latin Americans into line... The Secretary said that we would do everything that we could on an urgent basis.”² Throughout this meeting, the US and Soviet representatives report on their assessment of the prospects for signature among their respective allies: Japan and Latin American countries in the case of the US; Romania and some African countries in the case of the Soviet Union. In October 1968, after the NPT was opened for signature, senior US and Soviet officials exchanged explicit assessments of whether Japan, Brazil, Argentina and India would sign, and expressed hopes that the other superpower would use its leverage to cajole the holdouts.³

Next, the US and USSR worked together to control the process of the treaty negotiations. Drafts of the treaty were prepared privately by the superpowers before being presented to other states.⁴ Upon nearing the final stages of the negotiations, US and Soviet representatives privately agreed on ways to deal with attempts by other states to change the draft. These representatives jointly determined that only changes which could “get significantly wider adherence to the Treaty” and “not affect basic substance” would be seriously considered from that point onward.⁵

Collusion in Response to Nuclear Aspirant States

North Korea became interested in a nuclear program in the early 1960s, but due to financial and technical limitations, its progress was slow. While it had long possessed a small Soviet research

¹Arms Control and Disarmament Agency, Memorandum of Conversation between USSR Ambassador Anatoliy Dobrynin and ACDA Director William C. Foster on the Nuclear Nonproliferation Treaty, November 2, 1967. Reproduced in Declassified Documents Reference System. Farmington Hills, Mich.: Gale, 2009.

²U.S. Department of State, “Nonproliferation Treaty, May 17, 1968.” *Foreign Relations of the United States 1964–1968*. Volume XI Arms Control and Disarmament, pp. 598–603.

³Secretary’s Delegation to the Twenty- Third Session of the United Nations General Assembly, “Memorandum of Conversation, NPT (Part V of VIII), October 6, 1968.” National Security Archive Electronic Briefing Book 253.

⁴Dane Swango, “The United States and the Role of Nuclear Cooperation and Assistance in the Design of the Non-Proliferation Treaty.” *International History Review*, 26(2):210–229.

⁵U.S. Department of State, “Nonproliferation Treaty, May 17, 1968.” *Foreign Relations of the United States 1964–1968*. Volume XI Arms Control and Disarmament, pp. 598–603.

reactor, US satellites detected the construction of a second, larger reactor at Yongbyon in the mid-1980s. US officials approached the Soviet Union, highlighting its obligations under the NPT and calling into question its provision of nuclear technology assistance to North Korea. The USSR responded positively, and during the next visit to Moscow of North Korean KWP Secretary Kang Song San, the USSR pushed for North Korea to sign the NPT, offering to provide new nuclear energy reactors if it did.⁶ This episode shows the US pressing the Soviet Union to act on the obligation implicit in the superpowers' collusion. It also demonstrates that the Soviet Union was willing to comply and even offer incentives to make the deal work, suggesting that the issue was not one of opposition between the two superpowers, but rather cooperation.

In the summer of 1977, South Africa finished the construction of two nuclear devices, which were not yet armed with highly enriched uranium, and also a testing site. At the time, South Africa was a pariah state, but with its greater economic ties and sanctions, the US had greater leverage over the state than the USSR. The USSR passed the information to the US, with a personal request from Secretary Brezhnev to President Carter for assistance in stopping the test.⁷ Several days later Carter replied to Brezhnev that the US assessment was in agreement regarding suspicions of a South African nuclear test. The exchange shows that collusion to stop a nuclear aspirant state was carried out at a high level by both superpowers.

Observation and Critique of Superpower Collusion by Other States

The superpowers had an incentive to hide their collusion relationship from their respective allies, as the collusion serves to restrain the allies and bolster the superpower. The USSR, for example, publicly tried to avoid the appearance of cooperation with the US, and sought to convince its Eastern European allies that progress in NPT negotiations was due to US concessions to Russian demands, rather than mutual cooperation and concessions by both sides as was in fact the case.⁸ However, it is likely that third parties would in fact observe at least some characteristics of the collusive relationship. Did other states view the NPT as superpower collusion?

A number of key states voiced a view of the NPT a system imposed by the superpowers. During the later part of the NPT negotiations, the perspective from West Germany was that “the NPT is a sign of a new pattern of world organization being worked out secretly together - and imposed - by the two superpowers.”⁹ German Chancellor Kurt Keisinger stated in 1966:

⁶ Michael J. Mazarr, *North Korea and the Bomb: A Case Study in Nonproliferation*. (New York: St. Martin's Press, 1995) p. 40-41.

⁷ Jeffrey Richelson, *Spying on the Bomb: American Nuclear Intelligence from Nazi Germany to Iran and North Korea*. (New York: WW Norton and Company, 1995) p.278.

⁸ Report on the Warsaw Pact Summit meeting, 27 October 1966, Hungary and the Warsaw Pact Collection, Parallel History Project on NATO and the Warsaw Pact Archive. Quoted in Hal Brands, “Non-Proliferation and the Dynamics of the Middle Cold War: The Superpowers, the MLF, and the NPT,” *Cold War History*, vol.7 no.3 (2007) 389-423.

⁹ Telegram from Bonn to the State Department, 24 February 1967. FRUS 1964-1968, XV:493-4. Quoted in Brands, “Nonproliferation and the Dynamics of the Middle Cold War.”

The Alliance continues on. The antagonisms continue. But on top of this, a form of nuclear complicity or common nuclear responsibility has taken shape which forces these antagonists [the US and the USSR] closer and closer together.¹⁰

Even more interesting is the view from China, which was recognized as nuclear state by the NPT and at first glance would have little to lose from this formal acceptance of its capabilities. However, statements reveal the Chinese view of the treaty as a superpower bid for maintaining their dominant positions. During the NPT negotiations period, US policy makers noted how China saw US-USSR joint efforts on the NPT regime, in particular security assurances accompanying the NPT to non-nuclear countries: “the Chinese do find in these assurances further evidence of US-USSR ‘collusion’ and this might give them added reason for pause before undertaking Korean or other adventures.”¹¹

In a speech to the United Nations General Assembly (UNGA) on November 24, 1971, China’s representative stated:

[S]ince the 60s the two nuclear powers have concocted the Partial Nuclear Test Ban Treaty, the Treaty on Non-Proliferation of Nuclear Weapons, etc. These agreements, which some people laud as intended for nuclear disarmament by accumulative means, are in essence a camouflage are in essence a camouflage for [the two nuclear superpowers’] own nuclear arms expansion in the name of nuclear disarmament, a means for consolidating the nuclear monopoly of the two superpowers and carrying out nuclear threats and nuclear blackmail against the Asian, African and Latin American countries as well as other medium and small countries.¹²

France and China in fact did not join the treaty until the mid-90’s.

India, which rejected signing the NPT during negotiations and went on to develop weapons outside the treaty regime, has also long claimed that the NPT regime is discriminatory. Writing in 1998 in *Foreign Affairs*, Indian politician Jaswant Singh articulated a long standing Indian position, arguing that India should not be admonished for refusing to follow an “international agenda of discriminatory nonproliferation pursued largely due to the internal agendas or political debates of the nuclear club.”¹³

Of course, there may be other reasons for states to publicly oppose the NPT using inflammatory statements that do not really reveal private views. We might reasonably expect that a state's real views on the NPT would be shaped by its strategic situation. However, here we see that states in

¹⁰ Address to CDU editors, February 17, 1967, in *Documents on Disarmament, 1967*. Cited in Peter A. Clausen, *Nonproliferation and the National Interest; America’s Response to the Spread of Nuclear Weapons*, Harper Collins, (New York: 1993) p92.

¹¹ “Nuclear Weapons” Top Secret, Paper, April 12, 1968, Collection: United States and the Two Koreas Item Number: KO00007, Origin: United States. National Security Council. Staff. Digital National Security Archive, http://gateway.proquest.com.ezp-prod1.hul.harvard.edu/openurl?url_ver=Z39.88-2004&res_dat=xri:dnsa&rft_dat=xri:dnsa:article:CKO00007

¹² Chiao Kuan-hua, Speech at UNGA, 24 November 1971, available at: <http://www.nti.org/db/china/engdocs/ch1171.htm>.

¹³ Jaswant Singh, “Against Nuclear Apartheid,” *Foreign Affairs*, vol77 no5 (1998).

very different strategic situations voicing similar critiques. We see this observation coming from states in different positions, one that joined the NPT as a non-nuclear member, a state that could have joined as a recognized nuclear power, and a state that chose not to join. The similarity of these views suggests that there may be an element of real assessment reflected here.

Empirical Appendix B

Superpower Pressure for NPT Membership

This appendix provides support for our findings on Hypothesis 2. For each case, we assess the superpowers' perception of the state's intentions both vis-à-vis nuclear weapons and signing the NPT. We then assess how the superpowers responded to the state's position NPT participation. The case studies characterize each country along the characteristics below. We assess perceptions and response behavior during the time frame of NPT negotiations in the late 1960's and during the early 1970's when most states considered signature and ratification. In a few cases, countries that were also pressured to sign the treaty later on as their nuclear capabilities developed.

Country cases
<u>State's Perceived intentions</u> <ul style="list-style-type: none">• Likely NPT signatory• Uncertain NPT signature, no nuclear weapons ambitions• Uncertain NPT signature, possible nuclear weapons ambitions
<u>Superpower behavior</u> <ul style="list-style-type: none">• No action• Diplomatic attention• Incentives or pressure on client to join NPT<ul style="list-style-type: none">○ Examples of different levels of pressure used by superpower: indirect through third party, direct entreaty, offer of security benefit, threat of withdrawal of security benefit.

Theory expectation of superpower response to different kinds of client states: <ul style="list-style-type: none">• Likely NPT signatory OR uncertain NPT signature, but no nuclear weapons ambitions<ul style="list-style-type: none">➤ No action➤ Low level diplomatic attention (to address uncertainty, verify that state's hesitation is not due to nuclear ambition but due to other reasons such as domestic political opposition.)• Uncertain NPT signature, possible nuclear weapons ambitions<ul style="list-style-type: none">➤ Incentives or pressure on client to join NPT

Countries assessed as nuclear capable:

Likely NPT signatory	Uncertain NPT signature, but few perceived nuclear weapons ambitions or capabilities	Uncertain NPT signature, with possible nuclear weapons ambitions
Australia	Italy	West Germany
Belgium	Brazil	Japan
Canada	Argentina	South Korea
Sweden	South Africa	Israel
Switzerland	Pakistan	India
Poland		North Korea
Czechoslovakia		
Yugoslavia		
Romania		

National Intelligence Estimates

In the late 1950's and 1960's, the US and USSR prepared repeated intelligence estimates on states with the capacity to pursue a nuclear weapons program. In 1957, the intelligence community assessed that a number of countries would have the capacity to develop a limited nuclear weapons capability in the coming decade: France, Canada, Sweden, West Germany, Japan, Belgium, Italy, India (and with foreign assistance, the Netherlands, Czechoslovakia, East Germany and Poland).¹ After the French nuclear test in February 1960, NIE estimates began to consider whether countries were unlikely or likely to pursue nuclear weapons, and in this respect drew a distinction between Canada and states such as Israel, India, West Germany and other groups of Western European states.² Belgium and Switzerland are also in NIEs at this time as states as less likely to start their own programs both due to limits in capabilities (natural uranium) and also due to their small size limiting economic capacity to support a program.³

In 1964, immediately following the Chinese nuclear test, the NIE on "Prospects for a Proliferation of Nuclear Weapons Over the Next Decade" assessed India, Israel, Sweden, West Germany, Italy, Japan and Canada as nuclear capable countries, and a number of others as

¹Interestingly, the NIE judged China, Israel and Australia to be further from a successful nuclear program. China however was thought to have made the political decision to pursue nuclear weapons. See: National Intelligence Estimate 100-6-57, "Nuclear Weapons Production in Fourth Countries - Likelihood and Consequences," June 18, 1957. *National Intelligence Estimates of the Nuclear Proliferation Problem The First Ten Years, 1957-1967*, National Security Archive Electronic Briefing Book No. 155, <http://www2.gwu.edu/~nsarchiv/NSAEBB/NSAEBB155/index.htm>

² National Intelligence Estimate, NIE 4-3-61, "Nuclear Weapons and Delivery Capabilities of Free World Countries Other than the US and UK," September 21, 1961, Secret, Excised copy. Source: microfiche supplement to U.S. Department of State, *Foreign Relations of the United States, 1961-1963, Volume VII, Arms Control and Disarmament* (Washington, D.C., U.S. Government Printing Office, 1997) National Security Archive Electronic Briefing Book No. 155, <http://www2.gwu.edu/~nsarchiv/NSAEBB/NSAEBB155/index.htm>

³ See p. 6 of the 1961 NIE. National Intelligence Estimate, NIE 4-3-61, "Nuclear Weapons and Delivery Capabilities of Free World Countries Other than the US and UK," September 21, 1961, Secret, Excised copy. Source: microfiche supplement to U.S. Department of State, *Foreign Relations of the United States, 1961-1963, Volume VII, Arms Control and Disarmament* (Washington, D.C., U.S. Government Printing Office, 1997). <http://www2.gwu.edu/~nsarchiv/NSAEBB/NSAEBB155/index.htm>

potentially developing nuclear capabilities in the next decade (Czechoslovakia, East Germany, Romania, Yugoslavia, Australia, South Africa.)⁴⁵⁶ In 1966, the State Department identified the "proliferation problem" as pertinent for a limited number of countries where the technological base already existed (or could be developed quickly), and where there were incentives to go nuclear. The State Department again listed India, Israel, Sweden, Japan, and West Germany as primary candidates, and Pakistan, Switzerland, Australia and South Africa as additional countries to watch.⁷

The list of capable nuclear states remains largely consistent through various State Department memos and discussions from the time period, with the addition of Romania in some intelligence sources.⁸ Documents also indicate that the US saw the Eastern bloc states as under tight control from the USSR, and would not be allowed to develop nuclear programs.⁹ From the Russian side, similar Eastern European states were likely considered nuclear capable,¹⁰ and Russia would probably have added North Korea to the list, as the state had received Soviet nuclear assistance in the 1950's and 1960's.¹¹

⁴ The NIE also categorizes several other countries at lower possibilities of nuclear weapons, including those which have "modest" or planned nuclear energy programs (Brazil, Argentina, Spain, Portugal, Switzerland) and those which might have a desire for nuclear weapons in response to nuclear neighbors, but lack capabilities (UAR and Pakistan). Portugal and Spain are not consistently mentioned across intelligence documents as countries with developing nuclear capabilities. These were assessed as countries with some interest in nuclear programs and technical knowhow, but lacking in capabilities. We therefore do not include them in the case studies here. Spain and Portugal delayed signing the NPT, but there is no indication in the available historical record that the superpowers continued to see these countries as proliferation problem in the late 1960's onward. Spain voiced concerns about the NPT during negotiations and delayed signing the treaty. However, assessments at the time did see Spain as a proliferation risk and rather speculated that Spain was using its NPT position to bargain with the US on other issues. (see section on Spain in *The Near-Nuclear Countries and the NPT*. Stockholm International Peace Research Institute, Almqvist & Wiksell (Stockholm, Sweden: 1972) 46-47. In contrast, Brazil and Argentina appear in additional US intelligence estimates and documents, and attention to these states – especially Brazil – increases in later estimates. See for example the 1974 SNIE cited below. National Intelligence Estimate Number 4-2-64, "Prospects for a Proliferation of Nuclear Weapons Over the Next Decade," 21 October 1964, Secret. National Security Archive Briefing Book No. 401. <http://www2.gwu.edu/~nsarchiv/nukevault/ebb401/>

⁷ U.S. Department of State Policy Planning Council, "The Further Spread of Nuclear Weapons: Problems for the West," 14 February 1966, Secret. National Archives, Record Group 59, Records of the Department of State (RG 59). Records of Policy Planning Council, 1965-1968 Subject, Country and Area Files, box 384, Atomic Energy-Armaments (2 of 4). National Security Archive, <http://www2.gwu.edu/~nsarchiv/nukevault/ebb253/index.htm>

⁸ U.S. Department of State, «Problems of nuclear proliferation outside Europe.» December 7 1964. Reproduced in Declassified Documents Reference System. Farmington Hills, Mich.: Gale, 2009.

⁹ Memorandum of Feb 12, 1963, From Secretary of Defense McNamara to President Kennedy. Nuclear History Collection, National Security Archive. Quoted and analyzed in George Bunn, *Arms Control by Committee: Managing Negotiations with the Russians*. Stanford University Press (Stanford CA: 1992) p.68.

¹⁰ For example, in 1967 the USSR assessed that India could manufacture nuclear weapons in under a year if it decided to do so. Report, Embassy of Hungary in the Soviet Union to the Hungarian Foreign Ministry, 2 June 1967. Hungarian National Archives, XIX-J-1-j India, 1967, 44. doboz, 60-10, 001059/2/1967. Provided in full text translation in Balazs Szalontai, "The Elephant in the Room: The Soviet Union and India's Nuclear Program, 1967-1989" *NPIHP Working Paper #1*, Woodrow Wilson Center for Scholars (Washington DC: November 2011).

¹¹ Documents similar to the US NIEs are not available from the Soviet side. On Soviet views of North Korea being a possible but unlikely nuclear power, see Balazs Szalontai and Sergey Radchenko, "North Korea's Efforts to Acquire Nuclear Technology and Nuclear Weapons - Evidence from Russian and Hungarian Archives," *CWIHP Working Paper No. 53*, Woodrow Wilson Center for Scholars (Washington DC: August 2006).

Country Case Studies

Country: WEST GERMANY

Perceived nuclear intentions: possible nuclear weapons ambitions, uncertain NPT signature
Observed superpower behavior: significant superpower diplomatic attention and pressures

Evidence:

In 1957, Germany secretly collaborated with France and Italy to develop nuclear weapons. Once the United States and the United Kingdom became aware of the project they denounced it, citing that such a project went against the goals of nonproliferation. With great pressure from the United States and United Kingdom, the project was then abandoned.¹² In 1966 Germany invested over one billion dollars in atomic energy research, with the intention that some of this energy research could have military applications, although the research never materialized.¹³

In the mid-1960's, both the US and the Soviet Union, were concerned about acquisition of nuclear weapons by West Germany. For both the US and particularly for the Soviet Union, German signature of the treaty was essential.¹⁴ The Soviet Union was more interested in West Germany signing than NPT than on other potential nuclear aspirants such as India and Pakistan because they saw German nuclear weapons as a key source of tension.¹⁵ German participation in the treaty was not a foregone conclusion. Assessing the West Germany position in 1967, a State Department memo states that Germany endorsed the NPT "in principle," but that Germany had also raised a number of specific concerns.¹⁶ It was not clear to the Johnson administration as late as May 1968 whether Germany would sign the NPT.¹⁷

Through the course of arduous NPT negotiations, the United States sought to reassure Germany regarding the continuation of US-German security relations.¹⁸ These assurances were

¹² Matthias Kuntzel, "Germany and the Origin and History of the NPT," in *Bonn and the Bomb: German Politics and the Nuclear Option* (London: Pluto Press, and Amsterdam: Transnational Institute, 1995).

¹³ Jennifer Mackby and Walter B. Slocombe, "Germany: The Model Case, A Historical Imperative," in *The Nuclear Tipping Point: Why States Reconsider Their Nuclear Choices* ed. Kurt Campbell, Robert Einhorn, and Mitchell Reiss, 197.

¹⁴ Susanna Schrafstetter, "The Long Shadow of the Past: History, Memory and the Debate over West Germany's Nuclear Status, 1954-69," *History and Memory* 16, no. 1, p.135.

¹⁵ Memorandum, Permanent Mission of Hungary to the UN to the Hungarian Foreign Ministry, 12 April 1968. Source: Hungarian National Archives, XIX-J-1-j Multilateral international treaties, 1968, 107. doboz, 00617/26/1968. Obtained and translated for NPIHP by Balazs Szalontai. <http://digitalarchive.wilsoncenter.org/document/112873>

¹⁶ "Status report on the views of various countries consulted about the proposed nonproliferation treaty. These countries include: Belgium; Canada; Denmark; West Germany; France; Greece; Iceland; Italy; Japan; Luxembourg; the Netherlands; Norway; Portugal; Turkey; the United Kingdom." Memo. Department of State. SECRET. Issue Date: Feb 12, 1967. Date Declassified: Apr 14, 1999. Unsanitized. Complete. 9 page(s). Reproduced in Declassified Documents Reference System. Farmington Hills, Mich.: Gale, 2009.

¹⁷ Hal Brands, "Non-Proliferation and the Dynamics of the Middle Cold War"

¹⁸ State Department cable 121338 to U.S. Embassy, Bonn, "Non-Proliferation Treaty," 18 January 1967, Secret Location of original: National Archives, Record Group 59, Records of the Department of State, 1967-1969 Subject-Numeric Files, DEF 18-6

<http://www.gwu.edu/~nsarchiv/nukevault/ebb253/index.htm>

reaffirmed several times, including in June 1968, right before the treaty was opened for signature.¹⁹ The US and Germany also held extensive bilateral negotiations regarding the treaty.²⁰ The US also made a number of political concessions to West Germany on the NPT issue. For example, the Senate verbally recognized that a dissolution of the alliance would be a type of “extraordinary event” due to which Germany could give notice to terminate the treaty.²¹ However, the US was delicate in its pressure on Germany due concerns over signals that the détente with the USSR may be sending to the NATO alliance, and particularly to West Germany as a critical member.²²

West Germany hedged and delayed for a year but then signed the NPT in 1969. It ratified the NPT in 1975 after vigorous domestic debate. Factions of Germany were opposed early versions of the NPT. Prominent politicians on the right tended to view the treaty as hindering Germany to join the elite club of nuclear powers.²³ Franz Josef Strauss, West Germany’s Defense Minister, thought that it would be highly damaging to Germany to agree to a provision that weakened Germany’s place in the international community, particularly given Germany’s economic strength.²⁴ Germany was also opposed to adhering to any agreement where the Soviet Union was allowed to keep its nuclear weapons. Even after signing the NPT, it took Germany 7 years to ratify the treaty, primarily due to fissures in domestic politics and concern that allowing the IAEA to inspect German facilities would interfere with its ability to successfully pursue nuclear energy both contributed to the debate about ratification.²⁵

In response to German hesitation, the US provided additional assurances, both on future disarmament goals and future continued priority on European unification efforts.²⁶ As during the NPT signature period, the US again chose to take a soft approach with Germany in pressure for ratification. Writing in 1973, George Quester suggested that the Nixon administration was willing to allow for delayed ratification, “in order to bolster Bonn’s dignity and prestige.”²⁷

¹⁹ Secretary of State Rusk, Memorandum for the President, "Reaffirmation of NATO at the Time of Nonproliferation Treaty Signing," 11 June 1968, Secret

²⁰ Susanna Schrafstetter, “The Long Shadow of the Past: History, Memory and the Debate over West Germany’s Nuclear Status, 1954-69,” *History and Memory* 16, no. 1, p136.

²¹ Mary N. Hampton, *The Wilsonian Impulse: U.S. Foreign Policy, the Alliance, and German Unification*. Praeger Publishers (Westport CT: 1996) p.106.

²² In an analysis of this period, Mary Hampton contrasts quotes from Glenn Seaborg suggesting greater pressure on the Germans, with John McCloy's (advisor to President Johnson) position that the stability of Germany and its adherence to the NATO alliance was vital to security. Mary N. Hampton, *The Wilsonian Impulse: U.S. Foreign Policy, the Alliance, and German Unification* p.105.

²³ Harald Muller, “German National Identity and WMD Proliferation,” *The Nonproliferation Review* 10, no. 2 p3.

²⁴ Jennifer Mackby and Walter B. Slocombe, “Germany: The Model Case, A Historical Imperative,” in *The Nuclear Tipping Point: Why States Reconsider Their Nuclear Choices* ed. Kurt Campbell, Robert Einhorn, and Mitchell Reiss, 196.

²⁵ Jennifer Mackby and Walter B. Slocombe, “Germany: The Model Case, A Historical Imperative,” in *The Nuclear Tipping Point: Why States Reconsider Their Nuclear Choices* ed. Kurt Campbell, Robert Einhorn, and Mitchell Reiss, 200.

²⁶ Mary N. Hampton, *The Wilsonian Impulse: U.S. Foreign Policy, the Alliance, and German Unification* p.103.

²⁷ George Quester, *The Politics of Nuclear Proliferation*. The Johns Hopkins University Press. (Baltimore:1973) p. 26.

Country: JAPAN

Perceived nuclear intentions: some uncertainty in NPT signature, possible weapons ambitions
Observed superpower behavior: extensive diplomatic attention, direct negotiations with US

Evidence:

During the NPT negotiations, Japan voiced concerns regarding specific elements of the treaty. Japan voiced concern over the 25-year duration of the treaty and changes in the Asian security situation that might occur during that period, as well as over the safeguards system which faced some opposition from Japan's nuclear energy industry.²⁸ Then Japan hesitated to sign the NPT, raising concerns that the treaty was unfair to non-nuclear weapons states.

The USSR had limited concerns about the prospect of Japanese membership in the NPT. During the negotiations, the USSR applied pressure on Japan and also repeatedly inquired as to the Japanese position in discussions with US officials.²⁹ The US did note that there were concerns about the NPT within the Japanese government, but believed that Japan would ultimately not oppose the treaty.³⁰ Senior US officials seemed almost certain that Japan would sign whatever draft of the treaty was finally developed. In a 1967 memo summarizing a private conversation, US ambassador to Japan Ural Johnson wrote, "While it is clear that in the end [Government of Japan] will probably have to no choice but to agree to whatever draft of the NP Treaty we are otherwise able to arrive at, I hope that in terms of our overall relations we will be able to point to at least some elements in the final draft what was influenced by their views."³¹ The same memo notes that Japanese Ambassador Takeuchi "said he did not see how Japan could refuse to sign."³²

²⁸ *The Near-Nuclear Countries and the NPT*. Stockholm International Peace Research Institute, Almqvist & Wiksell (Stockholm, Sweden: 1972) 39.

²⁹ The Soviet Union also pressured Japan directly, indicating in meetings with and messages to high level Japanese officials that Japan's development of nuclear weapons would be "a matter of serious security concern to the Soviets. This information was related to the US Ambassador in Tokyo by the Japanese vice foreign minister in October 1968. U.S. Embassy Tokyo cable 12829 to Department of State, 10 October 1968, Secret/Limdis. On Russia inquiring about the Japanese position, see, U.S. Department of State, Secretary's Delegation to the Twenty-Third Session of the United Nations General Assembly, Memorandum of Conversation, "NPT (Part V of VIII)," 6 October 1968, Secret/Exdis.

³⁰ "Status report on the views of various countries consulted about the proposed nonproliferation treaty. These countries include: Belgium; Canada; Denmark; West Germany; France; Greece; Iceland; Italy; Japan; Luxembourg; the Netherlands; Norway; Portugal; Turkey; the United Kingdom." Memo. Department of State. SECRET. Issue Date: Feb 12, 1967. Date Declassified: Apr 14, 1999. Unsanitized. Complete. 9 page(s). Reproduced in Declassified Documents Reference System. Farmington Hills, Mich.: Gale, 2009.

³¹ Summary of a meeting between U.S. Ambassador Ural Johnson and Japanese Foreign Minister Takeo Miki regarding the Japanese position toward the nuclear nonproliferation treaty's concept of non-nuclear states developing nuclear explosive devices for non-military use. Cable. Department of State. SECRET. Issue Date: Jan 7, 1967. Date Declassified: Apr 09, 2001. Complete. 5 page(s). Reproduced in Declassified Documents Reference System. Farmington Hills, Mich.: Gale, 2009.

³² Summary of a meeting between U.S. Ambassador Ural Johnson and Japanese Foreign Minister Takeo Miki regarding the Japanese position toward the nuclear nonproliferation treaty's concept of non-nuclear states developing nuclear explosive devices for non-military use. Cable. Department of State. SECRET. Issue Date: Jan 7, 1967. Date Declassified: Apr 09, 2001. Complete. 5 page(s). Reproduced in Declassified Documents Reference System. Farmington Hills, Mich.: Gale, 2009.

The US urged Japan to sign during the NPT negotiation process, but did not do so with significant pressure. In a conversation with President Nixon on November 21, 1969 (days before the US signed the NPT), Japanese Foreign Minister Eisako Sato stated that while Japan was committed to reject nuclear weapons, the country did not see a need to hastily sign the NPT. Nixon replied that he would not press for immediate signature.³³ Japan signed in 1970, after other nuclear capable states such as West Germany has signed as well, and after the US promised to allow Japan to pursue reprocessing capabilities for its civilian nuclear energy program.³⁴

Japan delayed ratification of the NPT until 1976, along with several other nuclear capable states. The delay was in part due to Japan seeking equality in its civilian nuclear program with EURATOM countries. Additionally, internal political debate plagued NPT ratification, as political opposition parties used the treaty discussions to address other issues.³⁵ There was limited but grown external pressure on Japan for signature. At the 1975 Geneva Disarmament Conference, the Soviet Delegation publically noted concerns about Japan's delay in signing the NPT. By this point, export procedures being implemented by the US Department of Commerce were already causing delays Japan's nuclear industry. It is also possible that Canada communicated the possibility of future problems with nuclear fuel supply if Japan did not sign the treaty.³⁶ Japan was also possibly motivated to sign when it did because it wanted to participate in safeguards negotiations that were about to begin.³⁷ Importantly, despite debate at the political level, public support for the NPT was high. A public poll in 1975 recorded only 17.2% opposition to the treaty, and 51.4% favoring ratification.³⁸

US pressure on Japan was limited (or perhaps indirect through export control policies.) An assessment of Japan's ratification debate noted that the US security alliance played a role for Japan, and notes that ratification reaffirmed Japan's faith in the guarantee. However, the same analysis does not identify any specific US efforts to apply pressure on Japan, or efforts to make additional security assurances. It also does not appear that Japan approached the US for additional guarantees in exchange for ratification.³⁹

³³ "President's Conversations with Prime Minister Sato [Includes Attachments]," Top Secret, Memorandum, Annotated Copy, November 28, 1969, 50 pp. National Security Council. Collection: Japan and the U.S., Part III, 1961-2000, item number JT00079, Digital National Security Archive.

http://gateway.proquest.com.ezp-prod1.hul.harvard.edu/openurl?url_ver=Z39.88-2004&res_dat=xri:dnsa&rft_dat=xri:dnsa:article:CJT00079

³⁴ Kurt M. Campbell, Tsuyoshi Sunohara, "Japan: Thinking the Unthinkable," in Kurt M. Campbell, Robert J. Einhorn and Mitchell B. Reiss eds. *The Nuclear Tipping Point: Why States Reconsider Their Nuclear Options*. (Washington DC: Brookings Institution Press, 2004) p 224.

³⁵ John E. Endicott, "The 1975-76 Debate Over Ratification of the NPT in Japan." *Asian Survey*, Vol 17, no 3. (March 1977) pp.275-292.

³⁶ Endicott, "The 1975-76 Debate Over Ratification of the NPT in Japan." p 288-292.

³⁷ *The Near-Nuclear Countries and the NPT*, p. 38.

³⁸ Endicott, "The 1975-76 Debate Over Ratification of the NPT in Japan." p 292.

³⁹ John E. Endicott, "The 1975-76 Debate Over Ratification of the NPT in Japan." p.292

Country: SOUTH KOREA

Perceived nuclear intentions: likely NPT signatory, uncertainty in ratification delay
Observed superpower behavior: no action during NPT negotiations, increased pressure and diplomatic attention in response to ratification delays.

Evidence:

An April 2 1968 National Security Council document outlining the role of nuclear weapons in Japan and South Korea notes that both countries have the technological and economic capability to get nuclear weapons but both plan to sign the NPT.⁴⁰

South Korea signed the NPT in 1968 right when the treaty was opened for signature, but did not ratify until 1975. In the late 1960's South Korea was focused on a plan of economic growth, a priority which was consistent with restraint on nuclear issues.⁴¹ The US did not apply pressure for quick ratification. In 1968 the US believed that it had good control over South Korean nuclear activities. South Korea had joined the IAEA in 1957, and its research programs was under monitoring.⁴²

Some domestic opposition groups then opposed ratification of the treaty, pressing for additional security assurances from the US. Some researchers even suggest that President Park was able to strategically use the domestic opposition to the treaty to gain stronger US commitments, access to financing and military equipment, and support for the civilian nuclear program.⁴³

As South Korea further delayed ratification, the US began to apply increased pressure. Kissinger threatened bilateral economic relations with South Korea if the NTP was not ratified. Congress also introduced a resolution that would request the Export-Import Bank to withhold financing of South Korea's nuclear reactor.⁴⁴

South Korea ratified the NPT in 1975, but continued limited nuclear weapons related research through 1976, at which point it officially ended the program.⁴⁵ (See Appendix 3 for additional details on US efforts to stop South Korea's nuclear weapons interests in the early-mid 1970's).

⁴⁰ «Nuclear Weapons» Top Secret, Paper, April 12, 1968, 15 pp .Collection: United States and the Two Koreas. Item Number: KO00007, Origin: United States. National Security Council. Staff. Digital National Security Archive. http://gateway.proquest.com.ezp-prod1.hul.harvard.edu/openurl?url_ver=Z39.88-2004&res_at=xri:dnsa&rft_dat=xri:dnsa:article:CKO00007

⁴¹ Etel Solingen, *Nuclear logics: contrasting paths in East Asia and the Middle East*. p.85-88.

⁴² Sung Gul Hong, "The Search for Deterrence: Park's Nuclear Option" in Byung-Kook Kim and Ezra F.Vogel eds, *The Park Chung Hee Era. The Transformation of South Korea*. (Boston: Harvard University Press) p.486.

⁴³ Etel Solingen, *Nuclear logics: contrasting paths in East Asia and the Middle East*. p.91.

⁴⁴ Etel Solingen, *Nuclear logics: contrasting paths in East Asia and the Middle East*. p.91.

⁴⁵ Hersman and Peters, p542.

Country: ISRAEL

Perceived nuclear intentions: Extensive nuclear weapons ambitions, unlikely NPT signatory
Observed superpower behavior: direct incentives and pressures by the US, no further pressure after Israeli program seen as fait-accompl

Evidence:

The US prepared a Special National Intelligence Estimate on Israel in 1963, suggesting that serious concerns about the Israeli nuclear program existed before the NPT. The majority of the declassified document is excised, however, leaving little information about the specifics of the US assessment of Israeli capabilities or intentions at the time.⁴⁶ In 1967 the CIA assessed that Israel had produced components for a bomb and could put a weapon together in a matter of weeks if it chose to do so. Although this assessment was shown to President Johnson, it was kept from other high level officials including Secretary of State Rusk.⁴⁷ It was not until negotiations in 1968 and 1969 over NPT membership that US officials came to the conclusion that their attempts to pull Israel into the regime had come too late.⁴⁸ By that point, Israeli nuclear weapons capability was a fait accompli, and the costs for Israel to give up this capability in favor of the NPT were too high. Israel is a case where the superpower has serious concerns over the nuclear program, proceeds to pressure when it believes such pressure may be effective, and refrains from wasting resources on additional pressure when it becomes clear that the approach is unlikely to work.

During the course of 1968, both before and after the treaty was open for signature, the US pursued a number of means to try and convince Israel to join the NPT, including threatening a pending jet sale and sending personal appeals at very high political levels. Although the US pressure was to prove ineffective, the US at the time was believed that a clearly hesitant Israel might be compelled to sign, and invested considerable effort in accomplishing this goal.

During NPT negotiations, Israel was largely uninvolved in consultations on various issues or treaty drafts. At the time, the US and Israel were carrying out a bilateral agreement under which the US sent teams to teams to inspect the Dimona reactor.⁴⁹ The US had been worried about nuclear developments since the early 1960's, but lacked good intelligence on the program and was not learning a great deal from its highly controlled visits to Dimona. A few months after the Six-Day War, Israel requested to purchase fifty Phantom jets (F-4s) from the US. This purchase would become a bargaining chip for the US in convincing Israel to join the NPT. In early 1968, the jet sale was not yet being explicitly linked to NPT signature in US-Israeli conversations. It seemed in fact, that Israel might sign the treaty, or at least was seriously considering doing so.⁵⁰

⁴⁶ Special National Intelligence Estimate, 30-2-63, "The Advanced Weapons Programs of the UAR and Israel," May 8, 1963, secret, excised copy <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB155/index.htm#4>

⁴⁷ Avner Cohen, *Israel and the Bomb*. Columbia University Press (New York, NY: 1998) p298.

⁴⁸ For a full discussion of Israel's positions on the NPT, and US-Israeli interactions on the NPT, see Chapter 16, "The Battle Over the NPT" in Avner Cohen, *Israel and the Bomb*. Columbia University Press (New York, NY: 1998).

⁴⁹ Cohen 294.

⁵⁰ Cohen 297.

In April 1968, Secretary of State Dean Rusk sent a letter to Israeli Foreign Minister Eban encouraging Israel to announce that it plans to sign the treaty.⁵¹ Israeli press, public statements at the time, as well as Eban's response, suggested that Israel had a positive view of the NPT.⁵² After the NPT was opened for signature, Israeli delay was presented as a need for time to further evaluate the situation. A meeting between Rusk and Allon in fall of 1968 demonstrates the first clear attempt by the US to link the NPT with the Phantom missile sale. While not presented directly as a quid pro quo, after the meeting Allon noted the possibility that the US would not supply the planes without Israeli signature of the NPT.⁵³ By mid-September 1968, a number of US officials "advocated the use of the F-4s as bargaining chips" for NPT signature.⁵⁴ The US decided to begin formal negotiations on the F-4s sale, with the intention to use the meetings as a way to introduce NPT pressures. Expressions of the link between the F-4 sale and the NPT intensified, as evidenced by Rusk's more direct mention of it again in a meeting with Eban and Rabin in October.⁵⁵

During the F-4 negotiations in early November, the US negotiators tried to get a commitment from the Israelis on nuclear weapons as a condition for the Phantoms sale, either through the NPT or even a Memorandum of Understanding detailing Israeli assurances.⁵⁶ Israel resisted this linkage, and even demanded White House intervention. By mid-November however, it became clear the Phantoms were a priority for the White House, and the aircraft sale became a "done deal" without Israeli compromise on the nuclear issues. Although the US had intended to use the course of negotiations to pressure Israel on the NPT, the negotiations actually revealed to US officials how intransigent the Israeli position was, and suggested that Israel already had nuclear weapons.⁵⁷ US officials realized that their pressures were not going to be sufficient in reversing Israel's course, so the issue was abandoned in favor of simply shoring up an ally's conventional capability through the jet sale.

A second mode of US pressure, concurrent to the Phantoms negotiations, came in the form of direct entreaties by President Johnson to Israeli Prime Minister Eshkol. In a letter in fall 1966, Johnson expressed US commitment to the NPT, and argued that Israeli security would be better served by membership in the treaty. Johnson's letter does not link the NPT to the Phantom negotiations, and is rather a personal appeal.⁵⁸ Eshkol's polite reply, that the Israelis were still considering the issue, was essentially a no.

The Nixon administration appears to have been less interested in pressuring Israel to abandon its nuclear program and join the NPT, even as arguments in favor of doing so continued to come out from the State Department. After some internal discussion, in 1969 the US decided

⁵¹ Rusk initially suggested that the letter be signed by President Johnson. Secretary of State Dean Rusk, Memorandum to the President, "Letter to Prime Minister Eshkol on NPT," 19 April 1968, Secret <http://www.gwu.edu/~nsarchiv/nukevault/ebb253/index.htm>

⁵² Cohen 300.

⁵³ Cohen 304.

⁵⁴ Cohen 305.

⁵⁵ Cohen 309.

⁵⁶ Cohen 311-312.

⁵⁷ Cohen 319.

⁵⁸ Cohen 316.

not to hold up delivery of the Phantom jets as a means of pressuring Israel to join the NPT. While key elements of the history remain murky, evidence presented by historians Avner Cohen and William Burr suggests that in by September 1969 there was a developed – if not actually deployed – nuclear weapons.⁵⁹ US efforts at this time seemed to focus on minimizing the public appearance of the Israeli program. Cohen and Burr argue that the combination of efforts to identify ways to pressure and convince Israel, combined with tacit understandings (as is likely to have been discussed between President Nixon and Prime Minister Meir in September 1969) and failure to pursue more extensive pressures, suggests that the US allowed Israel to “flout the NPT,” but create a “defensible record” of having tried to uphold nonproliferation goals.⁶⁰

Cohen and Burr do not say why having this visible record of attempted policing was important, and for what public audience. A view of this history through the lens of the theory we present here would suggest that US needed to demonstrate a good policing effort for the Soviet Union. It would have been important to show that Israel simply could not be convinced, and the US had in fact held up their side of the collusion bargain by making serious efforts to try. Further evidence, especially on the Soviet perspective of US attempts vis-à-vis Israel, would be needed provide additional support for this kind of interpretation of Cohen and Burr’s account.

However, the documentary record from the Soviet side is very sparse. One document reporting on discussions between Hungarian, Romanian, Yugoslav and Soviet delegates to the UN notes that, “It is [the Soviet] impression that due to American pressure, Israel will sign the treaty, which will also render it possible to [persuade] the Arab countries to join.”⁶¹ However, it is unclear whether this document represents high-level consensus on the Soviet side.

Country: SOUTH AFRICA

Perceived nuclear intentions: nuclear capabilities but limited intent perceived, opposed NPT
Observed superpower behavior: general sanctions and isolation, little leverage directly on nuclear program

Evidence:

While South Africa appears as a possibly nuclear capable state in late 1960’s -mid 1970’s NIEs, it is often noted that it would not pursue a nuclear weapon without additional motivation. In the 1974 estimate assesses that South Africa has developed technology for uranium enrichment, but would not go forward with a weapons program unless serious regional threats emerged.⁶² Other intelligence assessments produced in 1970 and again in 1974 note that South Africa does not

⁵⁹ Avner Cohen and William Burr, “Israel Crosses the Threshold,” Bulletin of the Atomic Scientists (May/June 2006) p27.

⁶⁰ Cohen and Burr p29.

⁶¹ "Memorandum, Permanent Mission of Hungary to the U.N. to the Hungarian Foreign Ministry," April 12, 1968, History and Public Policy Program Digital Archive, Hungarian National Archives (Magyar Országos Levéltár, MOL). XIX-J-1-j Multilateral international treaties, 1968, 107. doboz, 00617/26/1968. Obtained and translated for NPIHP by Balazs Szalontai. <http://digitalarchive.wilsoncenter.org/document/112873>

⁶² Richelson p.217.

have the capability to produce fissile material, and there is no evidence of weapons-related activity (although the situation could change in the next decade.)⁶³

In the late 1960's and early 1970's South Africa opposed the NPT in a number of ways. During the negotiations, South African delegates criticized the regime as discriminatory, safeguards as weak, IAEA inspections raising the possibility of spying, and security guarantees as inadequate.⁶⁴ South Africa claimed that its main reason for not signing the NPT was that safeguards might be harmful to its uranium-producing industry.⁶⁵ In the early 1970's South Africa hoped that in exchange for NPT signature it would receive greater cooperation from the west, including becoming a uranium supplier. However, such offers were not forthcoming.⁶⁶

At the time of NPT negotiation and first opening for signature, at least some of the concern about South Africa was not about the state itself being a proliferation concern, but rather it becoming a uranium supplier for other states. For example, SIPRI assessed, "that South Africa will produce weapons-grade enriched uranium seems improbable."⁶⁷ However, some concern of weapons incentives was present as well.⁶⁸ South Africa's opposition to the NPT in the early 1970's appears to have received limited attention internationally, likely in part because South Africa was already facing international pressure and isolation due to its apartheid regime.⁶⁹

A various points all U.S administrations urged South Africa to join the NPT. The former US ambassador to South Africa (1977-1982) wrote that, "The U.S. -more than any other country- applied pressures on South Africa to accede to the NPT."⁷⁰ In 1976 the US stopped fuel exports for South Africa's research reactor (operated under IAEA safeguards).⁷¹ However, an implication of the cut-off in US assistance is that the US also no longer had involvement and therefore no further leverage on South Africa's civilian nuclear program.⁷² There were also international pressures specifically related to NPT signature. South Africa was barred from the 1979 IAEA General Conference and urged to join the NPT.⁷³ However, in most ways pressures on South Africa's nuclear program coincided with broader pressure against the apartheid regime. Therefore, South Africa would not have expected an easing of sanctions just by joining the NPT.⁷⁴

⁶³ Richelson p.265-266.

⁶⁴ J.E. Spence, "South Africa: The Nuclear Option." *African Affairs*, vol 80 no321 (October 1981) p 451.

⁶⁵ *The Near-Nuclear Countries and the NPT*, p. 34.

⁶⁶ J.E. Spence, "South Africa: The Nuclear Option." *African Affairs*, vol 80 no321 (October 1981) p 451.

⁶⁷ *The Near-Nuclear Countries and the NPT*, p. 35.

⁶⁸ Quester, *The Politics of Nuclear Proliferation*, p.200-201. See also 1974 SNIE cited above, p.4.

⁶⁹ *Ibid* 204.

⁷⁰ Donald B. Sole, «South Africa and the Nonproliferation Treaty,» *American Review* (1993) p5. Quoted in Reiss, *Bridled Ambition*, p. 32.

⁷¹ Waldo Stumpf, "Birth and Death of the South African Nuclear Weapons Programme," Presentation given at the conference "50 Years After Hiroshima", organized by USPID (Unione Scienziati per il Disarmo) and held in Castiglione, Italy, 28 September to 2 October 1995. <http://www.fas.org/nuke/guide/rsa/nuke/stumpf.htm>

⁷² Frank Pabian, "South Africa's Nuclear Weapon Program: Lessons for U.S. Nonproliferation Policy" *Nonproliferation Review* vol3 no1 (Fall 1995) 1-19.

⁷³ Waldo Stumpf, "South Africa's Nuclear Weapons Program: From Deterrence to Disarmament." *Arms Control Today* (December 1995/January 1996) p5.

⁷⁴ *Ibid*.

While some South African officials claim that US pressures did not influence the South African decision regarding the NPT, it is likely that although pressure was not strong enough to achieve NPT membership or reverse the program, the US was able to restrain South Africa from testing.⁷⁵ (See more details in Appendix 3).

Country: INDIA

Perceived nuclear intentions: possible nuclear weapons interests, uncertain on NPT and later opposed

Observed superpower behavior: limited attempts at pressure and incentives by both US and USSR

Evidence:

Although it would later become a clear opponent of the NPT, India was at first more positive about the treaty. India proposed criteria for a non-proliferation treaty in 1965, and said that it supported the principles on nonproliferation outlined in the UN General Assembly in November 1965.⁷⁶ However, after 1966 India began to heavily criticize the US-Soviet draft of the treaty. As a precondition for renunciation of nuclear weapons, India demanded security guarantees from the US and the USSR. India also refused to reject the idea of peaceful nuclear explosives, and wanted to maintain an indigenous right to develop them.⁷⁷

After the Chinese nuclear test in 1964, the US intelligence community assessed a high likelihood that India would also develop a nuclear weapons program.⁷⁸ In 1966, the State department indicated that it believed India had not yet decided to build a bomb, but that it could probably detonate a weapons in a about a year if that political decision was made.⁷⁹

From the US perspective, the problem with an Indian nuclear problem was twofold: 1) an Indian nuclear weapon would make it more likely that Pakistan, and then Japan, Israel and West Germany, would likewise pursue nuclear weapons, and 2) “if India should ‘go nuclear’, and achieve an independent deterrent to Chinese nuclear power, India might look less to the US (and USSR) for defense against Chinese nuclear blackmail.”⁸⁰

⁷⁵ Reiss, *Bridled Ambition*, p. 32.

⁷⁶ Stockholm International Peace Research Institute, *The Near-Nuclear Countries and the NPT*. Almqvist & Wiksell (Sweden: 1972) p.19.

⁷⁷ *The Near-Nuclear Countries and the NPT* p.21

⁷⁸ NIE 4-2-64, "Prospects for a Proliferation of Nuclear Weapons over the Next Decade," October 21, 1964 <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB155/index.htm>

⁷⁹ State Department Cable: “Possible Indian Nuclear Weapons Development,” March 29, 1966 (SECRET). National Security Archive Electronic Briefing Book No. 6. <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB6/index.html>

⁸⁰ State Department Memorandum for the President: “NSC Meeting, June 9, 1966,” June 7, 1966 (SECRET). National Security Archive Electronic Briefing Book No. 6. <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB6/index.html>

It appears that the US considered early on that a security guarantee may be needed to prevent India from pursuing nuclear weapons. However, while the US gave this guarantee to some formal allies, India maintained its neutrality, which made the prospect of a guarantee more difficult. Commenting on the issue in 1965, noted that giving such a guarantee would have serious disadvantages for the US, Ambassador Llewellyn E. Thompson, (a key figure in Johnson administration non-proliferation policy) and would “probably result in our having to give similar guarantees to a large number of other countries.”⁸¹

It is possible that the US recognized the lack of leverage with India’s nuclear program even before the key NPT negotiations took place. In 1965, a State Department memorandum for the President indicated US attempts to control India’s likely nuclear program would be very costly. (The guiding questions are explicitly posed: “How effective would a non-proliferation treaty, a comprehensive test ban, and/or a threshold test ban be in deterring an Indian nuclear program? What price should we be prepared to pay for such agreements?”)⁸² The paper suggested that economic pressures might be better than an entangling commitment though a US security guarantee. Although it is not advocated at this stage, the document also mentions the idea of a joint US-Soviet security guarantee.

During NPT negotiations, good faith measures by the US to attempt to convince India to sign the NPT had no effect on changing the Indian position. Many of the measure appear to have been persuasive and subtle in nature in an attempt to avoid backlash,⁸³ but the US also considered coercive means to convince India to drop its nuclear goals.⁸⁴ Internal discussion in the US in 1965 and early 1966 on possible means to deal with the India nuclear program suggested economic pressures, such as cutting of assistance, but also reflected a sense that too much pressure would actually weaken US influence over India.⁸⁵

During the next two years, the joint security guarantee option was discussed more seriously, both the India and with the USSR. Documents suggest that Soviet Union was interested in a joint guarantee that would be linked to India’s acceptance of the NPT.⁸⁶ Questions over India’s position on the NPT arose in US-Soviet discussions in on the timing tabling drafts of the NPT

⁸¹ Memorandum from the State Department, Ambassador at Large: “Indian Nuclear Weapons Capability,” January 30, 1965 (SECRET). National Security Archive Electronic Briefing Book No. 6.

<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB6/index.html>

⁸² State Department Memorandum for the President: “NSC Meeting, June 9, 1966,” June 7, 1966 (SECRET).

National Security Archive Electronic Briefing Book No. 6.

<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB6/index.html>

⁸³ Communications between the State Department the US embassy in India advise rhetoric to stress the costs of a nuclear program, emphasizing US retaliation potential against China, and other means for discreet pressure. See: State Department Cable Regarding Efforts to Influence Indian Nuclear Decision Making, July 28, 1966 (SECRET). State Department Cable Regarding a U.S. Public Stance Nuclear Proliferation, October 27, 1966 (SECRET). National Security Archive Electronic Briefing Book No. 6.

<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB6/index.html>

⁸⁴ Hal Brands, "Progress Unseen"

⁸⁵ George Perkovich, *India's Nuclear Bomb: The Impact on Global Proliferation*. (Berkeley: University of California Press, 1999) p.116.

⁸⁶ Memorandum from the State Department: “Security Assurances for India,” April 20, 1967, with attached Memorandum of Conversation; “Rough Translation of the Revised Russian Draft;” and Memorandum for the President (SECRET). National Security Archive Electronic Briefing Book No. 6.

<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB6/index.html>

(Japan was the other country often discussed). The Soviet ambassador indicated that the USSR was drafting security assurances for India, which would be tied to the NPT and go through the UN. Both states considered that India may want more specific guarantees than were in the Soviet draft, or that the US was willing to pursue.⁸⁷ In 1968, the US and USSR (as well as UK) offered India a type of security guarantee in the form of a Security Council resolution, but India considered this proposal too weak.⁸⁸ From the Indian perspective, the kinds of vague security assurances that the US and Soviet Union might be willing to give would be considered unreliable.⁸⁹ In fact, when the Soviet Union did sign Soviet-Indian Friendship Treaty in 1971, India assessed this to be an insufficient deterrent for China. This suggests that security guarantees given earlier might likewise have been inadequate.⁹⁰

Documents from spring of 1968 suggest that India's position against the NPT was clearer at that time.⁹¹ In his analysis of India's role in the NPT negotiations, George Perkovich argues that by the end of 1967 it was clear that India was not going to get either the kind of treaty or the kind of security assurances it had hoped for, and therefore would have to reject the NPT.

(Documents from the Soviet side also show this assessment in 1967.⁹²) However, because India was already so involved in NPT debates, it could not simply leave the discussions, and instead remained actively involved in debates.⁹³ In an April 18, 1967 meeting with US Defense Secretary Robert McNamara, the Indian prime minister's secretary L.K. Jha noted India's problems with signing the NPT.⁹⁴ Domestic debate in India had been focused on the NPT, and the government's approach had seemed uncertain. But by spring 1968 there was increasing domestic pressure to reject the treaty. It is possible that India made a decision to not sign the treaty that spring, but a formal announcement to the UN General Assembly was delayed until October 1967.⁹⁵

During the immediate period following the introduction of the NPT for signature, policy experts recognized the lack of strong leverage to pressure India on the NPT from both the US and

⁸⁷ Memorandum of Conversation from the State Department: "Non- Proliferation Treaty; Assurances to Non Nuclear Powers; Latin American Nuclear Free Zone," June 23, 1967 (Secret). National Security Archive Electronic Briefing Book No. 6. <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB6/index.html>

⁸⁸ *The Near-Nuclear Countries and the NPT*. Stockholm International Peace Research Institute, Almqvist & Wiksell (Stockholm, Sweden: 1972) 21.

⁸⁹ George Perkovich, *India's Nuclear Bomb: The Impact on Global Proliferation*. (Berkeley: University of California Press, 1999) p.128.

⁹⁰ Balazs Szalontai, "The Elephant in the Room: The Soviet Union and India's Nuclear Program, 1967-1989" *NPIHP Working Paper #1*, Woodrow Wilson Center for Scholars (Washington DC: November 2011) p6.

⁹¹ Homi Sethna, Director of India's Bhabha Atomic Research Center, discussed the improbability of India's signature of the treaty with US Embassy officials in New Delhi. Embassy, New Delhi Telegram: "Conversation with Senior GOI Nuclear Official," May 7, 1968 (SECRET).

⁹² "Report, Embassy of Hungary in the Soviet Union to the Hungarian Foreign Ministry," June 02, 1967, History and Public Policy Program Digital Archive, Hungarian National Archives (Magyar Országos Levéltár, MOL). XIX-J-1-j India, 1967, 44. doboz, 60-10, 001059/2/1967. Obtained and translated for NPIHP by Balazs Szalontai. <http://digitalarchive.wilsoncenter.org/document/112883>

⁹³ Perkovich p.134-135.

⁹⁴ Perkovich p.136-137.

⁹⁵ Perkovich p.137-139.

USSR side. The US was seen as having some leverage through foreign aid and World Bank loan assistance and the USSR possibly had leverage through military assistance.⁹⁶ While more recently declassified documents cited above show that pressures were seriously considered earlier on, these public pressures were not used in the early 1970s, likely because they were already assessed as likely to be ineffective by government officials.

Some recent scholarship has argued that the Soviet Union was possibly more lenient with India on the NPT than previously thought, arguing that USSR did not explicitly pressure India to sign the NPT in exchange for nuclear exports.⁹⁷ This assessment is in contrast with prior studies, which saw the USSR as uncompromising on nonproliferation policy with India. However, this new assessment is based largely on Hungarian archives, which often report USSR-Indian interactions second-hand. It is also possible that the USSR assessed that they simply did not have enough leverage to pressure India on NPT signature, and instead sought to apply the pressures that could be effectively implemented, such as limits on exports and safeguards on nuclear facilities. In fact, by the 1980's the US had adopted the same policy. Seeing NPT signature as highly improbable, the US did not focus on it as part of its nonproliferation policy and instead pushed for acceptance of full-scope safeguards.⁹⁸

Country: PAKISTAN

Perceived nuclear intentions: opposition to NPT, possible nuclear weapons ambitions but very low capabilities at time of NPT negotiations

Observed superpower behavior: limited pressure to join treaty, later pressure on nuclear program.

Evidence:

During the NPT negotiations and immediately after, it was clear that Pakistan would not sign the NPT unless India did as well. It is also important to note that during this time, Pakistan was thought to possibly have nuclear weapons ambitions, again particularly if India did as well, but it was assessed to have technical capabilities for a weapon in later intelligence estimates. Publicly available assessments, such as by SIPRI in 1972, likewise assessed that Pakistan “is not a high-technology country and so would have great difficulty in exercising any nuclear weapons option.”⁹⁹

Like India, during the NPT negotiations Pakistan asked for stronger security guarantees from

⁹⁶ George Quester, *The Politics of Nuclear Proliferation*. The Johns Hopkins University Press. (Baltimore:1973) p. 57.

⁹⁷ Balazs Szalontai, “The Elephant in the Room: The Soviet Union and India’s Nuclear Program, 1967-1989” *NPIHP Working Paper #1*, Woodrow Wilson Center for Scholars (Washington DC: November 2011) p17.

⁹⁸ U.S. General Accounting Office, *Evaluation of U.S. Efforts to Promote Nuclear Non- Proliferation Treaty: Report to the Congress*. US Government Printing Office, (Washington DC: 1980) p.63.

<http://www.gao.gov/assets/140/130023.pdf>

⁹⁹ *The Near-Nuclear Countries and the NPT*. Stockholm International Peace Research Institute, Almqvist & Wiksell (Stockholm, Sweden: 1972) 25.

the US and USSR. Pakistan also argued that both security guarantees and nuclear energy assistance should be given to states not based on their participation in the NPT, but rather on whether they had renounced nuclear weapons.¹⁰⁰

See Appendix 2 for more details on responses to Pakistan's nuclear ambitions.

Country: NORTH KOREA

Perceived nuclear intentions: Interests in nuclear technology, opposition to NPT
Observed superpower behavior: Early discussions by USSR on NPT, later denial of technology transfer by USSR till NPT signature

Evidence:

North Korea did not join the NPT when it was first open for signature and continued to oppose it throughout the 1970s. During this time, North Korea sought nuclear technology assistance from the Soviet Union. North Korea continued to ask the Soviet Union for a nuclear power plant throughout the 1970's, but these requests were repeatedly denied.¹⁰¹ North Korea also approach Hungary for nuclear assistance, but were likewise rejected and referred to the Soviets for such questions.¹⁰²

North Korea repeatedly approached the Soviet Union for assistance with nuclear technology in the late 1950's and early 1960s, and the Soviet Union was providing some technical assistance during this time. As the NPT treaty was being completed, there is some documentary evidence from Hungarian archives that the Soviet Union held discussions with North Korea, seeking to convince the DPRK to join the treaty.¹⁰³

Soviet Union was concerned over North Korean opposition to the NPT in the early 1970's and made unsuccessful attempts to convince the DPRK to join.¹⁰⁴ In the following decades, the

¹⁰⁰ Ibid 26-27.

¹⁰¹ For several examples of DPRK demands and USSR rejections, particularly in 1976, see the Wilson Center's document collection on the North Korean nuclear program:

<http://digitalarchive.wilsoncenter.org/collection/113/north-korean-nuclear-history/2>

¹⁰² "Letter, Hungarian Foreign Ministry to the Hungarian Academy of Sciences," April 06, 1983, History and Public Policy Program Digital Archive, MOL, XIX-J-1-k Korea, 1983, 73. doboz, 81-73, 2856/1983. Obtained and translated for NKIDP by Balazs Szalontai. <http://digitalarchive.wilsoncenter.org/document/110139>

¹⁰³ "Report, Embassy of Hungary in the Soviet Union to the Hungarian Foreign Ministry," November 12, 1969, History and Public Policy Program Digital Archive, MOL, XIX-J-1-j Korea, 1969, 59. doboz, 1, 001607/4/1969. Obtained and translated by Balazs Szalontai. <http://digitalarchive.wilsoncenter.org/document/111463>

¹⁰⁴ During the time of NPT negotiations, North Korea was not considered by US intelligence as a possible nuclear proliferant in the short term. However, as North Korean capabilities increased, we would expect to see its superpower patron –the Soviet Union – pressuring it to join the NPT (in the event that it failed to join earlier). Balazs Szalontai and Sergey Radchenko, "North Korea's Efforts to Acquire Nuclear Technology and Nuclear Weapons: Evidence from Russian and Hungarian Archives," CWIHP Working Paper No. 53, Woodrow Wilson Center for Scholars, August 2006. Available at:

http://www.wilsoncenter.org/index.cfm?fuseaction=topics.publications&group_id=11901&topic_id=1409

Soviet Union continued to demand membership in the NPT for states within its sphere of influence (although somewhat inconsistently). For example, in 1978 the Soviets refused to supply nuclear fuel for a planned Hungarian reactor in Algeria until Algeria signed the NPT.¹⁰⁵ Evidence from Hungarian archives also shows that the Soviet Union continued to pressure North Korea to join the NPT in the early 1980's, and did not agree to construct a nuclear reactor until it did.¹⁰⁶

Country: AUSTRALIA

Perceived nuclear intentions: some uncertainty on NPT signature, no nuclear weapons ambitions

Observed superpower behavior: Diplomatic attention by US

Evidence:

Australia had early interests in acquiring nuclear weapons, and pursued both procurement (late 1950's) and indigenous (1960's) approaches. However, by the late 1960's these interests had dwindled, and Australia's hesitation to sign the NPT was primarily a domestic politics issue.

As it saw nuclear options developing in the NATO alliance in the 1950's, Australia considered its own nuclear weapons options. One of Australia's concerns was that without nuclear weapons, it would be relegated to a secondary role within its alliances, such as the Australian, New Zealand, United States security treaty (ANZUS).¹⁰⁷ Early efforts to purchase or share British nuclear weapons were not successful, and in the early 1960's Australia did not pursue the issue further.¹⁰⁸ Australia began to consider an indigenous nuclear capability after the Chinese nuclear test in 1964. At the same time as the threat from China rose, Australia's key allies – the UK and the US – moved to decrease their security commitments in the Pacific region.¹⁰⁹ Australia did not seek new nuclear capabilities at this time, but rather sought to keep its options open with respect to its existing nuclear infrastructure, which included two research reactors. Some proposals were made during this time for the construction of a new nuclear reactor, but the Cabinet rejected the idea.¹¹⁰

Concerned over the possibility of precluding a future nuclear options, Australia was hesitant to accept IAEA inspections on its civilian nuclear facilities - Australia hesitated to acquiesce to the US request that it sign a safeguards agreement with the IAEA, but eventually signed. While Australia repeatedly sought to keep its future options open, it did not take any positive steps

¹⁰⁵ Balazs Szalontai and Sergey Radchenko p11. See also p18 on for references to documents showing consistent Soviet support for the NPT in IAEA meetings.

¹⁰⁶ Balazs Szalontai and Sergey Radchenko p20-21.

¹⁰⁷ Jim Walsh, "Surprise down under: The secret history of Australia's nuclear ambitions." *The Nonproliferation Review*, (Fall 1997) p1-20.

¹⁰⁸ Walsh p.8.

¹⁰⁹ Walsh p.9.

¹¹⁰ Walsh p.11.

towards a nuclear program, and rejected the option of an indigenous nuclear weapons capability by the mid-1960's.¹¹¹ When it was asked to sign the NPT in 1968, Australia's response was cautious – some internal assessments argued that Australia should sign, while others called for signature subject to qualifications or amendments.¹¹² Australia was also hesitant about participation in the NPT due to the position of factions in Australian domestic politics who argued against foreign interference by inspectors and questioned the need for respecting US wishes.¹¹³

The US perceived these hesitations, and a group from ACDA and the AEC sent to investigate “found the Australians very interested in just how far they could go under the treaty toward developing nuclear weapons capability.”¹¹⁴ However, in February 1970, Australian Prime Minister Gorton (who had been one of the strongest nuclear proponents) publically announced that Australia would sign the NPT. Others in the government had solicited US pressure on the Gorton administration to sign the NPT.¹¹⁵ When the Labor Party came to power in 1972, their policy supported (as it had previously) nuclear renunciation, and Australia ratified the NPT in 1973.

In his study of the Australian nuclear program Jacques Hymans argues that eventual signing of the NPT by Australia in 1970 was not the result of American pressure, and in fact the US did little to support the pro-NPT factions in Australian domestic politics.¹¹⁶ Australia's eventual ratification of the treaty in 1972 was also likely due to changes in domestic leadership.¹¹⁷ It is also notable that independent assessment by SIPRI at the time judged that Australia would likely ratify the treaty despite the observed hesitation.¹¹⁸ However, it is likely that considerations of the US response did play some role. In his assessment of the Australian decision to join NPT, Glenn Seaborg argues that, among other factors (including high costs of a program) Australia likely judged that development of nuclear weapons would jeopardize its protection by US under the ANZUS alliance.¹¹⁹

In response to Australia's hesitations on the NPT during the course of negotiations in early 1968, the State Department sent a team to Canberra to clarify NPT provisions.¹²⁰

¹¹¹ Jacques E.C. Hymans, "Isotopes and Identity: Australia and the Nuclear Weapons Option, 1949-1999," *The Nonproliferation Review*, Spring 2000. p

¹¹² Walsh p11.

¹¹³ Walsh p.10.

¹¹⁴ The U.S. Arms Control and Disarmament Agency During the Johnson Administration (U), Volume I, Summary and Analysis of Principal Developments, [1968], pp90-91, Administrative History of the U.S. ACDA, Box 1-2, Lyndon Baines Johnson Presidential Library. Quoted in Walsh p.12.

¹¹⁵ Hymans p.11.

¹¹⁶ Jacques E.C. Hymans, "Isotopes and Identity: Australia and the Nuclear Weapons Option, 1949-1999," *The Nonproliferation Review*, Spring 2000.

¹¹⁷ Walsh p13.

¹¹⁸ *The Near-Nuclear Countries and the NPT*. Stockholm International Peace Research Institute, Almqvist & Wiksell (Stockholm, Sweden: 1972) 45.

¹¹⁹ Seaborg p253.

¹²⁰ State Department Cable 144920 to Embassy Canberra, "Australian Concerns regarding NPT," 11 April 1968, Secret, Limdis. See also Seaborg p. 253. <http://www.gwu.edu/~nsarchiv/nukevault/ebb253/index.htm>

Country: BELGIUM

Perceived nuclear intentions: Early support for NPT

Observed superpower behavior: No action

At the time of NPT negotiations, Belgium had a civilian nuclear energy program with plans for expanding it.¹²¹ Belgium was an early supporter of the NPT. In assessing Belgium's position on the treaty in 1967, the US State department noted that Belgium is, "the NPT's most vocal and effective European advocate in the North Atlantic Council."¹²² Belgium did have some concerns regarding Euratom safeguards issues related to the treaty (as did Italy and West Germany) but these did not hinder its support for the treaty and early signature.¹²³

Neither the US or USSR made efforts to pressure or further incentivize Belgium to sign the treaty.

Country: CANADA

Perceived nuclear intentions: Early support for NPT

Observed superpower behavior: No action

Canada fully rejected interests in acquiring nuclear weapons early on in the 1950's. Canadian security policy was highly tied to the US, and Canada perceived that there would be no scenario under which it would need to defend itself from a nuclear threat that did not also threaten the United States. Canada was a staunch supporter of the US-USSR efforts on the NPT.¹²⁴ There is no evidence of any doubt that Canada would support the treaty. Analysis on Canada's position published in 1968 focuses on policies of restraint and mentions "backing into possession of an independent capability" as something that seemed as a possible "danger" in the 1950's or early 1960's.¹²⁵

Neither the US or USSR made efforts to pressure or further incentivize Canada to sign the treaty.

¹²¹ *The Near-Nuclear Countries and the NPT*. Stockholm International Peace Research Institute, Almqvist & Wiksell (Stockholm, Sweden: 1972) 69.

¹²² "Status report on the views of various countries consulted about the proposed nonproliferation treaty. These countries include: Belgium; Canada; Denmark; West Germany; France; Greece; Iceland; Italy; Japan; Luxembourg; the Netherlands; Norway; Portugal; Turkey; the United Kingdom." Memo. Department of State. SECRET. Issue Date: Feb 12, 1967. Date Declassified: Apr 14, 1999. Unsanitized. Complete. 9 page(s). Reproduced in Declassified Documents Reference System. Farmington Hills, Mich.: Gale, 2009.

¹²³ *The Near-Nuclear Countries and the NPT*. Stockholm International Peace Research Institute, Almqvist & Wiksell (Stockholm, Sweden: 1972) 69.

¹²⁴ Quester, *The Politics of Nuclear Proliferation*, p.155-156.

¹²⁵ Sherman, Michael E. *Nuclear proliferation: the treaty and after*. Canadian Institute of international affairs, (Toronto, Canada: 1968), p74.

Country: ITALY

Perceived nuclear intentions: Likely NPT signatory
Observed superpower behavior: no action, limited diplomatic attention

Evidence:

In the late 1950's, Italy was interested in joint efforts with other European partners in the nuclear field, but was concerned as to how such pursuits might affect its relationship with the US. Italy also sought to establish a closer connection to the US by supporting the idea for deployment of US IRBMs on its soil.¹²⁶ In his analysis of the Italian policy during this period, Leopoldo Nuti cites then Defense Minister Taviani as noting that Italy never considered an independent nuclear force.¹²⁷

During NPT negotiations, Italy supported the treaty in general, but voiced objections about specific provisions and sought to make modifications to the treaty.¹²⁸ During the negotiations the US responded to Italy with further consultations and replies, similar to those which were used with West Germany as many Italian objections were similar.¹²⁹

When the NPT was opened for signature, the Italian representative stated that his government intended to sign the treaty. Steps to do so in summer of 1968 were delayed until January 1969 due to the Soviet invasion of Czechoslovakia.¹³⁰ Italy also delayed signing and ratification of the NPT due to hesitation among some domestic political groups, but despite this delay, the State Department INR assessed in the end of July 1968 that Italy would almost certainly sign the treaty.¹³¹ Italy delayed ratification until May 1975, and Nuti notes that, "discreet, behind-the-scenes Allied pressure may have also been relevant in shaping the Italian decision."¹³²

Country: SWEDEN

Perceived nuclear intentions: Likely NPT signatory

¹²⁶ Leopoldo Nuti, "'Me Too, Please': Italy and the Politics of Nuclear Weapon, 1945-75." *Diplomacy and Statecraft*, vol.4, no.1, March 1993, pp114-18.

¹²⁷ Nuti p123.

¹²⁸ Nuti p134.

¹²⁹ "Status report on the views of various countries consulted about the proposed nonproliferation treaty. These countries include: Belgium; Canada; Denmark; West Germany; France; Greece; Iceland; Italy; Japan; Luxembourg; the Netherlands; Norway; Portugal; Turkey; the United Kingdom." Memo. Department of State. SECRET. Issue Date: Feb 12, 1967. Date Declassified: Apr 14, 1999. Unsanitized. Complete. 9 page(s). Reproduced in Declassified Documents Reference System. Farmington Hills, Mich.: Gale, 2009.

¹³⁰ *The Near-Nuclear Countries and the NPT*. Stockholm International Peace Research Institute, Almqvist & Wiksell (Stockholm, Sweden: 1972) 66.

¹³¹ U.S. Department of State, Bureau of Intelligence and Research, Intelligence Note-605, "Italian Parliament Gives Overwhelming Backing to NPT," 31 July 1968, Confidential/No Foreign Dissem/Controlled Dissem
<http://www.gwu.edu/~nsarchiv/nukevault/ebb253/index.htm>

¹³² Nuti p.138.

Observed superpower behavior: no action

Evidence:

Following WWII, Sweden perceived a threat from the Soviet Union, but at the same time strongly favored a position of neutrality.¹³³ Sweden did not join NATO, but maintained close ties with the US and other NATO countries.

In developing its civilian nuclear energy program in the 1950's, Sweden was leaving its options open. A civilian program based on heavy water reactors and indigenous natural uranium meant that if it chose to do so at a later date, Sweden could produce nuclear weapons independent of other foreign assistance or trade.¹³⁴ However, Sweden never acquired the full technical means to create nuclear weapons, and ultimately did not pursue a credible nuclear option. Sweden stopped pursuing a dual use program by 1964-65, and essentially gave up on a nuclear weapons option by 1965.¹³⁵ US intelligence assessed in 1964 that "the chances of [Sweden] developing nuclear weapons in the next decade are less than even."¹³⁶

Sweden's strategy appears to have been a combination of having enough defense (whether domestically or through expected international support)¹³⁷ to act as a deterrent, but to avoid any steps that might appear more aggressive or provocative.¹³⁸

From the Russian perspective, it appears that around the late 1950's and early 1960's, the Soviets signaled to the Swedish that they would not accept a "neutral" nuclear arsenal, and a state that acquires nuclear weapons cannot be neutral.¹³⁹ While it is not clear whether such information had any impact on Swedish decision-making, this point suggests some Russian concern over, or at least monitoring of, Sweden's nuclear ambitions.

It does not appear that the US made strong efforts to convince Sweden to join the NPT. Sweden signed the NPT in August 1968 and ratified in 1970. During the negotiations of the treaty, Sweden did not publically support the drafts (in contrast with Canada, which held similar pro-

¹³³ Eric Arnett, "Norms and Nuclear Proliferation: Sweden's Lessons for Assessing Iran," *The Nonproliferation Review*, Winter 1998, p.35.

¹³⁴ Mitchell Reiss, *Without the Bomb: The Politics of Nuclear Proliferation*. (New York: Columbia University Press, 1988) p 44.

¹³⁵ Arnett cites Sweden's supreme military commander on this point. P.36. Other sources on the Swedish program include: Cole, Paul M. 1997. "Atomic Bombast: Nuclear Weapon Decision-Making in Sweden, 1946-72." Occasional Paper No.26, Henry L. Stimson Center, April 1996. Wilhelm Agrell, "The Bomb that Never Was: The Rise and Fall of the Swedish Nuclear Weapons Programme." In *Arms Races: Technological and Political Dynamics*, ed. Nils Peter Gleditsch and Olav Njølstad. London: Sage Publications pp. 154-174. (1990). Steve Coll, "Neutral Sweden Quietly Keeps Nuclear Option Open." *Washington Post* pp. I and A-42, 1994. Jerome Garris, H. "Sweden's Debate on Proliferation of Nuclear Weapons." *Cooperation and Conflict* 8(3-4):189-207, 1973.

¹³⁶ NIE 4-2-64, "Prospects for a Proliferation of Nuclear Weapons over the Next Decade," October 21, 1964.

¹³⁷ While Sweden is not a part of NATO, it was very seriously concerned about Soviet aggression. The evidence suggests that Swedish leaders expected NATO countries and especially the US to come to their defense in the event of a crisis, or that other European states would already be involved before a conflict escalated to involve Sweden. Jan Prawitz, "From Nuclear Option to Non-Nuclear Promotion: The Sweden Case." *The Swedish Institute of International Affairs, Research Report N0.20*, 1995.

¹³⁸ Reiss, *Without the Bomb*, 73.

¹³⁹ Timerbaev p.143.

nonproliferation positions). The Swedish delegation supported the NPT but would routinely propose changes to the US-USSR drafts.¹⁴⁰ Although Sweden did not publicly endorse the NPT draft prior to UN approval of the treaty, the US believed them to be in favor.¹⁴¹ Numerous sources note that Sweden's decision to sign the treaty was a result of domestic debates and the military balance in Europe.¹⁴²

Country: SWITZERLAND

Perceived nuclear intentions: Likely NPT signatory

Observed superpower behavior: no action

Evidence:

Switzerland began pursuing nuclear energy research in 1945 but by the late 1960's decided that its security was better served by participation in the NPT rather than a national weapon program.¹⁴³

In 1960, the Swiss assessed that even if they believed tactical nuclear weapons to be a good means of territorial defense, they would not be able to acquire them from other states and did not have the capability to make them domestically due to lack of uranium, lack of technical expertise, and high costs of such a program.¹⁴⁴ However, later in the 1960's the Swiss civilian program grew considerably, increasing expertise, and uranium deposits were found, making a Swiss nuclear weapons program more feasible. By 1969, observers estimated that Switzerland would be capable of producing a nuclear weapon.¹⁴⁵

Analysis of internal government records shows that Switzerland had made a political decision by 1969 to forgo any serious nuclear weapons options¹⁴⁶ but it appears that they kept an option to pursue weapons open until that point. Especially in the late 1950's, there was serious debate in Switzerland about nuclear weapons and whether the state needs tactical nuclear weapons to maintain a strong defense. The debate was both internal within the military and government as well as public, including public statements by the government in 1958 (noting that nuclear weapons may be needed to safeguard Swiss neutrality), and public referenda on nuclear issues in 1962 and 1963 (both rejecting proposals that would limit the Swiss government from pursuing nuclear weapons in the future).¹⁴⁷ However, even back during this early time frame, the Soviet

¹⁴⁰ George Quester, *The Politics of Nuclear Proliferation*. The Johns Hopkins University Press. (Baltimore:1973) p. 132.

¹⁴¹ Seaborg p.371.

¹⁴² Among others, see Prawitz p. 25.

¹⁴³ See case study on Switzerland in T. V. Paul, *Power Versus Prudence: Why Nations Forgo Nuclear Weapons*. McGill-Queens University Press (Montreal, Quebec: 2000). See also chapter 4 in Ursula Jasper, *The Politics of Nuclear Non-Proliferation: A Pragmatist Framework for Analysis*. Routledge (New York, NY: 2013).

¹⁴⁴ George Schwab, *Switzerland's Tactical Nuclear Weapons Policy*, *Orbis*, Vol. XIII, No. 3, (1969) p.907.

¹⁴⁵ *Ibid* p.911.

¹⁴⁶ J. Stussi-Lauterberg "Historical outline on the question of Swiss nuclear armament.

Swiss government report," April 1966. <http://nuclearweaponarchive.org/Library/Swissdoc.html>

¹⁴⁷ George Schwab, *Switzerland's Tactical Nuclear Weapons Policy*, *Orbis*, Vol. XIII, No. 3, 1969.

Union opposed any changes to Swiss neutrality.¹⁴⁸ Switzerland was responsive to international opposition to its nuclear weapons interests even at this stage, and following the negative response (including by the Soviet Union) to its statements on nuclear weapons in 1958, issued private statements to clarify that no decision on nuclear weapons had been made.¹⁴⁹

During NPT negotiations, Switzerland had some limited opposition to the treaty, arguing that safeguards were not sufficiently clear and that the treaty did not provide security guarantees.¹⁵⁰ Switzerland also had concerns about the long length of treaty duration and how the treaty would affect its access to peaceful nuclear technology, including uranium enrichment.¹⁵¹ Some groups in the Swiss government saw the NPT as limiting Switzerland's freedom to pursue its own nuclear weapons, while others recommended signing the treaty and supporting disarmament efforts.¹⁵²

Switzerland signed the NPT in 1969 and delayed ratification until 1977. Sources of the ratification delay were: Swiss nuclear export industry opposition to the NPT and the bureaucratic hurdles that created, political opposition to the NPT as a discriminatory treaty, and some lingering views in the Swiss army about a nuclear option playing a military role.¹⁵³

Case studies conducted on the Switzerland case focus primarily on the internal government debate, and do not show evidence of the US (or the Soviet Union) applying any extra incentives or pressures to join the NPT.

Country: BRAZIL

Perceived nuclear intentions: opposed treaty, low level nuclear interests
Observed superpower behavior: diplomatic attention, no strong action

Evidence:

In the late 1960's, Brazil became interested in nuclear technology, likely for primarily economic development reasons. At the time, Brazil was not seen as a state that could attain nuclear capability without additional assistance, as it lacked fissile materials or engineering expertise that would be needed for a weapons program.¹⁵⁴

¹⁴⁸ T. V. Paul, *Power Versus Prudence: Why Nations Forgo Nuclear Weapons*. McGill-Queens University Press (Montreal, Quebec: 2000) p.94

¹⁴⁹ Ursula Jasper, *The Politics of Nuclear Non-Proliferation: A Pragmatist Framework for Analysis*. Routledge (New York, NY: 2013) p.61.

¹⁵⁰ T. V. Paul, p.95

¹⁵¹ *The Near-Nuclear Countries and the NPT*. Stockholm International Peace Research Institute, Almqvist & Wiksell (Stockholm, Sweden: 1972) 70.

¹⁵² Ursula Jasper p. 63.

¹⁵³ Fred Tanner, "Switzerland and Arms Control" Constraints and Opportunities," in Marko Milovojevic and Pierre Maurer eds, *Swiss Neutrality and Security: Armed Forces, National Defence and Foreign Policy*. St. Martin's Press (New York: 1990) 139.

¹⁵⁴ H. Jon Rosenbaum and Glenn M. Cooper, "Brazil and the Nuclear Non-Proliferation Treaty," *International Affairs* (January 1970), p.78.

Brazil consistently opposed the NPT during negotiations, citing a number of critiques including problems with the restrictions on nuclear technology and limits on peaceful nuclear explosives.¹⁵⁵ Independent analysis written in the early 1970's assessed Brazil's objections to the NPT as largely a "problem of perception" rather than a potential nuclear proliferation threat. One of the reasons given by Brazil regarding its opposition to the treaty was annoyance that the agreement was negotiated by the US and USSR without consultation with other countries and presented as a fait-accompli.¹⁵⁶

Both the US and the USSR made attempts to pressure Brazil to join the NPT, although both efforts were limited due to lack of leverage and concern that pressure would have counter-productive effects. Although Brazil opposed to the NPT, seeing it as "an affront to Brazilian sovereignty" as well as potentially limiting technological development, the U.S. assessed few opportunities for changing this anti-NPT position, particularly because it enjoyed strong popular support in Brazil.¹⁵⁷ The US saw a need to promote Brazilian support of the treaty, and in 1967 sent a State department delegation to meet with the Brazilian officials. The delegation offered Brazil assistance with peaceful nuclear explosions under the NPT framework proposed the time, but these incentives were rejected.¹⁵⁸ Brazil also did not perceive that opposing the US on the NPT would lead to limits on its ability to acquire civilian nuclear technology, either from the US or from other suppliers such as Canada, West Germany, or Sweden.¹⁵⁹

The Soviet Union also made some overtures, but at a relatively low level. In April 1968 a Counsellor at the Soviet Embassy in Washington visited Brazil to try to get the country's support for the NPT.¹⁶⁰ However, by the early 1970's the US was avoiding applying additional pressure on Brazil because it assessed that being perceived as pressuring the country would be likely to increase Brazilian domestic popular reaction and nationalism, only further cementing the government's anti-NPT position.¹⁶¹

In the near-final states of NPT draft negotiations in May 1968, high-level US officials were not able to get Brazilian support for the NPT, and Brazil rather only agreed to "not proselytize against the NPT or seek amendments to it."¹⁶²

¹⁵⁵ *The Near-Nuclear Countries and the NPT*, p. 49.

¹⁵⁶ H. Jon Rosenbaum and Glenn M. Cooper, "Brazil and the Nuclear Non-Proliferation Treaty," *International Affairs* (January 1970), p.80-81.

¹⁵⁷ U.S. State Department, Bureau of Intelligence and Research, "Intelligence Note-290, "Brazilian Opposition to NPT Draft Likely to Continue," 19 April 1968, Secret/No Foreign Dissemination
<http://www.gwu.edu/~nsarchiv/nukevault/ebb253/index.htm>

¹⁵⁸ Seaborg p.258.

¹⁵⁹ George Quester, *The Politics of Nuclear Proliferation*. The Johns Hopkins University Press. (Baltimore:1973) p. 144.

¹⁶⁰ H. Jon Rosenbaum and Glenn M. Cooper, "Brazil and the Nuclear Non-Proliferation Treaty," *International Affairs* (January 1970), p.81 fn15.

¹⁶¹ H. Jon Rosenbaum and Glenn M. Cooper, "Brazil and the Nuclear Non-Proliferation Treaty," *International Affairs* (January 1970), p.81 fn15.

¹⁶² U.S. Department of State, Memorandum of Conversation, "Brazil's Attitude on NPT," 6 May 1968, Confidential
<http://www.gwu.edu/~nsarchiv/nukevault/ebb253/index.htm>

Country: ARGENTINA

Perceived nuclear intentions: opposed treaty, low level nuclear interests
Observed superpower behavior: diplomatic attention, no strong action

Evidence:

Argentina cooperated with Brazil in the 1960 to oppose the NPT treaty. Jaques Hymans notes that given the competition between these two countries, this cooperation suggests that neither expected the other to pursue nuclear weapons.¹⁶³

There is some evidence that pressure on nuclear imports was tied more directly to the NPT, but for the most part efforts focused on safeguards themselves rather than official treaty signature. The Carter administration tried to get Argentina to ratify the Treaty of Tletelolco. In exchange for ratification, Argentina sought to acquire heavy water production technology from the US. The US initially seemed to agree but deal fell through when the US blocked the sale of a Canadian heavy water facility to Argentina.¹⁶⁴ In 1974 Canada made a deal for Argentina's second nuclear reactor contingent on safeguards and NPT membership.¹⁶⁵ In the early 1980's, Argentina purchased heavy water and enrichment services from the USSR. The USSR does not appear to have pressed for NPT membership or full-scope safeguards as a condition of nuclear exports, but did pursue safeguards as it had with a similar heavy water sale to India in 1977.¹⁶⁶

Country: POLAND AND CZECHSOVAKIA

Perceived nuclear intentions: no nuclear weapons ambitions, likely NPT signatories
Observed superpower behavior: no action

Evidence:

Although the US had a greater number of "possible proliferant" allies to pull into the treaty system, the Soviet Union also contributed to ensuring that its allies signed the NPT. Some states did not need to be pressured to join. Two Soviet satellites considered by the US intelligence community as possible proliferates from a technical capabilities standpoint – Czechoslovakia and Poland – publicly endorsed the US-Soviet treaty draft in March 1968.¹⁶⁷

¹⁶³ Jacques Hymans, "Of Gauchos and Gringos: Why Argentina Never Wanted the Bomb, and Why the United States Thought it Did," *Security Studies*, Spring 2000 10(3) p. 161.

¹⁶⁴ Jacques Hymans, "Of Gauchos and Gringos» p. 169.

¹⁶⁵ Jacques Hymans, "Of Gauchos and Gringos: Why Argentina Never Wanted the Bomb, and Why the United States Thought it Did," *Security Studies*, Spring 2000 10(3), p. 167.

¹⁶⁶ William C. Potter, "The Soviet Union and Nuclear Proliferation," *Slavic Review*, Vol. 44 no.3 (Autumn 1973) p 486.

¹⁶⁷ Seaborg p.371.

Both Poland and Czechoslovakia signed the NPT on the first day it was open for signature, July 1st 1968, and ratified by the following year. In general, the Soviet Union made NPT signature and IAEA safeguards a condition for nuclear energy supply for all eastern bloc countries.¹⁶⁸ The Soviet Union also intervened to stop Czech interests in independent uranium fuel processing in the late 1960's.¹⁶⁹

(The Soviet Union invaded Czechoslovakia in August 1968. The invasion delayed NPT signature and ratification among a number of Western European states.)

Country: YUGOSLAVIA

Perceived nuclear intentions: nuclear weapons interests but limited capacity, early NPT signatory
Observed superpower behavior: some diplomatic attention

Evidence:

Yugoslavia unsuccessfully pursued a nuclear energy and weapons program beginning in the 1940s under the Tito regime. The program extended into the mid-70s, after Yugoslavia signed the NPT in 1970. One primary motivation for Yugoslavia's weapons program derived from fear of a Soviet attack. In the mid-1960s, Tito decided to abandon the nuclear weapons program. However, the program started again in the 1970s.¹⁷⁰ Motivation to restart the program came from the desire for international prestige, particularly after India tested a nuclear weapon in 1974; Yugoslavia viewed India as competing for leadership of the Non-Aligned movement. However, Yugoslavia repeatedly failed to attract top scientists to work on the program, and routinely missed deadlines to advance the nuclear program.¹⁷¹

Yugoslavia ultimately supported the NPT, although they desired revisions in the last draft of the treaty. In the final stages of NPT negotiations, the Soviet Union had information that Yugoslavia supported the treaty but had problems with the drafts. The Soviet Union expressed the desire that Yugoslavia would not be neutral on treaty signature, but would support the USSR in convincing other non-aligned states.¹⁷²

¹⁶⁸ Gloria Duffy, *Soviet Nuclear Energy: Domestic and International Policies*, Report prepared for the US Department of Energy, R-2362-DOE, RAND Corporation (Santa Monica: December 1979) p. 12.

¹⁶⁹ Gloria Duffy, *Soviet Nuclear Energy: Domestic and International Policies*, p.83.

¹⁷⁰ Possible indicators of Yugoslavia's clandestine nuclear program can be found in its statements at the 1970 NPT Review Conference. During the 1970 NPT Review Conference, Yugoslavia voiced discontent with the lack of international cooperation in the peaceful uses of nuclear energy as enshrined in Article IV of the NPT, and that nuclear weapons states were not fulfilling their Article VI obligations. William C. Potter, Djuro Miljanic & Ivo Slaus, "Tito's Nuclear Legacy," *Center for Nonproliferation Studies* (March/April 2000) <http://cns.miis.edu/reports/yugopot.htm> (Accessed November 22, 2013).

¹⁷¹ "Former Yugoslavia," *Nuclear Threat Initiative* (December 2011) <http://www.nti.org/country-profiles/former-yugoslavia/> (accessed November 22, 2013).

¹⁷² "Memorandum, Permanent Mission of Hungary to the U.N. to the Hungarian Foreign Ministry," April 12, 1968, History and Public Policy Program Digital Archive, Hungarian National Archives (Magyar Országos Levéltár,

Country: ROMANIA

Perceived nuclear intentions: criticized NPT during negotiations, communicated nuclear weapons ambitions to USSR

Observed superpower behavior: Soviet pressure for NPT signature

Evidence:

Some US intelligence assessments in the mid-1960's included Romania as a county that could go nuclear in the future.¹⁷³ Romania initially opposed the NPT, and sought to prevent a 'monopoly' by the nuclear powers.¹⁷⁴ The Romanians revealed to their Soviet allies that they opposed the treaty because they feared it would prevent a Romanian nuclear weapons option.¹⁷⁵ Romania was also one of only three countries (Brazil and India being the others) which at the time of NPT negotiations accepted the view that there could be a distinction between peaceful nuclear explosives and nuclear weapons.¹⁷⁶ During the late 1960's, Romania tried to align with India in critiquing the NPT.¹⁷⁷

However, Romania signed the NPT on the first day it was open for signature, which at the time was somewhat surprising to observers because Romania has recently been publically critical of the treaty. The quick signature is even more surprising in light of the more recent evidence of Romania's nuclear weapons interests during this period. While archival records currently do not reveal what precisely happened between Romania and the Soviet Union regarding the NPT, they do suggest that communication was ongoing, as cited above. It is likely that the Soviet Union did apply considerable pressure on Romania. Speculating on what explained the change Romania position, George Quester, writing in 1973, noted: "Since the Soviet Union had limited leverage in the Rumanian case, it must therefore have attached some high priority to the NPT in order to expend this much leverage on Rumanian signature."¹⁷⁸

MOL). XIX-J-1-j Multilateral international treaties, 1968, 107. doboz, 00617/26/1968. Obtained and translated for NPIHP by Balazs Szalontai. <http://digitalarchive.wilsoncenter.org/document/112873>

¹⁷³ R. Murray, 'Problems of Nuclear Proliferation outside Europe', December 7, 1964, DDRS, Doc. No. CK3100281620, 1, quoted in Gavin, 'Same As It Ever Was', 17.

¹⁷⁴ ANIC, CC RCP, Chancellery, 30/1967, 'Report on Romania's Position on Nuclear Non-Proliferation, in response to the Draft Treaty sent by the Soviet Union', 4 March 1967, 8-26. Cited in Eliza Gheorghe, "Atomic Maverick: Romania's negotiations for nuclear technology, 1964-1970" Cold War History, 2013.

¹⁷⁵ ANIC, CC RCP, FRS, 14/1967, 'Minutes of the meeting between the Romanian Communist Party delegation, formed of Nicolae Ceausescu, Ion Gheorghe Maurer, Paul Niculescu-Mizil, and the Communist Party of the Soviet Union delegation, formed of Leonid Brezhnev, Alexei Kosygin, Yuri Andropov, Andrei Gromyko', 17-18 March 1967, 66. Cited in Eliza Gheorghe, "Atomic Maverick: Romania's negotiations for nuclear technology, 1964-1970" Cold War History, 2013, p9.

¹⁷⁶ H. Jon Rosenbaum and Glenn M. Cooper, "Brazil and the Nuclear Non-Proliferation Treaty," *International Affairs* (January 1970), p.88 fn28.

¹⁷⁷ Vojtech Mastny, "The Soviet Union's Partnership with India," *Journal of Cold War Studies* Vol. 12, No. 3. (Summer 2010) p66.

¹⁷⁸ George Quester, *The Politics of Nuclear Proliferation*. The Johns Hopkins University Press. (Baltimore:1973) p. 48.

Empirical Appendix C

Cases of Superpower Responses to Nuclear Aspirants

This appendix provides support for the findings testing Hypothesis 3. The case studies assess each country along the characteristics below. For each case, we document evidence of a state starting or exploring a nuclear weapons program. We then assess whether and how each superpower responded to that state.

Nuclear aspirant

- Evidence that superpower perceived movement towards nuclear weapons by client state
- Types of nuclear aspiration: 1) early exploration or interests, 2) pursuit of dual use technology, nuclear weapons program, nuclear testing

Superpower response

- No action by either super power
- Soviet Union pressure to end program OR United States pressure to end program
 - Was pressure applied?
 - Type of pressure used: diplomatic attention, indirect incentives or pressure through third party, direct incentives or other pressure
 - Goals of pressure: 1) directly lower probability of client state attaining nuclear weapons, such as through stopping third party transfers or 2) impose other costs on client state, such as threats to stop arms sales or other security assistance.
- Did the other superpower lend support to nuclear aspirant?

Theory expectation of superpower response to nuclear aspirants:

- Observed nuclear aspiration in a client state (dual use technology, nuclear weapons program, nuclear testing)
 - Expect superpowers to police their own clients. If nuclear aspirant is Soviet client, expect Soviet intervention; if nuclear aspirant is United States client, expect United states intervention
- Observed low level nuclear interests in a client state
 - Expect superpower to monitor client state's activities, direct action or pressure unlikely
- In all cases of observed nuclear interests or nuclear programs
 - No assistance: The Soviet Union will not give assistance to either its own clients, nor clients of the US, which seek nuclear weapons, and visa versa.

Countries assessed as nuclear spirants:

Pursued nuclear weapons during Cold War period, post-NPT: [Taiwan](#), [South Korea](#), [South Africa](#), [Brazil](#), [Argentina](#), [Iran](#), [Iraq](#), [North Korea](#). [Yugoslavia](#), [Libya](#)

Acquired nuclear weapons: [Israel](#), [India](#), [Pakistan](#)

Low level nuclear interests: [Romania](#)

Country: TAIWAN

Perceived nuclear intentions: Sought to acquire reprocessing technology

Observed superpower behavior: US diplomatic pressure to cease reprocessing pursuit

Evidence:

Taiwan was an early supporter of the NPT, signing in 1968. In 1971 the UN recognized the Beijing government, Taiwan signed an agreement with the IAEA and the US to abide by the NPT. During the late 1970's, Taiwan pursued technologies which could have lead to nuclear weapons development. These moves however were met with repeated US protests and pressures. Concerns over Taiwan's nuclear "options" arose in the early 1970's, when US learned that Taiwan was seeking to acquire reprocessing capabilities. At the time, Taiwan was already operating a Canadian nuclear energy reactor, which at full capacity could yield enough plutonium for a weapon if the spent fuel were reprocessed.¹ The US first encountered Taiwan's interest in reprocessing in late 1972, and expressed disapproval, but less than a year later US officials were surprised to learn that Taiwan had moved ahead and approached Belgian, French, and West German companies regarding the possible purchase of a reprocessing plant.² The concern from the US side was clearly over the possibility of a weapons program, and the challenges that a reprocessing plant would present for IAEA and bilateral US-ROC inspection regimes. If such interests by Taiwan materialized into implementation, the US would be "forced to react."³

The US demanded an immediate end to interests in reprocessing, and indicated that it expected ROC to observe stricter standards than other countries as to remove any ambiguities about its nuclear intentions, including ceasing even minor activities associated with reprocessing. Further pursuit of reprocessing would jeopardize peaceful nuclear cooperation with the US. At the same time, the US made positive moves as well, offering to assist ROC with nuclear fuel solutions and nuclear research.⁴

Two years later, the reprocessing issue arose again. In 1976, Taiwan again approached a Belgian

¹ David Albright and Corey Gay, "Taiwan: Nuclear Nightmare Averted," *The Bulletin of the Atomic Scientists* (January-February 1998): 54-60.

² State Department to Embassies in Bonn, Brussels, and Taipei, "Proposed Reprocessing Plant for Republic of China," Cable 12137, 20 January 1973. Location of original: Subject-Numeric 1970-73, FSE 13 Chinat <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB20/>

³ Roger Sullivan to Assistant Secretary of State for Far East and Pacific Affairs Arthur W. Hummel, Jr., "Nuclear Study Group Visit to Taiwan," 29 October 1973, Secret
Source: National Archives, Record Group 59, Department of State Records, Subject Files of the Office of Republic of China Affairs, 1951-1975, Box 14, AE 3 - Nuclear Study Group 1973.
<http://www.gwu.edu/~nsarchiv/nukevault/ebb221/index.htm>

⁴ U.S. Embassy Taiwan cable 7051 to State Department, "Fonmin Reaffirms ROC Decision to Refrain From Acquiring Nuclear Reprocessing Plant," 23 November 1973
Source: AAD <http://www.gwu.edu/~nsarchiv/nukevault/ebb221/index.htm>

company regarding reprocessing technology, and the IAEA identified suspicious work at some facilities in Taiwan.⁵ The US response began with statements and demarches to the Taiwanese Foreign Ministry, and quickly escalated to direct meeting between the US Ambassador and the Taiwanese Premier Chiang Ching-kuo, which resulted in assurances from the highest level that Taiwan would not pursue reprocessing.⁶

Country: SOUTH KOREA

Perceived nuclear intentions: Nuclear weapons program briefly established, sought dual use technology for weapons purposes.

Observed superpower behavior: Direct and repeated pressure by the US to prevent purchase of dual use technology and nuclear program development

Evidence:

In 1970, the US began withdrawing some US forces from South Korea, which raised doubts in South Korea about the US security commitment.⁷ For South Korea, nuclear weapons would be a replacement for a U.S. security commitment, which in the late 60's and early 70's was seen as fading.⁸ The positive turn in the Sino-US relationship in 1970-1971 took South Korea by surprise and further increased perceptions of insecurity.⁹

In 1970, South Korea established two groups to investigate the pursuit of nuclear weapons, the Weapons Exploitation Committee and the covert Agency for Defense Development (ADD). The ADD recommended to President Park that South Korea should pursue nuclear weapons, and in 1973 completed a plan for weapons development, which was estimated to take 6-10 years and between \$1.5 and \$2 billion.¹⁰ In 1974, President Park made an explicit decision to pursue a

⁵ U.S. Embassy Belgium cable 8149 to State Department, "Nuclear Processing in ROC," 20 August 1976, Secret Limdis.

U.S. Mission IAEA cable 6195 to State Department, "Fuel Reprocessing Pilot Plant in Taiwan," 19 August 1976, Confidential

Both available at the National Security Archive, <http://www.gwu.edu/~nsarchiv/nukevault/ebb221/index.htm#6>

⁶ U.S. Embassy Taiwan cable 6272 to State Department, "ROC's Nuclear Intentions: Conversation with Premier Chiang Ching-kuo," 15 September 1976, Secret Nodis

U.S. Embassy Taiwan cable 6301 to State Department, "ROC's Nuclear Intentions," 17 September 1976, Unclassified

<http://www.gwu.edu/~nsarchiv/nukevault/ebb221/index.htm#6>

⁷ Rebecca K.C. Hersman and Robert Peters, "Nuclear U-Turns: Learning from South Korean and Taiwanese Rollback." *The Nonproliferation Review*, Vol 13, no 3. November 2006. P 540.

⁸ Mazarr p.27.

⁹ Jonathan D. Pollack and Mitchell B. Reiss, "South Korea: The Tyranny of Geography and the Vexations of History," in Kurt M. Campbell, et al, editors, *The Nuclear Tipping Point* (Washington, DC: Brookings Institution Press, 2004), p.261

¹⁰ Jonathan D. Pollack and Mitchell B. Reiss, "South Korea: The Tyranny of Geography," p.262.

nuclear weapons program.¹¹ Scientists were recruited to work on warheads, high explosives, and computer codes, with the warhead design at 50 people and the missile team at 250 by 1976.¹²

In 1975, South Korea sought to purchase a plutonium reprocessing plant from France. In 1973 ROK had also started negotiations with Canada for the purchase of a CANDU research reactor, and in 1975 with Belgium for a mixed-oxide (MOX) fuel fabrication facility.¹³ In 1975, President Park made a public statement that South Korea would pursue nuclear weapons if the US nuclear umbrella is withdrawn.¹⁴

South Korea ratified the NPT and signed a safeguards agreement with the IAEA in 1975. However, that same year US intelligence assessed that South Korea was pursuing a secret program.¹⁵ Another intelligence document suggests that the CIA suspected South Korea's intentions in 1974. By 1976, South Korea bowed to US pressure and canceled the nuclear program. However, the following year, the US again began to discuss decreasing security presence in South Korea. ROK threatened that it would not pursue a nuclear program only if the US maintained its military presence. The ROK made public plans to build a reprocessing plant, but these plans were canceled after President Carter canceled the troop withdrawal in 1978.¹⁶ In 1978, the CIA assessed that these public statements by South Korea were intended to pressure the US and reassure the South Korean domestic population, and that South Korea was not restarting new research on a weapons program.¹⁷

In the 1970s, the US had two sources of leverage with South Korea: the US military presence, and US financing of ROS's civilian nuclear reactors. Secretary of State Henry In 1975, Kissinger communicated to President Park Chung Hee that the continuation of a South Korean nuclear program would lead to the withdrawal of all US forces from South Korea. South Korea complied and cancelled the project.¹⁸ US Ambassador to South Korea Richard Sneider warned President

¹¹ National Foreign Assessment Center, South Korea: Nuclear Developments and Strategic Decisionmaking US Central Intelligence Agency, June 1978, declassified for release, October 2005. Peter Hayes, Chung-in Moon and Scott Bruce, 'Park Chung Hee, the US-ROK Strategic Relationship, and the Bomb,' *The Asia-Pacific Journal* Vol 9, Issue 44 No 6, October 31, 2011. <http://japanfocus.org/-Scott-Bruce/3630>

¹² National Foreign Assessment Center, South Korea: Nuclear Developments and Strategic Decisionmaking US Central Intelligence Agency, June 1978, declassified for release, October 2005. Quoted in Peter Hayes, Chung-in Moon and Scott Bruce, 'Park Chung Hee, the US-ROK Strategic Relationship, and the Bomb,' *The Asia-Pacific Journal* Vol 9, Issue 44 No 6, October 31, 2011. <http://japanfocus.org/-Scott-Bruce/3630>

¹³ Kang and Fieveson, "South Korea's Shifting and Controversial Interest" p.72.

¹⁴ Jonathan D. Pollack and Mitchell B. Reiss, "South Korea: The Tyranny of Geography and the Vexations of History," in Kurt M. Campbell, et al, editors, *The Nuclear Tipping Point* (Washington, DC: Brookings Institution Press, 2004), p.262; Michael J. Siler, "U.S. Nuclear Nonproliferation Policy in the Northeast Asian Region during the Cold War: The South Korean Case," *East Asia: an International Quarterly*, Autumn/Winter 1998, pp. 62-63;

¹⁵ Hersman and Peters, "Nuclear U-Turns." p. 541.

¹⁶ Engelhardt, "Rewarding Nonproliferation," p.32.

¹⁷ National Foreign Assessment Center, East Asia Review, Central Intelligence Agency, RP EAR 78-003, September 5, 1978, p. 5 Quoted in Peter Hayes, Chung-in Moon and Scott Bruce, 'Park Chung Hee, the US-ROK Strategic Relationship, and the Bomb,' *The Asia-Pacific Journal* Vol 9, Issue 44 No 6, October 31, 2011. <http://japanfocus.org/-Scott-Bruce/3630>

¹⁸ Michael J. Engelhardt, "Rewarding Nonproliferation: The South and North Korean Cases." *The Nonproliferation Review*, Spring/Summer 1996. P.32.

Park that the “whole range of security and political relationships between the U.S. and ROK will be affected.”¹⁹ Pressure was also put on numerous high-level South Korean officials and cabinet members by their counterparts in the US government.²⁰

The US government applied strong pressure on South Korea to cancel its negotiations with France for the purchase of a reprocessing plant. The US threatened both a deterioration of the ROK-US relationship and more specifically loss of loans for ROK’s civilian nuclear program from the American Export-Import Bank.²¹ ROK complied in January 1976.²²

When ROK continued its reprocessing interests by pursuing a French Post-Irradiation Examination Facility, the US requested that the size of the facility be limited, due to concerns that it could be used as a step towards a domestic plutonium separation.²³ Canada cancelled the CANDU deal after the 1974 Indian nuclear test. The US also pressured ROK to cancel its negotiations with the Belgians for a MOX facility, and South Korea complied in November 1977. In 1977 South Korea also complied with US insistence that research at Korean Nuclear Fuel Development Institute not include any fuel reprocessing.²⁴

During this period, the US was using both threats and reassurances with South Korea. On August 27th 1975, US Secretary of Defense James Schlesinger met with President Park. They discussed South Korean vulnerabilities to North Korea, and US ability to respond to the DPRK without the use of nuclear weapons. The US also demonstrated a significant show of force in response to a North Korean attack at Panmunjom in August 1976, which also reassured the South Koreans about the US security commitment.²⁵

In their analysis of the South Korean nuclear program, Jonathan D. Pollack and Mitchell B. Reiss find that “fear of abandonment by and inconsistent United States was the primary motivation for Seoul’s attempts during the 1970’s to acquire nuclear weapons.”²⁶ At the same time, US promises to maintain or further withdraw its security relationship was also instrumental in restraining South Korea’s nuclear program.

In 1978, the CIA assessed that South Korea did not have any nuclear weapons design work, was not acquiring uranium enrichment capability, was not acquiring reprocessing capability, and was not pursuing work on weapons fabrication. However, the report judged that, “perception of the

¹⁹ Quoted in Jonathan D. Pollack and Mitchell B. Reiss, “South Korea: The Tyranny of Geography»p.263.

²⁰ Peter Hayes, Chung-in Moon and Scott Bruce, 'Park Chung Hee, the US-ROK Strategic Relationship, and the Bomb,' The Asia-Pacific Journal Vol 9, Issue 44 No 6, October 31, 2011. <http://japanfocus.org/-Scott-Bruce/3630>

²¹ Engelhardt, “Rewarding Nonproliferation,” p.32.

²² Jungmin Kang and H.A. Fieveson, «South Korea's Shifting and Controversial Interest in Spent Fuel Reprocessing.» The Nonproliferation Review, Spring 2001, p.71.

²³ Kang and Fieveson, “South Korea’s Shifting and Controversial Interest” p.71.

²⁴ Peter Hayes, Chung-in Moon and Scott Bruce, 'Park Chung Hee, the US-ROK Strategic Relationship, and the Bomb,' The Asia-Pacific Journal Vol 9, Issue 44 No 6, October 31, 2011. <http://japanfocus.org/-Scott-Bruce/3630>

²⁵ Peter Hayes, Chung-in Moon and Scott Bruce, 'Park Chung Hee, the US-ROK Strategic Relationship, and the Bomb,' The Asia-Pacific Journal Vol 9, Issue 44 No 6, October 31, 2011. <http://japanfocus.org/-Scott-Bruce/3630>

²⁶ Jonathan D. Pollack and Mitchell B. Reiss, “South Korea: The Tyranny of Geography,» p.263.

reliability of the US security commitment and, conversely, the imminence of the North Korean threat” would be a key factor in a future decision to pursue nuclear weapons.²⁷

The US maintained close attention on South Korean interests in reprocessing. In early 1980’s when South Korean institutes performed a study on reprocessing, the US opposed the study and the effort ended in 1983.²⁸ The US was also aware of South Korean experiments with reprocessing which were not reported to the IAEA, and intervened to stop these efforts, threatening that it would be a violation of the 1978 U.S. Nuclear Non-Proliferation Act.²⁹ Then in 1984, the US stopped the sale of mixed oxide fuel reprocessing technology from Canada to South Korea.³⁰

Evidence also emerged in the early 2000’s that South Korea failed to disclose weapons related plutonium experiments in 1981-1982. The US was closely monitoring this activity, and there is some indication that the IAEA was aware as well.³¹

Country: SOUTH AFRICA

Perceived nuclear intentions: Nuclear weapons program established, weapons created and then dismantled

Observed superpower behavior: Economic sanctions and embargoes, cooperation between superpowers to prevent testing.

Evidence:

In the early 1970’s South Africa perceived a threat from the Soviet Union, and there were no diplomatic relations between the two states. South Africa began a nuclear weapons program in approximately 1974, and by 1977 had all the non-nuclear components of a nuclear device assembled. South Africa assembled its first nuclear device in 1979 and slowly continued to build more, reaching six weapons by the late 1980s.³² The program was terminated in 1990.

Based on declassified intelligence documents, it appears that while the US was monitoring nuclear developments in South Africa, namely the progress of work on uranium enrichment and status of reactor, the US did not perceive a developing nuclear weapons threat. In mid 1974, the

²⁷ National Foreign Assessment Center, South Korea: Nuclear Developments and Strategic Decisionmaking US Central Intelligence Agency, June 1978, declassified for release, October 2005, p. 11. Quoted in Peter Hayes, Chung-in Moon and Scott Bruce, 'Park Chung Hee, the US-ROK Strategic Relationship, and the Bomb,' The Asia-Pacific Journal Vol 9, Issue 44 No 6, October 31, 2011. <http://japanfocus.org/-Scott-Bruce/3630>

²⁸ Kang and Fieveson, “South Korea’s Shifting and Controversial Interest” p.72.

²⁹ Jungmin Kang et al., “South Korea’s Nuclear Surprise,” p.47.

³⁰ Jungmin Kang, Peter Hayes, Li Bin, Tatsurijo Suzuki and Richard Tanter, “South Korea’s Nuclear Surprise,” Bulletin of the Atomic Scientists, January/February 2005, p.s43.

³¹ Jungmin Kang et al., “South Korea’s Nuclear Surprise,” p.47.

³² Mitchell Reiss, Bridled Ambition: Why Countries Constrain Their Nuclear Capabilities, (Washington DC: Woodrow Wilson Center Press, 1995) p.10.

US intelligence community assessed that South Africa was pursuing nuclear technologies, but did not have the capacity to build nuclear weapons.³³ Similar assessments were made in 1976. In response to statements by some South African sources that their country was seeking a bomb, the CIA noted that there was no evidence that South Africa was developing weapons.³⁴

However, the Soviet Union was more concerned about South African nuclear developments. A 1979 RAND report on Soviet nuclear energy policies noted that for the USSR, South Africa was near the top of the list of countries with concerning nuclear programs.³⁵

In August 1977, the Soviet Union approached the US with information, gathered through satellite surveillance, that South Africa was planning a nuclear test. The US responded by redirecting its own satellites to confirm the information. The US threatened South Africa that “a nuclear explosion would have severe repercussions.”³⁶ In cooperation with the US, France, UK and West Germany issued similar warnings. It is likely that France was willing to cancel contracts to supply South Africa with nuclear power reactors.³⁷ It is likely US pressure was quite serious and severe. At the time, US officials reportedly said that pressure even reached the point of a threat to break diplomatic relations with South Africa.³⁸ There is also some suggestion that during meetings between the USSR and US on the South Africa nuclear issues, the Soviets suggested a preemptive strike on South Africa’s uranium enrichment plant and the US rejected this option.³⁹

South Africa backed off its testing plans and sealed the test shafts. However, the South African program continued after the tests were cancelled.⁴⁰ It appears that the intense international pressure on South Africa was focused strongly on testing, and the progress towards nuclear state status that such an act would imply.

During the 1970’s South Africa faced a number of embargoes, including on nuclear

³³ Office of Scientific Intelligence, Central Intelligence Agency, "South Africa Not Currently in Position to Produce Nuclear Weapons," Weekly Surveyor, July 22, 1974. Top Secret/Codeword.

<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB181/index.htm>

³⁴ Office of Scientific Intelligence, Central Intelligence Agency, "South Africa Again Rumored To Be Working on Nuclear Weapons," Weekly Surveyor, September 13, 1976. Secret.

<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB181/index.htm>

³⁵ Gloria Duffy, *Soviet Nuclear Energy: Domestic and International Policies*, Report prepared for the US Department of Energy, R-2362-DOE, RAND Corporation (Santa Monica: December 1979) p. 2.

³⁶ Reiss, *Bridled Ambition*, p.10.

³⁷ David Albright, "South Africa and the Affordable Bomb," *The Bulletin of the Atomic Scientists*, July/August 1994, p.41.

³⁸ David Binder, "U.S. Asserts It Headed Off A-Test by Pretoria After Soviet Warning," *The New York Times*, August 28, 1977. For more on US reporting on the US-Soviet cooperation, see Murrey Marder and Don Oberdorfer, "How West, Soviets Acted to Defuse S. African A-Test: Keeping S. Africa out of the Nuclear Armaments Club," *The Washington Post*, August 28, 1977. David Binder, "U.S.-Soviet Exchange About South Africa Said to Improve Ties," *The New York Times*, August 29, 1977.

³⁹ This account is according to statements by Commodore Dieter Gerhardt regarding information the Soviets had told him. Gerhardt was Commander of the Simontown Naval base (near Cape Town), and in 1982 was arrested for being a Soviet spy. Albright, "South Africa and the Affordable Bomb," *The Bulletin of the Atomic Scientists*, July/August 1994, p.42.

⁴⁰ David Albright, "South Africa and the Affordable Bomb," *The Bulletin of the Atomic Scientists*, July/August 1994, p.42.

technologies. The nuclear restrictions, including those of the US, cited the fact that South Africa remained outside the NPT. The South African civilian nuclear program was one of the first targets of US sanctions in 1970, and in 1975 the US stopped fuel shipments to South Africa's Safari nuclear reactor.⁴¹ However, at least some of this pressure was against the apartheid government, so it is difficult to differentiate how much South Africa was being pressured because of its nuclear status, and how much due to its domestic regime.⁴²

Although it appears that South Africa abandoned its nuclear program for largely domestic reasons, in his analysis Mitchell Reiss notes that the South African leadership in the late 1980's saw the nuclear program as a liability for international relations, particularly in terms of its relationship with the US and its access to peaceful nuclear markets.⁴³

South Africa was interested in manipulating its relationship with the US, and perhaps convincing the US to intervene on its behalf if necessary. (It is unlikely however that any intervention would have ever have occurred in any scenario short of an extreme case such as a Soviet attack on South Africa.)⁴⁴

Country: BRAZIL

Perceived nuclear intentions: Advanced nuclear energy program with fuel cycle technology, naval nuclear reactors developed

Observed superpower behavior: Pressure by US to restrain transfer of fuel cycle technology

Evidence:

Brazilian leadership discussed a civilian nuclear program in the mid 1950's and 1960's, but started to develop a full infrastructure more actively in the mid 1970s.⁴⁵

In 1975, Brazil concluded a massive nuclear deal with West Germany. Although all the facilities purchased by Brazil were under a strict inspections regime, they constituted all elements of the nuclear fuel cycle, including enrichment.⁴⁶ Around the same time, the Brazilian navy developed a secret parallel program, intended to do uranium enrichment outside safeguards, which would be used for navy reactors and to prevent West Germany from having control over Brazilian energy supplies. By 1982, all parts of the military were involved with the parallel program.⁴⁷ This "parallel" program was outside inspections regimes and was intended to give Brazil an autonomous fuel cycle capability.⁴⁸

⁴¹ David Albright, "South Africa and the Affordable Bomb," *The Bulletin of the Atomic Scientists*, July/August 1994.

⁴² Peter Liberman, "The Rise and Fall of the South African Bomb."

⁴³ Reiss, *Bridled Ambition*, p. 21.

⁴⁴ Reiss, *Bridled Ambition*, p. 29

⁴⁵ <http://digitalarchive.wilsoncenter.org/collection/167/brazilian-nuclear-history>

⁴⁶ Reiss, *Bridled Ambition*, p.49.

⁴⁷ Reiss, *Bridled Ambition*, p 51. See also <http://digitalarchive.wilsoncenter.org/document/116917>

⁴⁸ Archive of the Brazilian Ministry of Foreign Affairs (Brasilia). Obtained and translated by Fundação Getúlio Vargas. Published by Woodrow Wilson Center, Nuclear Proliferation International History Project (NPIHP) <http://digitalarchive.wilsoncenter.org/document/116916>

The US made numerous efforts to limit sales of nuclear technology to Brazil, though the leverage was often through pressures on supplier states rather than on Brazil directly. As Argentina and Brazil pursued their nuclear programs, they encountered constant pressure and technology denial by the major nuclear supplier states. For example, Brazil's 1975 nuclear deal with Germany caused tension with the US for both countries.⁴⁹ Scholar Jaques Hymans suggests that US pressure on the Brazilian and Argentinian nuclear programs brought the two South American rivals together to oppose the US.⁵⁰ Mutual opposition to the nonproliferation regime in fact brought Argentina and Brazil closer together in nuclear cooperation, including mutual inspections outside the IAEA system (starting in 1985) and reciprocal visits to secret facilities (starting in 1986). The two states continued mutual reassurance measures throughout the late 1980's.

A State Department cable from 1976 captures the frustration of an unnamed high level Brazilian official at the extent of US pressure on the nuclear program, which he called "threats and reprisals." The official complained that, "The Americans, our allies, are behaving in a way worse than that of our common enemies, the Russians."⁵¹

In early 1977, the Brazilian Ambassador to Bonn reported on an article in *Der Spiegel* which showed US/Soviet unity in opposing Brazilian-German cooperation on developing nuclear weapons.⁵² The article reported that the Russian also sought to end Brazil's cooperation with Germany, and the Soviet Ambassador to Bonn criticized the sale of uranium enrichment and fuel reprocessing technology directly to German Secretary of State Peter Hermes. According to the article, Germany found itself in the position where "both superpowers pressure Bonn for fears about their already shaken nuclear power monopoly."⁵³ US diplomat Warren Christopher also visited Brazil in 1977 and criticized a large German-Brazilian nuclear deal.⁵⁴ That same year, President Carter sent Vice President Walter Mondale to West Germany to try to prevent the sale of reprocessing and enrichment technology to Brazil.⁵⁵

In a 1985 report, the US intelligence community assessed that pressure on the Brazilian program was not going to be effective, and Brazil was set to continue its cooperation with Germany. The report also stated that the intelligence community did not believe that the Brazilian government had made a decision to pursue nuclear weapons. However, it noted that the nuclear technology

⁴⁹ Monica Hirst and Hector Eduardo Bocco, "Appendix: Argentine-Brazilian Integration and Cooperation" in Paul L. Leventhal and Sharon Tanzer, eds. *Averting a Latin American Arms Race: New Prospects and Challenges for Argentine-Brazilian Nuclear Cooperation*. MacMillan (Washington DC: 1992). 218.

⁵⁰ Jacques Hymans, "Of Gauchos and Gringos." p. 175.

⁵¹ National Archives and Records Administration (NARA), Record Group 59, Central Foreign Policy Files, created, 7/1/1973 - 12/31/1976. Obtained by Fundação Getúlio Vargas. Published by Woodrow Wilson Center, Nuclear Proliferation International History Project (NPIHP) <http://digitalarchive.wilsoncenter.org/document/115212>

⁵² Centro de Pesquisa e Documentação de História Contemporânea do Brasil (CPDOC), Fundação Getúlio Vargas (FGV), Azeredo da Silveira Archive, AAS mre pn 1974.08.15 pp. 589-591. Obtained and translated by Fundação Getúlio Vargas. <http://digitalarchive.wilsoncenter.org/document/115218>

⁵³ Ibid.

⁵⁴ Jacques Hymans, "Of Gauchos and Gringos: Why Argentina Never Wanted the Bomb, and Why the United States Thought it Did," *Security Studies*, Spring 2000 10(3), p. 174.

⁵⁵ John R Redick, "Nuclear Illusions: Argentina and Brazil," Occasional Paper no.25, Henry L. Stimson Center (Washington DC: December 1995) p.19

Brazil was acquiring would give it the capability to produce a weapon if a political decision was made.⁵⁶

Reiss argues that eventual shift by Brazil and Argentina towards signing the NPT and accepting full scope safeguards on all their facilities was a combination of changes in domestic leadership from military to civilian rule in the early 1990's, combined with the burden of economic strain imposed on the states by regime members.⁵⁷ As Brazil and Argentina began to seek greater access to international – and particularly German- nuclear markets, the states had in fact accepted more onerous IAEA inspections prior to signing the NPT. Argentina ratified the NPT in 1995, and Brazil in 1998.⁵⁸ Reiss finds that the US has little do to with nuclear developments in either country, and that US pressure was not responsible for the change in course. He argues that even German pressure to accept safeguards was not a case of the US acting through Bonn.

Country: ARGENTINA

Perceived nuclear intentions: Developed uranium enrichment capability

Observed superpower behavior: Technology denial by nuclear suppliers, little direct US pressure

Evidence:

Argentina did not sign the NPT until 1995, and during the 1970's and 1980's pursued and advanced civilian nuclear program, including fuel cycle components that could be transferred to weapons purposes. While its nuclear power reactors were under safeguards, Argentina purchased a plutonium preprocessing facility 1978, which fell under safeguards when it preprocessed safeguarded fuel. Argentina also secretly developed uranium enrichment technology. In his study of the Argentine nuclear program, Mitchell Reiss writes that while the US knew about a nuclear-related facility, US intelligence likely did not know that it was engaged in reprocessing.⁵⁹ Argentina publicly announced it had enrichment capability in 1983. US intelligence assesses in 1983 that the Argentinian program was more advanced than Brazil's.⁶⁰

⁵⁶ "Memorandum to Holders of Special National Intelligence Estimate, SNIE 93-83, 'Brazil's Changing Nuclear Goals: Motives and Constraints'," December, 1985, History and Public Policy Program Digital Archive, Obtained and contributed by William Burr and included in NPIHP Research Update #11. <http://digitalarchive.wilsoncenter.org/document/116899>

⁵⁷ Neither country had the capability to produce nuclear weapons, even though their facilities could have been adapted for such purposes. In addition, the development of programs in both countries was negatively affected by the technology denial strategy of nuclear suppliers.

⁵⁸ Reiss, *Bridled Ambition*, p 70, see also fn 102.

⁵⁹ Mitchell Reiss, *Bridled Ambition: Why Countries Constrain Their Nuclear Capabilities*. (Washington, DC: The Woodrow Wilson Center Press, 1995) p47.

⁶⁰ "Memorandum to Holders of Special National Intelligence Estimate, SNIE 93-83, 'Brazil's Changing Nuclear Goals: Motives and Constraints'," December, 1985, History and Public Policy Program Digital Archive, Obtained and contributed by William Burr and included in NPIHP Research Update #11. <http://digitalarchive.wilsoncenter.org/document/116899>

In his analysis of the Argentinian nuclear program Jaques Hymans notes that by the time Argentinian leader Carlos Menem came to power in 1989, “nuclear policy had become the main source of friction between the United States and Argentina.”⁶¹

As Argentina and Brazil pursued their nuclear programs, they encountered constant pressure and technology denial by the major nuclear supplier states. Mutual opposition to the nonproliferation regime in fact brought Argentina and Brazil closer together in nuclear cooperation, including mutual inspections outside the IAEA system (starting in 1985) and reciprocal visits to secret facilities (starting in 1986). The two states continued mutual reassurance measures throughout the late 1980’s.

In the early 1970’s, Argentina sought to purchase its second nuclear reactor from Canada. However, in 1974, following India’s “peaceful nuclear explosion test” Canada made the deal contingent on safeguards and NPT membership.⁶²

In 1978, the US blocked the sale of a Canadian heavy water plant to Argentina.⁶³ In 1979, the US pressured Germany and Switzerland to apply very strict safeguards on their sales to Argentina. Then in 1980, the US delayed a shipment of low-enriched uranium to Argentina. Argentina instead went to the Soviet Union for the sale, but due to mixed opinions about Argentina within the Carter administration, the US eventually went through with the shipment (only to restrict other nuclear contracts later the same year).⁶⁴

In 1980 the USSR began supplying heavy water to Argentina, and in 1982 began supplying uranium enrichment services (with the enrichment being done in the USSR). Argentina was not a party to the NPT at the time, but these exports were done under stringent safeguards agreements, negotiated separately with the IAEA. The USSR does not appear to have pressed for NPT membership or full-scope safeguards as a condition of nuclear exports, but did pursue safeguards as it had with a similar heavy water sale to India in 1977.⁶⁵

Reiss argues that eventual shift by Brazil and Argentina towards signing the NPT and accepting full scope safeguards on all their facilities was a combination of changes in domestic leadership from military to civilian rule in the early 1990’s, combined with the burden of economic strain imposed on the states by regime members.⁶⁶ As Brazil and Argentina began to seek greater access to international – and particularly German- nuclear markets, the states in fact accepted

⁶¹ Jacques Hymans, “Of Gauchos and Gringos» p. 183.

⁶² Jacques Hymans, “Of Gauchos and Gringos: Why Argentina Never Wanted the Bomb, and Why the United States Thought it Did,” *Security Studies*, Spring 2000 10(3), p. 167.

⁶³ Jacques Hymans, “Of Gauchos and Gringos» p. 169.

⁶⁴ John R Redick, “Nuclear Illusions: Argentina and Brazil,” Occasional Paper no.25, Henry L. Stimson Center (Washington DC: December 1995) p.5 fn8.

⁶⁵ William C. Potter, “The Soviet Union and Nuclear Proliferation,” *Slavic Review*, Vol. 44 no.3 (Autumn 1973) p 486.

⁶⁶ Neither country had the capability to produce nuclear weapons, even though their facilities could have been adapted for such purposes. In addition, the development of programs in both countries was negatively affected by the technology denial strategy of nuclear suppliers.

more onerous IAEA inspections prior to signing the NPT. Argentina ratified the NPT in 1995, and Brazil in 1998.⁶⁷

Reiss finds that the US has little to do with nuclear developments in either country, and that US pressure was not responsible for the change in course. Even German pressure to accept safeguards was not a case of the US acting through Bonn.

Country: IRAN

Perceived nuclear intentions:

Observed superpower behavior:

Iran obtained a research reactor from the US in 1965, and including HEU. Iran signed the NPT when it was opened for signature in 1968, and ratified in 1970. However, during the next decade the US had concerns about Iran's nuclear weapons ambitions, and both the Ford and Carter administrations carefully enforced nonproliferation policy with regard to Iran.⁶⁸

During the early 1970's, Iran was an ally of the United States. In his analysis of US-Iran nuclear cooperation, Mathew Fuhrmann argues that the US was interested in nuclear assistance as a way to expand ties and a strategic relationship with Iran, as alternative energy sources was seen as a high priority for the Shah.⁶⁹

Although Iran signed the NPT, the US remained concerned about developments in Iran's civilian nuclear program. During this time the US was seeking to balance good relations with Iran with nonproliferation policy.⁷⁰ The Shah publically stated an interest in obtaining nuclear weapons in 1974, although Iranian officials quickly backtracked on those statements.⁷¹

From 1975-1978, the US and Iran conducted negotiations over nuclear reprocessing technology. The US consistently made the case for stronger controls, and opposed Iran's demands for reprocessing on its territory. Kissinger also sought to convince Germany, which was also

⁶⁷ Reiss, *Bridled Ambition*, p 70, see also fn 102.

⁶⁸ William Burr, "A Brief History of US-Iranian Negotiations," *The Bulletin of the Atomic Scientists*, (January-February 2009). See also William Burr, ed. "U.S.-Iran Nuclear Negotiations in 1970s Featured Shah's Nationalism and U.S. Weapons Worries Newly Declassified Documents Reveal Remarkable Continuity with Today's U.S.-Iran Nuclear Controversy." National Security Archive Electronic Briefing Book No. 268.

<http://www2.gwu.edu/~nsarchiv/nukevault/ebb268/index.htm>

⁶⁹ Mathew Fuhrmann, *Atomic Assistance: How "Atoms for Peace" Programs Cause Nuclear Insecurity*, Cornell University Press (Ithaca, NY, 2012) 82-85.

⁷⁰ William Burr, "A Brief History of US-Iranian Negotiations," *The Bulletin of the Atomic Scientists*, (January-February 2009).

⁷¹ William Burr, "A Brief History of US-Iranian Negotiations," *The Bulletin of the Atomic Scientists*, (January-February 2009).

negating nuclear technology, that its control measures were not sufficient to prevent reprocessing by Iran.⁷² Documents from this period in of the mid-to-late 1970s suggest that the US did not believe that Iran was in the process of pursuing a nuclear weapons program, but saw interests in certain technology as an indicator that Iran might do so in the future, which raises concerns about export control.⁷³

The Bushehr reactor, begun in 1975, generated much controversy. At multiple points during its construction, the United States intervened from allowing third party states to aid in its completion. After the 1979 revolution, the German company Siemens, which was responsible for the reactors' construction beginning in 1975, ceased construction on Iran's Bushehr reactors. While the reactors would ultimately be completed with significant help from Russia after the Cold War ended, Iran sought assistance on completion from a variety of other sources in the 1980s and early 1990s. Many of these attempts were stopped by U.S. pressure. Initially, Iran approached Siemens to finish its work on the reactor. Because of U.S. pressure, the company declined. Iran then asked if Siemens could ship previously paid for reactor components, but again Siemens declined ostensibly due to U.S. pressure.⁷⁴ A consortium of companies from Western Germany, Argentina, and Spain offered to complete the reactors in the 1980s, but the deal was thwarted from U.S. pressure.⁷⁵ In 1990 a Spanish company signed a deal with Iran to finish the reactors, but later withdrew from the deal, because of U.S. pressure and concerns about proliferation.⁷⁶

Other elements of the early Iranian nuclear program also ran into both domestic and international hurdles. In 1974 Iran established the Atomic Energy Organization of Iran. Through 1979 Iran gained some capabilities (including: stakes in uranium enrichment plant and mining in other countries, education, plans to purchase uranium), as well as the partial construction of Bushehr plants. However, Iran's program was suspended following the 1979 revolution. Bilateral relations with the US broke off, as did nuclear energy cooperation. The US also stopped supply of HEU fuel rods for Iran's research reactor following the 1979 revolution.⁷⁷

Iran again began to explore nuclear weapons in 1984 under the Khomeini regime, and reportedly received assistance from the AQ Khan network. In 1984 Khomeini expressed a renewed Iranian interest in nuclear power and in 1987 signed long-term nuclear cooperation agreements with Pakistan. In the mid-1980's, Iran also signed cooperation deals with China for nuclear facilities

⁷² Memorandum of Conversation, State Department, "The Secretary's Meeting with FRG Ambassador Von Staden on the FRG/Iran Agreement for Nuclear Cooperation," July 2, 1976. Digital National Security Archive <http://www2.gwu.edu/~nsarchiv/nukevault/ebb268/index.htm>

⁷³ The Shah's Motives Are "Not Entirely Clear" Tehran Embassy cable 5939 to State Department, "Multinational Nuclear Centers: Assessment of Iranian Attitudes toward Plutonium Reprocessing," 17 July 1975, Secret Source: AAD. See also full Briefing Book 268, <http://www2.gwu.edu/~nsarchiv/nukevault/ebb268/index.htm>

⁷⁴ Mohammad Sahimi, "Iran's Nuclear Program. Part 1: It's History," *Payvand* (October 2003) <http://www.payvand.com/news/03/oct/1015.html>.

⁷⁵ Andrew Koch and Jeanette Wolf, "Iran's Nuclear Facility: a Profile," *Center for Nonproliferation Studies* (1998), p. 2.

⁷⁶ Angel Munoz, *El Independiente*, 6 February 1990, p. 4 in JPRS-TND-90-006 (16 March 1990). Cited in Koch and Wolf, p. 2.

⁷⁷ NTI Iran Nuclear Chronology. http://www.nti.org/media/pdfs/iran_nuclear.pdf?_id=1316542527

at Isfahan, nuclear equipment, and training engineers. In 1987, after several years of negotiation, Iran signed a nuclear cooperation deal with Argentina.⁷⁸ In the early 1990s Iran negotiated with Argentina to provide the Tehran Nuclear Research Center (TNRC) with a fuel fabrication pilot plant and a pilot-scale heavy water production facility.⁷⁹ Argentine president Carlos Menem canceled the plans after strong U.S. objections.⁸⁰

Country: IRAQ

Perceived nuclear intentions: Pursued nuclear weapons program, built reactor, but during Cold War period program poorly observed by the US and by IAEA

Observed superpower behavior: significant intelligence attention, no actions or pressures (pre-1990)

Evidence:

Iraq established an Atomic Energy Commission in 1959 and acquired a 2-megawatt research reactor from the Soviet Union in 1960. (Iraq signed a Treaty of Friendship and Cooperation with the Soviet Union in 1972.) In 1974 Iraq signed a contract with France for two additional research reactors. However, these efforts in the 1970's did not raise concern in the US.⁸¹ Israel however became increasingly concerned about the program in the late 1970's, and in 1981 bombed the French supplied Osirak reactor.

In 1973-74, Iraq repeatedly approach the Soviet Union, seeking to acquire a plutonium production reactor. The USSR refused these requests.⁸² However, other states appeared to have been more willing to sell nuclear supplies; Iraq purchased a plutonium separation facility and a uranium refining and fuel manufacturing plant from an Italian company (with the facilities not subject to safeguards), and natural uranium from Portugal, Brazil, and Nigeria.⁸³

In June 1981 Israel bombed the Osirak reactor to stop Iraq's nuclear program. Following the attack, Iraq reorganized its program to make it more covert, including establishing several secret weapons laboratories and an electromagnetic isotope separation facility.⁸⁴ Iraq also pursued a gaseous diffusion technology domestically starting from 1982, but these efforts were cancelled in 1989 due to manufacturing difficulties.⁸⁵ In the early 1980's Iraq obtained low enriched

⁷⁸ Ibid.

⁷⁹ The TNRC is the country's primary nuclear research facility. During the Atoms for Peace program, Iran received a research reactor from the United States in 1967. The United States ended cooperation with Iran after the revolution.

⁸⁰ Mark Hibbs, "Iran Sought Sensitive Nuclear Supplies from Argentina, China," *Nucleonics Week*, 24 September 1992, pp. 2-3; Koch and Wolf, p. 11.

⁸¹ Richelson 321.

⁸² Potter, "The Soviet Union and Nuclear Proliferation," p.478.

⁸³ «Iraq Country Profile – Nuclear» Nuclear Threat Initiative. <http://www.nti.org/country-profiles/iraq/nuclear/>

⁸⁴ Richelson p323.

⁸⁵ «Iraq Country Profile – Nuclear» Nuclear Threat Initiative. <http://www.nti.org/country-profiles/iraq/nuclear/>

uranium from Italy, which was reported to the IAEA and subject to safeguards.⁸⁶ Iraq made substantial investments into the nuclear program in the 1980's during the Iran-Iraq war, pursuing a highly secret enrichment project and also launching a weaponization program.⁸⁷ During this period Iraq also sought cauldrons for enriching uranium, acquired yellowcake from Niger (1981) and uranium dioxide from Brazil (1982), gas centrifuge design information from a German company, and conducted weapons activities at al-Atheer, a secret site intended for underground nuclear testing. The IAEA was not informed of these activities, and did not detect most of the facilities. In her analysis, Etel Solingen suggests that the US failed to detect these developments as well, noting that "these efforts were deemed likely to produce a nuclear weapon under the very nose of the IAEA (and the United States) were it not that Saddam decided to invade Kuwait in August 1990."⁸⁸

During the Cold War, US intelligence on Iraq was mixed – Iraq was assessed as being interested in nuclear weapons, but lacking capabilities. In 1979, CIA issued a memorandum on Iraq, stating that the Iraqi regime was likely seeking a covert nuclear weapons program, but there was "no hard evidence" that Iraq had decided to acquire nuclear weapon, but given their regional ambitions and security concerns the regime was likely to pursue covert nuclear capabilities. However, the report estimated that Iraq would be unlikely to attempt to build nuclear weapons until the late 1980's, and that that Iraq would also have difficulty obtaining fissile material. US leverage on nuclear suppliers (France and Italy) was assessed as limited.⁸⁹

Two years following the Israeli attack on Osirak, the CIA assessed that the attack represented a "significant setback to the Iraqi nuclear program."⁹⁰ After 1981, US intelligence likewise assessed that Iraq continued to have nuclear ambitions, and would likely need foreign assistance to pursue the program, including from past suppliers such as Italy, Spain, and Brazil.⁹¹ Similar assessments were made in 1983 – Iraq was assessed as interested in nuclear weapons, like to pursue a program in the future, but as not having identified such a program currently.⁹² Despite assessing numerous technical limitations in Iraq's program, the US intelligence community observed clear intent. In 1988, a CIA study assessed that Iraq saw nuclear weapons as "essential" to offset Iran.⁹³

At the start of the 1991 Gulf War, Iraq started a "crash program" to build a nuclear weapon, using even previously safeguarded materials. However, the details of this effort, as well as the rest of Iraq's clandestine program only became apparent with inspections following the end of the war. Inspections revealed that Iraq was, with varying estimates, several months to 3 years

⁸⁶ David Albright and Mark Hibbs. "Iraq: It's all over at Al Atheer." Bulletin of the Atomic Scientists, June 1, 1992.

⁸⁷ Etel Solingen, *Nuclear Logics: Contrasting Paths in East Asia and the Middle East*. Princeton University Press (Princeton NJ: 2009) p147.

⁸⁸ Soligen 151.

⁸⁹ Director of Central Intelligence, NI-IIM 79-100213, Iraq's Nuclear Interests, Programs, and Options, October 1979. Top Secret. National Security Archive Electronic Briefing Book No. 451.

<http://www2.gwu.edu/~nsarchiv/nukevault/ebb451/>

⁹⁰ Quoted in Richelson 333.

⁹¹ Richelson 334.

⁹² Central Intelligence Agency, Directorate of Intelligence Appraisal. "The Iraqi Nuclear Program: Progress Despite Setbacks," June 1983. <http://www2.gwu.edu/~nsarchiv/NSAEBB/NSAEBB82/index.htm>

⁹³ Richelson 336.

away from a nuclear weapon. However, neither the US nor the IAEA had not been aware of the extent of Iraq's covert nuclear program.⁹⁴

Country: NORTH KOREA

Perceived nuclear intentions: Requests for nuclear technology

Observed superpower behavior: Denial of nuclear technology by Soviet Union

Evidence:

North Korea signed nuclear research cooperation agreements with the Soviet Union in 1955 and 1959. In 1964, North Korea requested Chinese help with a nuclear weapons program, but was rejected. The Soviet Union provided a small research reactor in 1965 and insisted the reactor be placed under IAEA safeguards.⁹⁵ There is indication that Soviet intelligence observed North Korean intent for a nuclear weapons program in the late 1970s.⁹⁶ North Korea began building a 20-30 megawatt reactor in Yongbyon in the early 1980s, and the reactor began operation in 1986.

While not formally allied with the Soviet Union, North Korea fell generally within the Soviet alignment system during the Cold War. It was a distant ally at best and North Korea likely saw both Russia and China as unreliable allies. North Korea opposed Moscow's attempts to influence its domestic affairs, the relationship between the two states through the 1965's was rocky, and for a brief period the Soviet Union even cut off nearly all aid. From approximately 1965 through the mid-1970's however, the relationship was largely more stable.⁹⁷ Despite distant relations, North Korea saw the USSR as an ally, and at least to some extent placed value on the protection offered by the super power. This reliance can be observed in North Korea's response to what they interpreted as abandonment by the super power. In the late 1980's, reforms in the Soviet Union prompted opportunities for closer economic ties with South Korea. In 1990, the Soviet Foreign Minister informed North Korea that the USSR would be opening formal diplomatic relations with the South. The DPRK saw this move as Moscow breaking with its old ally, and warned that, if Moscow took such a step, a triangular alliance would be in place against it and Pyongyang would have no choice but to provide for itself 'some weapons for which we have so far relied on the alliance'⁹⁸ However, other scholars note that North Korea's perception of abandonment by its communist allies, and particularly the Soviet Union, occurred much earlier,

⁹⁴ Etel Solingen, *Nuclear Logics: Contrasting Paths in East Asia and the Middle East*. Princeton University Press (Princeton NJ: 2009) p143, 151.

⁹⁵ Richelson 332.

⁹⁶ Ibid.

⁹⁷ Michael Mazarr, *North Korea and the Bomb: A Case Study in Nonproliferation*, (New York: St. Martin's Press, 1995) p.21.

⁹⁸ Pyongyang Korean Central News Agency, FBIS-EAS, September 19, 1990. Cited in Mazarr p.62.

probably in the early 1960's. North Korea likely concluded then that it would not be able to rely on the Soviet Union for protection.⁹⁹

The historical evidence shows that while the Soviet Union never explicitly sanctioned or threatened North Korea during the development of the state's fledgling nuclear program, the Russians were suspicious of North Korean intents from an early point and as a response limited North Korean access to Soviet civilian nuclear technologies.¹⁰⁰

From 1959 to 1965, the USSR assisted North Korea with technical education and the construction of a nuclear research reactor. After the reactor construction, the USSR continued to supply fuel for the reactor as well as for a critical assembly build by North Korea. Later, these fuel shipments (as well as the research reactor itself) were conducted under IAEA supervisions, as indicated by the safeguards agreement signed by DPRK and the IAEA in 1977.¹⁰¹

From the early 1960's on, North Korea attempted to gain more nuclear technology from the Soviet Union, but were rejected. The Soviet Union was suspicious of the DPRK's intentions, and monitored North Korean requests to its satellites (such as East Germany) as well.¹⁰² The Soviet Union rejected North Korea requests for nuclear power plants in the mid-1970's, even while they built nuclear power plants in Eastern European states. Russian and Hungarian archival sources show that the combination of North Korea's constant requests for a graphite moderated reactor (as opposed to more proliferation resistant light water reactors being built in Eastern Europe) as well as political statements about nuclear weapons made the Soviet Union suspicious about North Korean intentions. Hungarian diplomats were even more convinced that the DPRK was seeking a weapons program.¹⁰³

North Korea signed an agreement with the IAEA in 1974 which established inspections for its small research reactor. Mazarr argues that this move was likely done in order to increase pressure on South Korea's nuclear program.¹⁰⁴

In the late 1970's, aggressive signals from the DPRK military and North Korea's reluctance on providing data on the Soviet-built research reactor further convinced the Soviets that the DPRK would be difficult to control. North Korean requests for nuclear technology continued to be rejected.¹⁰⁵ The Soviets finally agreed to build a reactor in 1985. Most North Korea scholars

⁹⁹ Robert S. Litwak and Kathryn Weathersby, «The Kims' Obsession: Archives Show Their Quest To Preserve the Regime,» NAPSNet Special Report 05-54A: June 30th, 2005, available at http://www.nautilus.org/napsnet/sr/2005/0554Weathersby_Litwak.html

¹⁰⁰ Balazs Szalontai and Sergey Radchenko, "North Korea's Efforts to Acquire Nuclear Technology and Nuclear Weapons: Evidence from Russian and Hungarian Archives," CWIHP Working Paper No. 53, Woodrow Wilson Center for Scholars, August 2006. Available at:

http://www.wilsoncenter.org/index.cfm?fuseaction=topics.publications&group_id=11901&topic_id=1409

¹⁰¹ Georgiy Kurov, «A Technical History of Soviet-North Korean Nuclear Relations,» in James Clay Moltz and Andrew Y. Mansurov eds. *The North Korean Nuclear Program: Security, Strategy, and New Perspectives from Russia*, (New York: Routledge, 2000) p17.

¹⁰² Robert S. Litwak and Kathryn Weathersby, «The Kims' Obsession: Archives Show Their Quest To Preserve the Regime,»

¹⁰³ Balazs Szalontai and Sergey Radchenko, p10.

¹⁰⁴ Mazarr p. 29.

¹⁰⁵ Balazs Szalontai and Sergey Radchenko, p16.

argue that the offer to supply the reactor was conditional on North Korea signing the NPT.¹⁰⁶ The DPRK agreed to guarantee that nuclear materials, equipment and installations provided by this deal with Russia would not be diverted for weapons production and would be under IAEA safeguards. However, due to financial disputes the 1985 deal was not implemented.¹⁰⁷

The US observed the North Korean program from the mid-1980's, but only in 1989 did US concerns become more serious.¹⁰⁸ In 1982, a CIA report identified the new reactor being built in Yongbyon. The CIA could not say whether the DPRK was receiving assistance from the Soviet Union. However, the document speculating on Soviet involvement notes that if the USSR is indeed involved, that the reactor can be expected to be placed under IAEA safeguards, as the Soviets had insisted on this with prior assistance.¹⁰⁹

Evidence on what the Soviets knew or believed about the DPRK's nuclear weapons program is unclear. On one hand, one KGB document revealed (by a Russian journal) in 1992 indicates that that the KGB believed North Korea had a completed bomb in 1990. However, Michael J. Mazarr notes that many Russian officials at the time believed that the DPRK did not have the technological capability to build a bomb.¹¹⁰

Country: ISRAEL

Perceived nuclear intentions: Nuclear weapons program established
Observed superpower behavior: Direct incentives and limited pressure

Evidence:

[See discussion of Israeli program in Appendix 1.]

¹⁰⁶ Mazarr p.41, Reiss, *Bridled Ambition*, p233, See also Alexander Zhebin, «A Political History of Soviet-North Korean Nuclear Cooperation,» in James Clay Moltz and Andrew Y. Mansourov eds. *The North Korean Nuclear Program: Security, Strategy, and New Perspectives from Russia*, (New York: Routledge, 2000), p.33. There is some very limited historical debate however as to whether the reactor deal was made just before, or just after DPRK signed the NPT (Balazs Szalontai and Sergey Radchenko, p20.). However, even if the deal was finalized before, this would not preclude it from having been made conditional on NPT signature.

For primary source evidence, see CIA, *East Asia Brief*, December 27, 1985.

<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB87/nk06.pdf> which, in its only unredacted paragraph, highlights the likely connection between the Soviet sale of the reactor and the USSR getting North Korea to sign the NPT.

Then, a later document directly points to Soviet pressure in getting North Korea to sign the NPT, stating “In our opinion Moscow was instrumental in inducing Pyongyang to sign the NPT.” CIA, *North Korea's Nuclear Efforts*, April 28, 1987.

<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB87/nk08.pdf>

¹⁰⁷ Kaurov p.19.

¹⁰⁸ Mazarr p 35.

¹⁰⁹ [CIA], *North Korea: Nuclear Reactor*, July 9, 1982

<http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB87/nk01.pdf> See also Richelson 346.

¹¹⁰ Mazarr p. 57.

The extent of US efforts to pressure Israel to give up its program remain unclear. On one hand, US efforts to reverse the Israeli program appear halfhearted,¹¹¹ but on the other hand it was possible that it was clear to policymakers that the resources needed to actually reverse a fait-acompli would simply be too high for the US, and no additional options – such as holding up arms sales – were seen as having enough leverage to even try.

Country: INDIA

Perceived nuclear intentions: nuclear weapons program established

Observed superpower behavior: mixed response by both US and USSR

Evidence:

India began exploring a nuclear weapons program in the mid 1960's. India participated in negotiation on the NPT, but did not sign the treaty. In 1970, the US became increasingly concerned about India's progress towards a nuclear test, and declared that the US would see no difference between a "peaceful nuclear explosion" and a weapon test.¹¹² India tested a "peaceful nuclear explosive" in 1974.

In evaluating the India case, it is important to note that both the US and USSR had limited leverage over the state. The US was able to provide greater economic and military assistance, while the Soviet Union likely their flexibility as a way to compete with the US for India's support.¹¹³ The evidence shows that the Soviet Union was willing to be somewhat more flexible with India's nuclear program, but did not take the opportunity to aide India directly and responded to US requests for tighter safeguards on nuclear facilities and material.

In the India case, both superpowers had limited leverage to apply pressure to the nuclear program. During the late 60's and early 70's India and the USSR grew closer, although no formal alliance was formed. As Sino-US relations improved in 1971, India began to increasingly doubt US support and ties with the Soviet Union became more attractive. In August 1971 India and the USSR signed a Treaty of Peace, Friendship and Cooperation. While India remained "nonaligned," the treaty called for immediate consultations between the two countries in the event of an attack or threat of an attack.¹¹⁴

The US intelligence community had been watching the expansion of the Indian nuclear program since the 1950s. A 1962 National Intelligence Estimate estimated that India might join the nuclear club in the next few years and have a small nuclear arsenal by 1970. Other intelligence

¹¹¹ For example, the rhetoric of trying to convince Israel was used in high level meetings between US and Israeli officials, but US officials did not produce clear threats or incentives. Cohen and Burr p26.

¹¹² Perkovich p. 159.

¹¹³ Balazs Szalontai, "The Elephant in the Room: The Soviet Union and India's Nuclear Program, 1967-1989" *NPIHP Working Paper #1*, Woodrow Wilson Center for Scholars (Washington DC: November 2011) p.2.

¹¹⁴ Perkovich p.162-163.

sources however claimed that despite India's technical capabilities, it had not yet decided to pursue a nuclear weapons program. The debate on whether or not India would develop nuclear weapons continued in the intelligence community for years.¹¹⁵

In 1970, Kissinger cautioned Ghandi against a test and the State Department indicated that using plutonium from the CIRUS reactor for a test would violate India's agreement with the US on the provision of heavy water for the reactor.¹¹⁶ The US was surprised by the first Indian test; satellites and other intelligence sources had not been able to detect India's preparations.¹¹⁷

The United States' response to India's nuclear test was mixed. In his book on the Indian nuclear program, George Perkovich argues that Henry Kissinger's approach was to quite neutral, and he thought that strong pressure would push India even further towards more nuclear testing. Kissinger instead focused preventing sharing of nuclear technologies, and convincing India to not pursue, or at least delay, further tests. The test did not have an impact on US economic aid to India at the time, and in June 1974 the US even went ahead with a previously approved shipment of uranium fuel for the Tarapur nuclear reactor.¹¹⁸ There was a tension between US interests in forging closer relationships with key states and nonproliferation goals. Perkovich highlights this tension in describing US relations with India in the late 1970's. The Carter administration sought to improve relations with India, but this goal was at odds with Congressional laws establishing stricter nonproliferation measures.¹¹⁹

India had informed the USSR in advance of its 1974 "peaceful" nuclear test and "the Soviet Union applied strong pressure to prevent that."¹²⁰ After the test USSR accepted the fait accompli, and issued only minor public protests to the Indian test, although was probably more displeased in private.¹²¹

In 1976, the Soviet Union agreed to send a substantial amount of heavy water to India. The sale worried the US and Canada, and they reminded the Soviet Union of export control obligations under the Zangger Committee and London Supplier group.¹²² The low level request seems to have been sufficient, as the Soviets then insisted on safeguards, and a separate IAEA safeguards agreement was negotiated for the heavy water sale. The Soviet Union had not insisted on full scope safeguards, but this was the first such agreement created for heavy water, and it is notable that the Soviet Union agreed without any real pressure or leverage by the US.¹²³ Other analysis

¹¹⁵ Richelson p. 227.

¹¹⁶ Richelson p.231.

¹¹⁷ Richelson p.233.

¹¹⁸ Perkovich p. 184.

¹¹⁹ Perkovich p. 205

¹²⁰ Telegram, Permanent Mission of Hungary to the UN in Geneva to the Hungarian Foreign Ministry, 14 August 1974. Source: Hungarian National Archives, XIX-J-1-j India, 1974, 50. doboz, 60-406, 003434/8/1974. Provided in full text translation in Balazs Szalontai, "The Elephant in the Room: The Soviet Union and India's Nuclear Program, 1967-1989" *NPIHP Working Paper #1*, Woodrow Wilson Center for Scholars (Washington DC: November 2011). This document is also cited in Vojtech Mastny, "The Soviet Union's Partnership with India," *Journal of Cold War Studies* Vol. 12, No. 3. (Summer 2010) p72.

¹²¹ Perkovich p.187.

¹²² William C. Potter, "The Soviet Union and Nuclear Proliferation," *Slavic Review*, Vol. 44 no.3 (Autumn 1973) p 476.

¹²³ Potter, "The Soviet Union and Nuclear Proliferation," p.477.

of recently released Hungarian archival documents on this mid-1970's period, and again in the mid-1980's argues that the Soviet Union was trying to outcompete the US through generosity in nuclear and economic supplies to India.¹²⁴ It is notable however the USSR tried to attain this leverage while staying within US expectations about safeguards for nuclear technology.

Country: PAKISTAN

Perceived nuclear intentions: nuclear weapons program established

Observed superpower behavior: US applied pressure, followed by allowance of nuclear program

Evidence:

Pakistan began to consider a nuclear weapons program in the mid-1960's, when India's conventional superiority was becoming clearly apparent. Early nuclear interests and efforts progressed very slowly, and was not a serious effort to establish an indigenous nuclear capability.¹²⁵ During the early 1970's, Pakistan officially established a nuclear program and began to develop the necessary materials through the help of centrifuge blueprints stolen from the Netherlands by AQ Khan (who now headed the Pakistani effort) as well as clandestine acquisition networks. At the same time, Pakistan attempted another route towards nuclear materials, and signed a deal to purchase a plutonium preprocessing plant from France in 1976.¹²⁶

The US intelligence community assessed by early 1975 that Pakistan had begun a nuclear weapons program.¹²⁷ In 1978, the CIA assessed that Pakistan was "strongly motivated" in developing a nuclear weapons capability.¹²⁸ A 1983 State Department memo called evidence on the program "unambiguous."¹²⁹

During the Carter administration, the US applied significant pressure on Pakistan's nuclear program.¹³⁰ In the response to Pakistan's advancing nuclear program, the US Congress passed the Symington amendment to the International Security Assistance and Arms Export Control Act, which banned economic and military assistance to states with unsafeguarded enrichment or reprocessing facilities.

¹²⁴ Balazs Szalontai, "The Elephant in the Room: The Soviet Union and India's Nuclear Program, 1967-1989" *NPIHP Working Paper #1*, Woodrow Wilson Center for Scholars (Washington DC: November 2011) p9. See p.16 for the same dynamic playing out in the 1980's, with the USSR seeking to build friendship with India through nuclear exports, but being unwilling to sell nuclear reactors without safeguards, as India had requested.

¹²⁵ Bhumitra Chakma, "Road to Chagai: Pakistan's Nuclear Programme, Its Sources and Motivations" *Modern Asian Studies*, Vol. 36, No. 4 (Oct., 2002) p. 878.

¹²⁶ Ahmed, "Pakistan's Nuclear Weapons Program," p186.

¹²⁷ State Department Background Paper: "Pakistan and the Non- Proliferation Issue," January 22, 1975 (SECRET). National Security Archive Electronic Briefing Book No. 6.

¹²⁸ Quoted in Richelson 338.

¹²⁹ State Department Briefing Paper: "The Pakistani Nuclear Program," June 23, 1983 (SECRET). National Security Archive Electronic Briefing Book No. 6. <http://www.gwu.edu/~nsarchiv/NSAEBB/NSAEBB6/index.html>

¹³⁰ T. V. Paul, "Influence through Arms Transfers: Lessons from the US-Pakistani Relationship," *Asian Survey* 32 (Dec. 1992), 1087.

The United States strongly opposed a Franco-Pakistani reprocessing plant deal in 1976 (even though the plant would be under IAEA safeguards) and applied pressure on France and Pakistan to cancel the deal.¹³¹ Pakistan resisted this pressure, and in an response to the US, Pakistani President Zulfikar Ali Butto “noted India’s Treaty of Friendship with the Soviet Union, and demanded to know why Pakistan, an ally of the United States, should be so assailed by the United States.”¹³² In attempting to convince Butto to cancel the reprocessing plant contact in 1976, Secretary of State Henry Kissinger offered US assistance for financing a French light water reactor and/or a French fuel fabrication plant, and resumption of sales of A-7 jets to Pakistan. Pakistan was surprised by “the intensity with which the U.S. was pursuing the nuclear question,”¹³³ and rejected these offers.¹³⁴ There also some evidence that the Soviet Union also applied very high level pressure France to cancel the deal during a meeting between Secretary Brezhnev and French President Giscard d’Estaing in June 1977.¹³⁵

In December 1976, the French bowed to US (and possibly Soviet) pressure and cancelled the sale. In 1976, Canada also cut off supply of nuclear fuel, heavy water, spare parts, and support for the KUNUPP reactor.¹³⁶ Some questions about the French deal remained however into the next year, and in 1997 State Department official Joseph Nye visited Islamabad and threatened US cut off of all economic assistance. However, little leverage remained as Pakistan was only receiving about \$50 million in annual aide and new Pakistani leader Zia-al-Haq did not see it as enough of an incentive.¹³⁷ In his analysis of the Pakistani nuclear program, Feroz Hassan Khan states that, “The Carter Administration even considered using force to destroy Pakistan’s nascent nuclear capability if sanctions did not work.”¹³⁸

In 1977 and 1979 the US imposed additional economic military and economic sanctions on Pakistan in an attempt to curb the nuclear program.¹³⁹ In 1978 the US also sent repeated demarches to other governments seeking to prevent Pakistani access to sensitive technology.¹⁴⁰ In communications with the United Kingdom, the US government suggested approaching the Soviet Union for additional pressure on Pakistan. Interestingly, the British opposed this move, voicing concern that the USSR may be more interested in geopolitical advantage through a closer relationship with Pakistan.¹⁴¹ In 1979 US Ambassador Arthur Hummel met with Zia and

¹³¹ Bhumitra Chakma, “Road to Chagai: Pakistan’s Nuclear Programme, Its Sources and Motivations” *Modern Asian Studies*, Vol. 36, No. 4 (Oct., 2002) p. 892.

¹³² Charles Ebinger, “U.S. Nuclear Non-Proliferation Policy: The Pakistan Controversy,” *Fletcher Forum*, vol. 3, no. 2 (1979), p13.

¹³³ Khan, *Eating Grass: The Making of the Pakistani Atomic Bomb*. Stanford, California: Stanford Security Studies An Imprint of Standford University Press, (2012) p. 137.

¹³⁴ Ebinger p. 15. See also: Khan, *Eating Grass* p. 132.

¹³⁵ Based on inerview of Soviet delegation member’s interview published in Soviet press, cited in Gloria Duffy, *Soviet Nuclear Energy: Domestic and International Policies*, Report prepared for the US Department of Energy, R-2362-DOE, RAND Corporation (Santa Monica: December 1979) p. 25.

¹³⁶ Khan, *Eating Grass* p. 127.

¹³⁷ Khan, *Eating Grass* p.138.

¹³⁸ However, Khan does not provide a citation or other support for this assertion. Khan, *Eating Grass* p. 160.

¹³⁹ Ahmed, “Pakistan’s Nuclear Weapons Program,”

¹⁴⁰ <http://www.gwu.edu/~nsarchiv/nukevault/ebb352/index.htm>

¹⁴¹ Document 17A: Department of State cable 292469 to U.S. Embassy United Kingdom, 18 November 1978, Secret Document 17B: U.S. Embassy United Kingdom cable 19322 to Department of State, 24 November 1978, Secret

presented some evidence the US had collected on the Pakistani nuclear program. Zia denied the program.¹⁴²

However, despite these early efforts to stop Pakistan's nuclear developments, in the 1980's the US waived nonproliferation sanctions and pursued military cooperation with Pakistan in response to Soviet military intervention in Afghanistan.¹⁴³ US had intelligence which showed progress in the Pakistani nuclear program; in 1980 the intelligence community assessed that Pakistan was constructing a reprocessing plant and possibly a test site.¹⁴⁴ In summer of 1981, a State Department intelligence estimate stated that Pakistan was "probably capable of producing a workable device at this time."¹⁴⁵

In 1982 Regan sent former CIA deputy director General Vernon Walters to meet with General Muhammad Zia-ul-Haq to discuss evidence that Pakistan was increasing its nuclear efforts. Zia claimed he did not know of such efforts, but documentary evidence shows that the US believed he was likely lying.

In her analysis of the Pakistani nuclear program, Samina Ahmed writes, "Unwilling to alienate the Zia regime, the Reagan administration intentionally ignored the rapid growth of Pakistan's nuclear weapons infrastructure."¹⁴⁶ For US policy makers was a direct connection between connection between needing Pakistani assistance with Afghanistan and decreasing pressure on the nuclear program.¹⁴⁷ However, during the early 1980's, the Regan administration debated the problem of aiding Pakistan while having serious concerns about the nuclear program.¹⁴⁸ Even after the intelligence community assessed that Pakistan likely produced a nuclear weapon (in 1985) some administration argued that pressure and the threat to cut off military aid could make Pakistan reverse their nuclear program.¹⁴⁹

In contrast, the US Congress continued to be concerned about the nuclear program, and in 1985 passed the a Pakistan-specific law – the Pressler amendment - which called for further sanctions if the President was not able to certify that Pakistan was not pursuing nuclear weapons. However, the Regan administration continued to certify that Pakistan did not have a weapons

<http://www.gwu.edu/~nsarchiv/nukevault/ebb352/index.htm>

¹⁴² Richelson 340.

¹⁴³ Ahmed, "Pakistan's Nuclear Weapons Program," p186.

¹⁴⁴ Richelson p341.

¹⁴⁵ Bureau of Intelligence and Research, U.S. Department of State, "India-Pakistani Views on a Nuclear Weapons Options and Potential Repercussions," Report 169-AR, 25 June 1981, confidential

<http://www.gwu.edu/~nsarchiv/nukevault/ebb377/>

¹⁴⁶ Ahmed, "Pakistan's Nuclear Weapons Program," p187.

¹⁴⁷ "Secretary of Defense Harold Brown to Ambassador-at-Large Gerard C. Smith, 31 January 1980, enclosing excerpts from memoranda of conversations with Geng Biao and Deng Xiaoping, 7 and 8 January 1980, Top Secret" <https://www.documentcloud.org/documents/347015-doc-3-1-31-80.html>

National Security Archive <http://www.gwu.edu/~nsarchiv/nukevault/ebb377/>

See also Khan, *Eating Grass* p.208.

¹⁴⁸ Secretary of State George Schultz to President Reagan, "How Do We Make Use of the Zia Visit to Protect Our Strategic Interests in the Face of Pakistan's Nuclear Weapons Activities," 26 November 1982, Secret.

<http://www.gwu.edu/~nsarchiv/nukevault/ebb377/>

¹⁴⁹ Kenneth Adelman, director, Arms Control and Disarmament Agency, o Assistant to the President for National Security Affairs, "Pakistan's Nuclear Weapons Programs and U.S. Security Assistance," 16 June 1986, Top Secret. <http://www.gwu.edu/~nsarchiv/nukevault/ebb377/>

program, even after Pakistan had acquired enrichment capability, which allowed the US to continue military and economic assistance. The sanctions were applied again in 1990, after the Soviet Union withdrew from Afghanistan.¹⁵⁰ In her assessment of the impact of the war in Afghanistan on the Pakistani nuclear weapons program, Bhumitra Chakma argues that without the conflict, “the West would have put more pressure on Islamabad to abandon its nuclear weapons programme and would have executed firmer export control of nuclear materials and technology to Pakistan.”¹⁵¹ However, other analysis notes that while direct pressure on Pakistan stopped during the Soviet invasion of Afghanistan, the US still tried to pressure other countries to prevent transfer of sensitive technology to Pakistan.¹⁵²

When the US did choose to apply stronger economic sanctions (and coordinated sanctions efforts with other key states such as Japan) after the Cold War, this move did raise significant problems for Pakistan’s economy.¹⁵³ TV Paul also suggests that pressure in the early 90’s may have been “one of the reasons for Pakistan not openly testing a nuclear device.”¹⁵⁴

Country: YUGOSLAVIA

Perceived nuclear intentions: interests in nuclear program, preliminary scientific exploration
Observed superpower behavior: limited attention by USSR, no evidence of nuclear assistance

Evidence:

Yugoslavia initially began to pursue nuclear technology with the aims of a weapons program in the 1950’s. Both the US and the USSR provided the Yugoslavs with nuclear technology during this period, competing for Yugoslavia as an ally.¹⁵⁵ However, in the early 1960’s Tito stopped weapons related efforts and focused the program on nuclear energy. The reason for this decision is unclear¹⁵⁶

In 1974, Tito instructed the heads of Yugoslavia’s nuclear institutes to use the peaceful nuclear energy program to hide a secret weapons program.¹⁵⁷ This decision was made even though Yugoslavia had also signed the NPT. More earnest efforts began in 1982 after Tito’s death, and

¹⁵⁰ Chakma “Road to Chaga» p.896.

¹⁵¹ Ibid.

¹⁵² <http://www.gwu.edu/~nsarchiv/nukevault/ebb333/index.htm>, citing David Albright, *Peddling Peril: How the Secret Nuclear Trade Arms America's Enemies* (New York: Free Press, 2010) p.41-44.

¹⁵³ Ahmed, “Pakistan's Nuclear Weapons Program.” p 197.

¹⁵⁴ TV Paul p. 1090.

¹⁵⁵ Hymans, “Achieving Nuclear Ambitions” p.183. Jacques Hymans, “Proliferation Implications of Civil Nuclear Cooperation: Theory and a Case Study of Tito’s Yugoslavia,” *Security Studies*, 20:1, (2011).

¹⁵⁶ William C. Potter, Djuro Miljanic & Ivo Slaus, “Tito’s Nuclear Legacy” *The Bulletin of the Atomic Scientists*, (March/April 2000) p. 65.

¹⁵⁷ Potter, “Tito's Nuclear Legacy” p.66.

two scientific groups were established to pursue different elements of a weapons program. However, there were few scientists recruited for these groups, and few target dates set.¹⁵⁸ One program was abandoned in 1987 and the other in 1990.

Yugoslavia's program appears to have been largely theoretical. While it may have desired a nuclear weapons capability, Yugoslavia did not possess the resources to pursue it. There is no evidence that experiments with reprocessing and enrichment developed passed an early experimentation stage.¹⁵⁹ (Yugoslavia's nuclear material was under IAEA safeguards.) In his analysis of the Yugoslavia case, Jacques Hymans argues that the program was falling apart by 1958, and did not ever recover the drive or human capital it has in the 1950's.¹⁶⁰ Hymans argues that the failure of the nuclear program was largely due to problems in organization and management of the program.¹⁶¹

There is some limited evidence that the US identified Yugoslavia as a nuclear threshold state in the 1970's.¹⁶² Several public pieces appeared in *Survival* journal in 1997 highlighting Yugoslav officials suggesting that Yugoslavia may be interested in nuclear weapons capability.¹⁶³ However, there is no evidence of extensive concern from the intelligence community.

Country: LIBYA

Perceived nuclear intentions: nuclear weapons interests but no capabilities, attempts to acquire technology

Observed superpower behavior: intelligence attention, limits on nuclear technology imports

Evidence:

During the Cold War period, Libya had some interests in nuclear weapons, and on several occasions sought dual use technology. (More serious interest and access did not develop until the early 1990's.)

Qaddafi first sought Chinese assistance in 1970, although China refused to provide a weapon. In 1974 Libya sought to buy research reactors from a US company, but the sale was vetoed by Congress and the White House.¹⁶⁴ Libya reportedly had a secret agreement with Pakistan on

¹⁵⁸ Potter p. 68.

¹⁵⁹ Andrew Koch, "Yugoslavia's Nuclear Legacy: Should We Worry?" *The Nonproliferation Review*, Spring/Summer 1997, p. 124.

¹⁶⁰ Hymans, *Achieving Nuclear Ambitions*, Yugoslavia chapter.

¹⁶¹ Hymans, "Proliferation Implications of Civil Nuclear Cooperation: Theory and a Case Study of Tito's Yugoslavia" p.90.

¹⁶² Potter p.66.

¹⁶³ "Yugoslavia and nuclear weapons" Interview with Col.-Gen. Kukoc 13 March 1977. *Survival: Global Politics and Strategy*, Volume 19, Issue 3, 1977.

¹⁶⁴ Richelson 325-326.

getting access to the Pakistani program in exchange for financing. Libya also approached India in the late 1970's, but was refused assistance.¹⁶⁵

In 1974, US intelligence reports noted Libya's nuclear weapons objectives, but estimated that it would take Libya at least a decade to produce a weapon. In 1985, CIA analysis of the state of the program noted that Libya wanted a "crash nuclear program," but judged that Libya was unlikely to achieve nuclear weapons in the next 10 years.¹⁶⁶

After Libya signed the NPT in 1968 and ratified in 1975, the Soviet Union agreed to sell a small research reactor, an atomic research center, and a year later a larger research reactor. The smaller research reactor began operations in 1981, operating under IAEA safeguards. There is a possibility that USSR's willingness to sell nuclear reactors to Libya suggests a willingness to share technology and get economic and policy benefits from a new nuclear client while carefully walking the line on nonproliferation rules.¹⁶⁷ It is likely that the Soviet Union wanted to use nuclear sales to forge a closer strategic partnership with Libya.¹⁶⁸ On the other hand, the Soviet Union may not have been a very forthcoming technology provider, and US officials claimed in 1984 that Libya was unhappy with what the Soviet Union was providing and reached out to Belgium to take over the project.¹⁶⁹ Additionally, Soviet Union only agreed to sell the reactor after Libya ratified the NPT, which it reported did under "intense Soviet pressure."¹⁷⁰

In 1982, Libya negotiated with a Belgian firm for the sale of nuclear-related technology. The US opposed the deal, and the Belgian government cancelled the sale in 1984.¹⁷¹

Libya also pursued a number of other steps in its nuclear program that were not detected by the US (based on currently declassified sources) and by the international community. These include: small-scale uranium conversion experiments (1989); acquisition of a modular uranium conversion facility (1984); and centrifuge-related training in other countries. These activities were revealed in 2003 as part of an agreement between Libya, UK, UK and the IAEA.¹⁷²

Country: ROMANIA

¹⁶⁵ Richelson 326.

¹⁶⁶ Quoted in Richelson 336.

¹⁶⁷ This possibility was suggested in Gloria Duffy, *Soviet Nuclear Energy: Domestic and International Policies*, Report prepared for the US Department of Energy, R-2362-DOE, RAND Corporation (Santa Monica: December 1979) p. 20.

¹⁶⁸ Matthew Fuhrmann, *Atomic Assistance: How "Atoms for Peace" Programs Cause Nuclear Insecurity*, Cornell University Press (Ithaca, NY, 2012) p.93.

¹⁶⁹ Paul Lewis, "US said to Stop Libya Nuclear Deal," New York Times, November 21 1984.

¹⁷⁰ Gloria Duffy, *Soviet Nuclear Energy: Domestic and International Policies*, Report prepared for the US Department of Energy, R-2362-DOE, RAND Corporation (Santa Monica: December 1979) p. 22.

¹⁷¹ Richelson 327. See also Paul Lewis, "US said to Stop Libya Nuclear Deal," New York Times, November 21 1984.

¹⁷² IAEA documents cited in Gawdat Bahgat, "Proliferation of Weapons of Mass Destruction: The Case of Libya." *International Relations*, vol.22 no.105 (2008) p109-110.

Perceived nuclear intentions: preliminary exploration of nuclear weapons program
Observed superpower behavior: some limits on technology, no direct pressures

Evidence:

Romania explored the possibility of a nuclear weapons program in 1985, although technical progress was limited. There is no evidence that Romania pursued a full weapons program, or even sought the dual use fuel cycle technology that might suggest such intent.

There were a few activities that may have aroused suspicion of a nuclear program. Reprocessing experiments were done on fuel rods from the TRIGA reactor in 1985, and 1992 IAEA inspections uncovered 470 grams of plutonium in a secret laboratory.¹⁷³ In 1985 Romanian General Secretary Nicolae Ceausescu also publicly stated that Romania had the ability to develop nuclear weapons.¹⁷⁴

The Soviet Union originally assisted Romania with a civilian nuclear technology but ceased in 1962 after the Cuban Missile Crisis. After that the USSR delayed civilian nuclear technology shipments.¹⁷⁵

Western countries welcomed the growing rift between Romania and the USSR. Romania sought to obtain nuclear technology from possible western suppliers. Romania approached both the US and the UK in the mid-1960s. There was some limited concern however about possible diversion of nuclear technology and some US intelligence assessments included Romania as a county that could go nuclear in the future.¹⁷⁶ The US refused technology transfers, but in 1968 allowed Canada to sell heavy water technology and also in 1968 agreed to sell Romania a research reactor.¹⁷⁷ The US supplied HEU for the reactor even after Romania's announcement on nuclear weapons capability in 1985.¹⁷⁸

¹⁷³ http://www.fas.org/irp/threat/svr_nuke.htm#romania

¹⁷⁴ NARA, AAD, RG 59, CFPPF, Telegram from Henry Kissinger to the US Embassy in Ottawa, 3 February 1976; Open Society Archive, Socor, Soviet-Romanian Programs, 18 November 1985. Cited in Eliza Gheorghe, "Atomic Maverick: Romania's negotiations for nuclear technology, 1964–1970" Cold War History, 2013.

¹⁷⁵ Gheorge p. 4.

¹⁷⁶ R. Murray, 'Problems of Nuclear Proliferation outside Europe', December 7, 1964, DDRS, Doc. No. CK3100281620, 1, quoted in Gavin, 'Same As It Ever Was', 17.

¹⁷⁷ Gheorge p. 15.

¹⁷⁸ Gheorge p2.