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NORTH KOREAN NUCLEAR WEAPONS POLICY:
AN EXPECTED UTILITY ANALYSIS

by

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North Korean Nuclear Weapons Policy: An Expected Utility Analysis

I. Introduction

In the fall of 1993, the issue of North Korean nuclear weapons policy flashed onto the headlines of many newspapers around the world as the International Atomic Energy Agency (IAEA) announced that for all practical purposes its uninterrupted monitoring of North Korean nuclear facilities would be ended if the North Koreans continued to prohibit the IAEA from installing new film in its surveillance cameras. This recalcitrance by the North Koreans brought tensions to a new height in a regional security crisis which had seen a complex series of interactions over the course of the year between the North Koreans, the IAEA, South Korea, and the United States.

In March, 1993, the North Koreans had threatened to withdraw from the Nuclear Nonproliferation Treaty (NPT) the first state ever to do so. This threat was followed by high level diplomatic exchanges between the United States and North Korea regarding the North Korean nuclear program and inspection of North Korean facilities. These exchanges led to a retreat by North Korea from its threat to withdraw from NPT and suggestions of a compromise between the United States and the North Koreans in which the United States would recognize the North in exchange for IAEA inspections. But, before this apparent compromise deal could be concluded, negotiations broke down over access to all suspect sites and the United States in November 1993 was forced to threaten to find a
"final solution" to the North Korean weapons program.¹

The issue of North Korean nuclear weapons development complicates and is complicated by the complex interactions between China, the Soviet Union (now Russia), the United States, Japan, and the two Koreas. (Bridges, 1993). The Soviet Union did provide some civilian nuclear technology to the North Koreans initially, but the successor state of Russia has cut off all technical links and has joined with South Korea, Japan and the United States in expressing concern at North Korean actions. While China has expressly stated that it has not provided nuclear weapons development assistance to the North, it has adopted a hands-off approach on the issue of North Korean nuclear policy in the face of more overt pressure being brought to bear by other Pacific-Rim countries. By the time of the APEC (Asian Pacific Economic and Cooperation) meetings in Seattle in mid-November 1993, the United States and South Korea were attempting, in bilateral talks, to get China to adopt a more active role toward resolving the issue.

This paper models the pressures being brought to bear on the North Koreans, the prospects for successfully changing North Korean policy, and explores other strategies, perhaps more successful ones, which should be considered. Moreover, this paper seeks to continue to establish the role expected utility modelling can play in foreign policy analysis.²


² For other applications of expected utility modelling to policy analysis see Bueno de Mesquita, Newman and Rabushka, 1985; Bueno de Mesquita and Organski, 1992; Bueno de Mesquita
II. North Korean Nuclear Weapons Development Policy

North Korean interest in nuclear development began in the early 1960's with the development of a small research reactor. A second, large-scale, reactor was later built at Yongbyon. This second reactor became operational in 1987. By 1991, the United States began to believe that a reprocessing plant and third reactor were being developed. Now there is a belief on the part of many observers that North Korea is on the verge of becoming a nuclear power and the issue of North Korean nuclear development has moved to centre stage since the threat by North Korea to withdraw from the International Atomic Energy Agency over inspections of North Korean nuclear facilities.

III. The Model

The model used here is similar to the model developed in Forecasting Political Events: The Future of Hong Kong by Bueno de Mesquita, Newman and Rabushka. The model, based on expected utility theory and the median voter theorem, focuses on how groups compete with one another, politically, on policy questions under consideration. The model forecasts both the anticipated outcome of the competition and the relationships between the groups competing.¹

We assume¹:

¹ See Black (1958) and Bueno de Mesquita, Newman and Rabushka (1985).

² These assumptions and the model are developed more fully in Bueno de Mesquita, Newman and Rabushka, 1985.
1) competition between groups (political actors) produces political decisions (policies);

2) groups compete with one another, sometimes independently and sometimes in a coalition with others, over specific policy-related issues (alternative policies);

3) a strong leader dominates each group (necessary to avoid Arrow's paradox); and

4) each strong leader is a rational decision maker who seeks to maximize expected utility.

To estimate the likely policy outcome, we assume that each group has a preferred policy position on a unidimensional scale, a continuum, and that its utility for other positions is a monotonically decreasing function of the distance between each group's preferred policy and any alternative policy. Moreover, we assume that each group possesses certain capabilities to pursue its policy objectives and attaches a specified level of importance to achieving its goals (salience). We further assume that as part of the political process, groups will offer up alternative political compromises in order to find that alternative which is closest to their preferred position and which cannot be defeated by another alternative, (the Condorcet winner). The votes that each group is assumed to be able to cast are weighted by the capabilities of the group, the salience of the issue, and the degree to which each group prefers one alternative to another.5

To estimate the likely political dynamics underlying a

policy decision, we assume that groups access the cost and benefits of alternative policies and their prospects of successfully achieving their policy preferences. In doing so, they assess their policy position, the positions adopted by other groups, their resources, the resources possessed by others, the degree of importance they attach to the issue, the degree of importance attached by others, and the likely reaction of other groups if they attempt to change the policies held by another group. These calculations are graphically presented in Figures 1 and 2.

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Figure 1 and 2 About Here

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The decision calculus represented by the two decision trees can be summarized verbally as follows:

\[
\text{Expected Net Gain} = (\text{Probability of success}) \ast (\text{possible policy gains}) + (\text{probability of failure}) \ast (\text{possible policy setbacks}) + (\text{Net marginal contribution of third parties}) - \\
\{(\text{Probability of policy remaining unchanged if this group does nothing}) \ast (\text{Value of the current policy}) + [(\text{Probability of policy improving if this group does nothing}) \ast (\text{Value of anticipated improvement}) + (\text{Probability of policy worsening if this group does nothing}) \ast (\text{Value of anticipated deterioration})]\}
\]

This verbal representation can be more formally stated as a set of equations:

\[
(1) \quad E^i(U^i) = [S^i_j(P^i_j(U^i_{si}) + (1-P^i_j)(U^i_{si}) + (1-S^i_j)U^i_{si} + \\
\sum_{k \neq ij} S^k_k(P^k_x + P^k_x - 1)(U^i_{ki} - U^i_{kj})'] - U^i_{qi}
\]
Figure 1
The Decision Problem

Do Not Challenge Policy

Challenge Existing Policy

Policy Changes

No Change in Policy

Opponent Gives In

Opponent Does Not Give In

Policy Improves

Policy Worsens

Challenger Wins

Challenger Loses

Figure 2.
Marginal Contribution of Third Parties

Third Party Assists Challenger

Third Party Assists Opponent

Challenger Wins

Challenger Loses

Opponent Wins

Opponent Loses
(2) \[ E'(U_{ij}) = [S_i(P_j U_{ij}^i + (1-P_j) U_{ij}^j) + (1-S_i) U_{ij}^i + \sum_{k \neq ij} (S_k(P_k + P_j - 1)(U_{kj}^i - U_{kj}^j)')] - U_{ij}^i \]

(3) \[ E(U_{ji}) = [S_i(P_j U_{ji}^i + (1-P_j) U_{ji}^j) + (1-S_i) U_{ji}^i + \sum_{k \neq ij} (S_k(P_k + P_j - 1)(U_{ki}^i - U_{ki}^j)')] - U_{ji}^j \]

(4) \[ E(U_{ji}) = [S_j(P_i U_{ji}^i + (1-P_i) U_{ji}^j) + (1-S_j) U_{ji}^j + \sum_{k \neq ij} (S_k(P_k + P_j - 1)(U_{ki}^i - U_{ki}^j)')] - U_{ji}^j \]

where:

- \( E'(U_{ij}) \) is i’s expectation of its net benefit (loss) from challenging j.
- \( E(U_{ji}) \) is i’s expectation of j’s net benefit (loss) from challenging i.
- \( E(U_{ji}) \) is j’s expectation of its net benefit (loss) from challenging i.e.
- \( E(U_{ji}) \) is j’s expectation of i’s net benefit (loss) from challenging j.

- \( S_i \) = probability that i will resist j’s demand.
- \( S_j \) = probability that j will resist i’s demand.
- \( S_k \) = probability that k will intervene in a dispute between i and j.

- \( P_i \) and \( P_j \) are the probability of i defeating j in a bilateral dispute and the probability of j defeating i in a bilateral dispute, respectively.

- \((P_k - P_k - 1)\) = the marginal effect of k on the probability of i or j succeeding.

- \( U_{ki}^i \) = the value i believes it gains from the support of k.

- \( U_{ki}^i - U_{ki}^j \) = the net value i believes k will contribute in
a contest between i and j. Analogous terms superscripted with j are j’s valuation of k’s contribution in a contest between i and j.

\[ U^j_i = j’s \text{ perception of } i’s \text{ utility for } i \text{ succeeding if forcing } j \text{ to adopt } i’s \text{ policy preferences. Other } U_i \text{ terms are similarly interpreted.} \]

\[ U^j_n = \text{ analogous to } U_i \text{ terms except they refer to the utility the superscripted group believes the subscripted group attaches to defeat following its initiation of a bilateral conflict.} \]

\[ U_q \text{ terms refer to the utility the superscripted group perceives the subscripted group attaches to no change in policy by its potential adversary.} \]

Each of the utility terms is adjusted for the risk orientation of the decision maker so that two decision makers in this model, with identical information can make different decisions.⁶

IV. The Data

To operationalize the model we require basic information on:

1) who the relevant political actors or groups are who will seek to influence the policy issue;

2) the policy preferences of each group on the issue(s) identified;

3) estimates of the relative capabilities each group can...

⁶ For a complete discussion of the calculation of risk, see Bueno de Mesquita, Newman and Rabushka (1985) pp. 49-54.
bring to bear to influence the policy decisions including the marginal contribution of third parties, and

4) estimates of the importance each group attaches to each issue, signifying the group’s degree of interest in influencing the policy on that issue.

The data on issue positions are used to operationalize the utility terms in the model -- estimating the policy gains from challenging a potential rival and the support from third parties. The relative importance of the issue is used to operationalize the salience terms -- measuring the likelihood a potential rival will resist a demand. The resource data are used to operationalize the probability terms -- the probability of winning or losing. All three data elements are used to estimate an issue specific risk orientation for each of the groups and this introduces curvature into each group’s utility function.

Table 1 presents the groups seeking to influence North Korea’s nuclear weapons development policy, the resources possessed by each of the groups and the salience or importance each group attaches to the issue. The resource values are relative values between 0 and 100. The salience values are also bound between 0 and 100, with a value of 100 indicating that this issue is the most important issue on a group’s

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7 The expected utility approach is able to assess the influence of many different types of groups -- internal and external, individuals or collectivities, economic or military. In other contexts, the model has incorporated environmental groups, religious interests, international organizations, covert groups, the press, and labour interests, among others. Theoretically, any interest group which possesses resources, holds a position, and cares about the resolution of the issue can be included in the analysis.
agenda and lower values indicating that the issue is of lesser importance given competing issues on the group’s agenda. 

Table 1 about here

In Figure 3, we present an issue continuum depicting the policy positions held by each of the groups. These data are also provided by an expert -- in this case, as in Table 1, one of the authors. At one end of the continuum are groups pressing for a nuclear weapons free peninsula and at the other end are groups pressing for rapid North Korean nuclear weapons development. Just shy of the mid-point is the International Atomic Energy Agency and the South Korean Foreign Ministry, both pressing for international inspections and monitoring of all North Korean facilities. To the left side of the IAEA are groups who acknowledge that it will be difficult or impossible to "put the nuclear genie back in the bottle". To the other side of the IAEA are groups favouring a more aggressive posture with respect to this issue for a variety of reasons.

Figure 3 about here

8 In addition, the approach allows the expert to specify alternative values in the event of potential contingencies, to explore scenarios, and to examine the impact of alternative estimates. For instance, in the present analysis, the expert indicated that the influence of the United States would increase significantly if it were to normalize relations with North Korea. Similarly, the expert believed that a change of leadership in China could alter the influence of the Chinese Old Guard. The impact of such changes in the data are directly testable using the expected utility approach.

9 The data for this study were collected in October, 1993 and the analysis completed at the same time.
### Table 1

**Groups, Their Resources and Saliences**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Resources</th>
<th>Salience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim Il-ńung (KIM-I)</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Kim Jong-il (KIM-J)</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>North Korean Military (NKM)</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>North Korean Technocrats (NKT)</td>
<td>40</td>
<td>75</td>
</tr>
<tr>
<td>Deng Xiaoping (DENG)</td>
<td>55</td>
<td>30</td>
</tr>
<tr>
<td>Chinese People's Liberation Army (PLA)</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Chinese Old Guard (OLD)</td>
<td>50/70*</td>
<td>50</td>
</tr>
<tr>
<td>South Korean Foreign Ministry (SKFM)</td>
<td>25</td>
<td>80</td>
</tr>
<tr>
<td>South Korean Ministry of Defense (SKMD)</td>
<td>40</td>
<td>90</td>
</tr>
<tr>
<td>South Korean Business Groups (SKBUS)</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>United States State Department (USSD)</td>
<td>35/70**</td>
<td>70</td>
</tr>
<tr>
<td>United States Defense Department (USDD)</td>
<td>50</td>
<td>90</td>
</tr>
<tr>
<td>Japanese Foreign Ministry (JFM)</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>Japanese Defense Agency (JDA)</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>International Atomic Energy Agency (IAEA)</td>
<td>25</td>
<td>80</td>
</tr>
<tr>
<td>Russia (RUS)</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

* The two estimates for the Chinese Old Guard represent one under current conditions and a second estimate assuming a potential increase in their influence following Deng Xiaoping’s death.

** The two estimates for the United States State Department represent one under current conditions and a second estimate assuming normalization of relations with North Korea.
Figure 3  
Issue Positions

**Issue:** What policy does each group favour toward North Korea’s development of Nuclear Weapons?

<table>
<thead>
<tr>
<th>Nuclear Weapon Free Peninsula</th>
<th>$F_1$ IAEA Monitoring</th>
<th>Significant Nuclear Weapons Development</th>
<th>Unbridled N. Weapon Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RUS</td>
<td>Slow Development</td>
<td></td>
</tr>
<tr>
<td>Deng</td>
<td>SKBUS</td>
<td>PLA NKT</td>
<td>OLD KIM-I KIM-J</td>
</tr>
<tr>
<td>SKFM</td>
<td>USSD</td>
<td>IAEA</td>
<td>NKM</td>
</tr>
<tr>
<td>USDD</td>
<td>JFM</td>
<td>SKMD</td>
<td>$F_2$</td>
</tr>
<tr>
<td>JDA</td>
<td>Can’t</td>
<td>Nuclear Weapons Development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Put Genie</td>
<td>Should be As a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Back</td>
<td>Continued as Bargaining</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>it will lead Chip/Leverage</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>to Downfall of the South</td>
<td></td>
</tr>
</tbody>
</table>

**Summary of Forecasts:**

$F_1$: Base Case Analysis assuming data as presented in Table 1.


$F_3$: The United States normalizes relations with North Korea.

$F_4$: Deng Xiaoping presses the North Koreans firmly.

$F_5$: The United States and all its allies press the North Koreans firmly.
V. Interpreting the Results

As noted, the model produces two types of results -- a forecast of the policy outcome and a set of expected utility values which can be interpreted as the net gains or losses each group believes it will face in a "political" contest with a potential rival (some group holding a different policy). It is important to understand that while the forecast is the median voter theorem, each group is not assumed to have equal weight as each group has different resources and has chosen how much of its resources to contribute to the resolution of the particular matter.

In Figure 4, we have arrayed the groups on the issue continuum and have plotted the aggregate power each position is able to exert on the resolution. If the forecast was based simply on a one person-one vote rule, the forecast would be either the position of the South Korean business interest, the United States State Department, the Russians and Japanese Foreign Ministry, the position held by IAEA and the South Korean Ministry of Defense, or some compromise position between the two sets of groups. However, clearly this issue is unlikely to be resolved by a formal vote and the one person-one vote assumption is unrealistic. If we assumed that only power was relevant and that votes were associated solely with the power each group possessed, then the forecast would be the position held by the People’s Liberation Army. However, we assume the "votes" groups will cast are in part determined by their power and in part by the degree to which they care about the resolution of the issue. Weighting the
votes by salience, the forecast, in this case, is also the position held by the PLA. Although in this particular case, weighting the power of a group by its salience did not change the forecast, we will see later that when the salience of the Deng faction, for instance, is increased, the forecast does shift. The forecast outcomes are identified in Figure 3 by $P_n$, where $n$ varies depending on the scenario examined.

---

The expected utility values are the product of the equations presented hereinbefore and are most illustrative when graphed using cartesian diagrams. Plotting one actor or group's values (the focal group) against all other groups (potential rivals) on the horizontal axis and each potential rival, one at a time, against the focal group on the vertical axis, we can depict the prospects for conflict or compromise on the issue under examination. Figure 5 summarizes how the cartesian diagrams are interpreted. As an example, if we select Kim Il-sung as the focal group and the United States State Department (USSD) as a potential rival on this issue, we would plot Kim Il-sung's expected utility for the USSD, as estimated by the model, on the horizontal axis and the USSD's expected utility for Kim Il-sung on the vertical axis. If the relationship fell into sector 1 of Figure 5, both Kim Il-sung and the USSD would believe that they could extract policy concessions from the other. This situation is highly contentious as each group believes the other will need to concede to its demands. All other potential pairwise
Figure 4
A Comparison of Votes, Power, and Weighted Power by Position

Percentage of Votes, Power, Weighted Power

<table>
<thead>
<tr>
<th>Position</th>
<th>Votes</th>
<th>Power</th>
<th>Weighted Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td></td>
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<td></td>
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<tr>
<td>56</td>
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<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- \(\mathbb{C}\) Votes
- \(\mathbb{P}\) Power
- \(\mathbb{W}\) Weighted Power
relationships between groups are presented in Figure 5.\textsuperscript{10}

Figure 5 about here

VI. Analysis

As one might intuitively guess, the base case forecast, $F_1$, based on the assumptions in Table 1, indicates that the policy outcome is the position now held by the Chinese People's Liberation Army, an outcome short of international demands for monitoring and inspections. This forecast is identical to that of the North Korean position in early December 1993. Moreover, the expected utility analysis (Figure 6) identifies the tensions now evident between the groups as they press their positions on this issue. Kim Il-sung is in a pitched conflict with almost every other group in

\textsuperscript{10} If both the United States and Kim Il-sung were estimated to have negative expected utility for one another, their pairwise relationship would fall in either sector 5 or sector 6. Since each side expects to lose in a policy dispute with the other, there would be a very low prospect of conflict between the two groups. If Kim Il-sung's expected utility value for the United States was positive and large and the United States' value for Kim Il-sung was small and negative, their pairwise relationship would be in sector 8. In that situation, while the United States would anticipate a policy setback, the demands being made by Kim Il-sung on the United States are greater than the United States would be prepared to lose. In this situation, the two groups would be expected to work out a compromise favouring Kim Il-sung. Sector 4 is analogous to section 8 except the compromise would favour the United States. If Kim Il-sung's expected utility value for the United States was positive but small and the United States' value for Kim Il-sung was large and negative, their pairwise relationship would be in sector 7. In this situation, Kim Il-sung's demands would be viewed by the United States as reasonable since it was prepared to lose more than is being demanded of it. See Bueno de Mesquita, Newman and Rabushka (1985) pp 23–32.
### Figure 5
How to Interpret Cartesian Diagrams

<table>
<thead>
<tr>
<th>E(U) of Others</th>
<th>More Difficult Compromise</th>
<th>Rival</th>
<th>Advantaged</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Favouring</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rival</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Easy</th>
<th>Compromise</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Favouring</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Rival</td>
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<table>
<thead>
<tr>
<th>Focal Group</th>
<th>Advantaged</th>
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<table>
<thead>
<tr>
<th>Low Likelihood of Conflict</th>
<th>Easy Compromise</th>
<th>Favouring Focal Group</th>
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<table>
<thead>
<tr>
<th>More</th>
<th>Focal Group</th>
<th>Difficult Compromise</th>
<th>Favouring</th>
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<td></td>
<td></td>
<td></td>
<td>Focal</td>
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<td>Group</td>
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<table>
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<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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the analysis. Those elements within North Korea pressing for a more extreme policy -- the Military and Kim Jong-il -- believe they can move Kim Il-sung toward their preferred positions and most of the groups pressing for international inspection also believe that they can successfully pressure Kim Il-sung to moderate. However, he in turn believes that he does not have to compromise with any of these interests. The only two interests he needs to be responsive to are the military pressure from the United States and South Koreans. Short of these two interests, he does not see the need to compromise. Hence the conflict and posturing surrounding the unsuccessful efforts in late 1993 to resolve this matter. The model's ability to capture the current situation should give reassurance as we assess alternative strategies and scenarios.

Figure 6 about here

One key issue, in terms of strategy, is what happens if the United States and its allies "turn up the heat?" This is a testable proposition using the expected utility modelling approach. If each of the groups, with the exception of those from North Korea and China, increase the importance they attach to the issue, the forecast shifts to the position of the IAEA -- international monitoring of all North Korean facilities. The expected utility analysis, Figure 7, II We acknowledge that at the present time this strategy does not appear likely as the Japanese and other Asian countries are not yet prepared to press the North Koreans firmly on this issue.
Figure 6
Base Case Analysis
Joint Perspective

E(U) of Others

USDD
KIM-J
NKM
SKFM
USSD
JDA
IAEA

SKMD

3 2
4
1
5
6
7
8

PLA
NKT
RUS
DENG
OLD
SKBUS
JFM

E(U) KIM-I
indicates that under this scenario, Kim Il-sung is defeated politically by many of the external groups and faces pressure internally from his supporters and externally from his Chinese allies. In the face of this perceived threat, the North is able to neutralize most of the political pressure by similarly adopting an intransigent position. With all groups, with the exception of the Chinese, adopting intransigent policies, the forecast shifts again to a policy short of full inspection, $F_1$ and the North Koreans will have successfully reduced their prospects for defeat. This result can be gleaned from Figure 8, where all of the groups with the exception of the Old Guard, Kim Jong-il and the North Korean Military are now in sectors 6, 7 and 8. Hence, so long as the United States and others press on the issue, the successful counter strategy for the North is to dig in its heels.

Figures 7 and 8 about here

With little prospect that the United States and the North Koreans will be able to resolve this impasse on their own, it remains to be seen whether the Chinese card can be successfully played. During the second half of 1993, the Chinese asserted that "quiet" diplomacy by interested states would be more productive than public posturing. Moreover, it has been reported that Jiang Zemin, China’s president, told Japanese Prime Minister Morihiro Hosokawa at the APEC meeting that "China had little influence these days over Kim Il-sung and, therefore, could not be counted on to change North
Figure 7

Joint Perspective

The United States and Others
Press the North Koreans

E(U) of Others

SKFM
USDD
JDA

OLD
KIM-J
NKM
NKT
DENG
PLA

E(U) KIM-I
Kim Il-sung, Kim Jong-il, and the Korean Military assumed to attach high salience to the resolution of the issue.
Korea's ways."\textsuperscript{12} There are clearly historical reasons for the Chinese unwillingness to press the North Koreans.\textsuperscript{13} However, if the Chinese pressed their position, i.e., Deng's position, after the issue was pressed by the United States, the Chinese leverage would not be sufficient to offset North Korean intransigence. However, the analysis suggests that if Deng Xiaoping pressed, without the associated pressure from the United States and others, the objective of international monitoring can be achieved. See Figure 9. However, he would have to be willing to press to the point of threatening the Koreans with a breach of their historical relationship before Deng's influence alone would be sufficient to alter the North Korean's stance on this issue. This strategy, although having some prospect of success, appears very unlikely at the present time.

Figure 9 about here

There is another strategy which also results in the adoption of a policy of international monitoring and inspections. That is, a change in North Korean policy in exchange for the United States normalizing its relations with North Korea. This scenario assumes that U.S. influence with North Korea will increase if the U.S. recognizes North Korea and requires a slight increase in the salience of the United

\textsuperscript{12} "A blind eye from Big Brother?", \textit{South China Morning Post}, December 5, 1993, p.13.

\textsuperscript{13} Id.
Figure 9
Chinese Group's Pressure North Korea
Joint Perspective

E(U) of Others

USDD
KIM-J
SKFM
JDA

RUS
NKM
NKT
PLA
OLD

SKMD
DENG

3 2 1

4

5

6 7

8

E(U) KIM-I

IAEA
The potential success of this strategy may support the contention of some that Kim Il-sung is using the nuclear strategy for a bargaining chip exchangeable for recognition. While such a trade would change North Korean-U.S. relations dramatically, it would also leave Kim Il-sung exposed to a whole host of pressures from other groups (Figure 10). These pressures suggest the costs Kim Il-sung faces from such a radical change in policy. The pressure on Kim Il-sung can be moderated only somewhat by Kim formally adopting the policy of international inspections as his own position. Thus, it is unlikely that Kim Il-sung will publicly change his position even if the North Korean policy changes.

Figure 10 about here

There is one additional point worth noting. As the data suggest, if Kim Il-sung dies and is succeeded by his son, Kim Jong-il, there is a possibility that North Korean policy will become even more intransigent as the "moderating" influence of Kim Il-sung will no longer be present internal North Korean context.

VII. Conclusion

There are two basic conclusions we wish to draw from the analysis presented. The first is a policy conclusion and the

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14 In the data, this is reflected by a doubling of the United States State Department's resources from 35 to 70 and an increase in its salience to 80.

15 See Bridges (1993) p. 84.
United States Normalizes Relations with North Korea

Joint Perspective

Figure 10

E(U) of Others

USDD

USSD

SKMD

KIM-J
SKFM
JDA

KKM
OLD
NKT
SKBUS
DENG
JFM
PLA
RUS

E(U) KIM-I

IAEA
second is a methodological conclusion. From a policy perspective, it appears that at best we can only hope for international monitoring and inspection of Korean nuclear weapons facilities as it is very difficult to put the nuclear genie back into its bottle once it is out. In the present context, given the array of groups on this issue, it will be very difficult to find a strategy which achieves this goal. Each potentially successful strategy from the perspective of the United States has a equally successful counter-strategy for the North Koreans. There was no obviously plausible strategy identified which produced the outcome of international inspections while leaving the North Koreans secure with this outcome. Every strategy had imbedded in the results, political costs and vulnerabilities which are likely to prove unacceptable to the North. The current impasse may prove difficult to break in a manner acceptable to the parties. Finally, the expected utility approach and model described herein has proven over the course of the past twelve years to be a powerful tool for analysing political decision making in many varied settings. Moreover, the model has been shown to be highly accurate in their forecasts, flexible in their ability to construct alternative scenarios, and rich in the analysis generated.
Bibliography


