

Study Series 10-02

***Unification Clock:
Predicting Korean
Unification***

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Introduction

To achieve unification on the Korean Peninsula, while working to resolve concerns such as the nuclear issue, at the same time we must prepare favorable internal and external conditions and a strong foundation for unification. For this purpose, we need research which objectively, systematically, and comprehensively reflects the circumstances in North and South Korea, the state of inter-Korean relations, and changes in the regional situation surrounding the peninsula. This research looks at reunification as a practical possibility, and its goal is to enable an easier understanding of when we are in consideration of the various factors that influence unification. Further, on this foundation it aims to predict a future time for unification.

Research Methodology

There are various research methodologies which intend to predict future events. For this research we selected Delphi method which relies on panel of experts on North Korea and unification issues. The Delphi method is “a series of processes which derive the opinions of a group of experts and refine them, on the premise that even though the experts’ collective judgments emerge from subjective viewpoints, they are more reliable than non-expert opinions, and so the result is more objective” by adopting this method.

Under these considerations, we conducted Delphi surveys on the time and factors influencing reunification, doing three repetitions on a group of 51 experts, and sorted the results; after a forecasting model has been constructed, 51 members participate in panel surveys conducted quarterly or semi-annually. Once we have determined the influencing factors for unification, we will conduct panel surveys and continuously construct reunification clocks by area as well as an overall clock.

For this research, first we conducted a pilot study from June 11-15, 2009, on 9 professors (8 respondents) of the Education Center for Unification and 36 participants of the Program for the Future Leaders of Unification at the Education Center for Unification, representing the “attentive public” (25 respondents). Using those results we decided on the questions for the first survey by July 22, 2009.

The survey forms were then distributed via e-mail on July 23, 2009 to 51 experts, and the completed forms were collected via e-mail. Due to the vast number of factors suggested by the respondents, the first survey results took considerable time to systematically classify. The 2nd Delphi survey questionnaires were distributed on September 10; by supplying the body of data collected and filtered from the first round, this second round was designed to seek consensus among the experts on their diverse opinions. The 3rd Delphi survey was conducted from October 19 - November 13. The respondents were requested to choose an ultimate unification time, and evaluations were made on each of the most common influencing factors mentioned through the 1st and 2nd surveys

The 51 participants of this Delphi survey were specialists and scholars from research institutes and universities working in the fields of North Korea and unification, foreign affairs, and security studies. The number of respondents was 51 for the first round, 48 for the second round, and 45 for the final round. Of the 45 complete respondents, 38 responded for the agreement-type unification and 40 responded for the absorption-type unification.

The Unification Clock: 2009 Unification Time

1. 2009 Unification Time

	Overall		Political		Economic		Social		Military		International Relations	
	Agreement type	Absorption Type	Agreement type	Absorption Type								
Mean	35.92	49.50	32.41	47.73	41.28	53.65	36.92	47.00	23.81	40.65	37.11	47.28
Standard deviation	15.17	16.52	16.01	18.25	15.51	17.44	14.78	16.78	13.84	21.04	16.01	17.00
Median	37.50	50.00	30.00	50.00	42.50	55.00	40.00	50.00	24.50	40.00	40.00	48.50
Maximum	70.00	80.00	80.00	80.00	75.00	90.00	55.00	90.00	50.00	95.00	65.00	80.00
Minimum	5.00	15.00	5.00	10.00	10.00	20.00	10.00	15.00	0.00	5.00	5.00	15.00
Time	4:19	5:56	3:53	5:44	4:57	6:26	4:26	5:38	2:51	4:53	4:27	5:40

A. Overall Unification Clock

〈Agreement type〉

As of November 2009, the experts' judgment of the clock time for Agreement-type unification of the Korean peninsula is 4:19.



〈Absorption-type〉

As of November 2009, the experts' judgment of the clock time for absorption type unification of the Korean peninsula is 5:56.



〈Agreement-Type Unification (38 responses)〉

- Scores were given ranging from a minimum of 5 to a maximum of 70 points.
- The mean response was 35.92 points (standard deviation was 17.17), with a median of 37.50.

〈Unification Time〉

- If the **Mean (35.92 points)** is converted to a unit of time (from 0:00 to 12:00), it is 4:19.

〈Absorption-type Unification (total 40 responses)〉

- Scores were given ranging from a minimum of 15 to a maximum of 80 points.
- The mean response was 49.50 points (standard deviation was 16.52), with a median of 50.00.

〈Unification Time〉

- If the **mean(49.50 points)** is converted to a unit of time (from 0:00 to 12:00), it is 5:56.

B. Area-Specific Unification Clocks

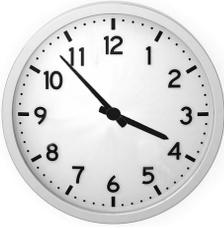
i . Unification Clock for the Political Dimension

〈Agreement type〉

As of November 2009, the clock time for consensus-based unification from the political dimension is 3:53.

〈Absorption-type〉

As of November 2009, the clock time for absorption-based unification from the political dimension is 5:44.



〈Agreement-type Unification (38 responses)〉

- Scores were given ranging from a minimum of 15 to a maximum of 80 points.
- The mean response was 32.41 points (standard deviation was 16.01), with a median of 30.

〈Unification Time〉

- If the **Mean (32.41 points)** is converted to a unit of time (from 0:00 to 12:00), it is 3:53.

〈Absorption-type Unification (total 40 responses)〉

- Scores were given ranging from a minimum of 10 to a maximum of 80 points.
- The mean response was 47.73 points (standard deviation was 18.25), with a median of 50.

〈Unification Time〉

- If the **mean (47.73 points)** is converted to a unit of time (from 0:00 to 12:00), it is 5:44.

ii . Unification Clock for the Economic Dimension

〈Agreement type〉

As of November 2009, the clock time for consensus-based unification from the economic dimension is 4:57.



〈Absorption-type〉

As of November 2009, the clock time for absorption-based unification from the economic dimension is 6:26.



〈Agreement-type Unification(38 responses)〉

- Scores were given ranging from a minimum of 10 to a maximum of 75 points.
- The mean response was 41.28 points (standard deviation was 15.51), with a median of 42.50.

〈Unification Time〉

- If the **Mean (41.28 points)** is converted to a unit of time (from 0:00 to 12:00), it is 4:57.

〈Absorption-type Unification (total 40 responses)〉

- Scores were given ranging from a minimum of 20 to a maximum of 90 points.
- The mean response was 53.65 points (standard deviation was 17.44), with a median of 55.00.

〈Unification Time〉

- If the **mean (53.65 points)** is converted to a unit of time (from 0:00 to 12:00), it is 6:26.

iii . Unification Clock for the Social Dimension

〈Agreement type〉

As of November 2009, the clock time for consensus-based unification from the social dimension is 4:26.

〈Absorption-type〉

As of November 2009, the clock time for absorption-based unification from the social dimension is 5:38.



〈Agreement-type Unification (38 responses)〉

- Scores were given ranging from a minimum of 10 to a maximum of 55 points.
- The mean response was 36.92 points (standard deviation was 14.78), with a median of 40.

〈Unification Time〉

- If the **Mean (36.92 points)** is converted to a unit of time (from 0:00 to 12:00), it is 4:26.

〈Absorption-type Unification (total 40 responses)〉

- Scores were given ranging from a minimum of 15 to a maximum of 90 points.
- The mean response was 47.00 points (standard deviation was 16.78), with a median of 50.

〈Unification Time〉

- If the **mean (47.00 points)** is converted to a unit of time (from 0:00 to 12:00), it is 5:38.

iv . Unification Clock for the Military Dimension

〈Agreement type〉

As of November 2009, the clock time for consensus-based unification from the military dimension is 2:51.

〈Absorption-type〉

As of November 2009, the clock time for absorption-based unification from the military dimension is 4:53.



〈Agreement-type Unification (38 responses)〉

- Scores were given ranging from a minimum of 0 to a maximum of 50 points.
- The mean response was 23.81 points (standard deviation was 13.84), with a median of 24.50.

〈Unification Time〉

- If the **Mean (23.81 points)** is converted to a unit of time (from 0:00 to 12:00), it is 2:51.

〈Absorption-type Unification (total 40 responses)〉

- Scores were given ranging from a minimum of 5 to a maximum of 95 points.
- The mean response was 40.65 points (standard deviation was 21.04), with a median of 40.

〈Unification Time〉

- If the **mean (40.65 points)** is converted to a unit of time (from 0:00 to 12:00), it is 4:53.

v . Unification Clock for the International Relations Dimension

〈Agreement type〉

As of November 2009, the clock time for consensus-based unification from the international relations dimension is 4:27.

〈Absorption-type〉

As of November 2009, the clock time for absorption-based unification from the international relations dimension is 5:40.



〈Agreement-type Unification (38 responses)〉

- Scores were given ranging from a minimum of 5 to a maximum of 65 points.
- The mean response was 37.11 points (standard deviation was 16.01), with a median of 40.

〈Unification Time〉

- If the **Mean (37.11 points)** is converted to a unit of time (from 0:00 to 12:00), it is 4:27.

〈Absorption-type Unification (total 40 responses)〉

- Scores were given ranging from a minimum of 15 to a maximum of 80 points.
- The mean response was 47.28 points (standard deviation was 17.00), with a median of 48.50.

〈Unification Time〉

- If the **mean (47.28 points)** is converted to a unit of time (from 0:00 to 12:00), it is 5:40.

2. Unification Factors

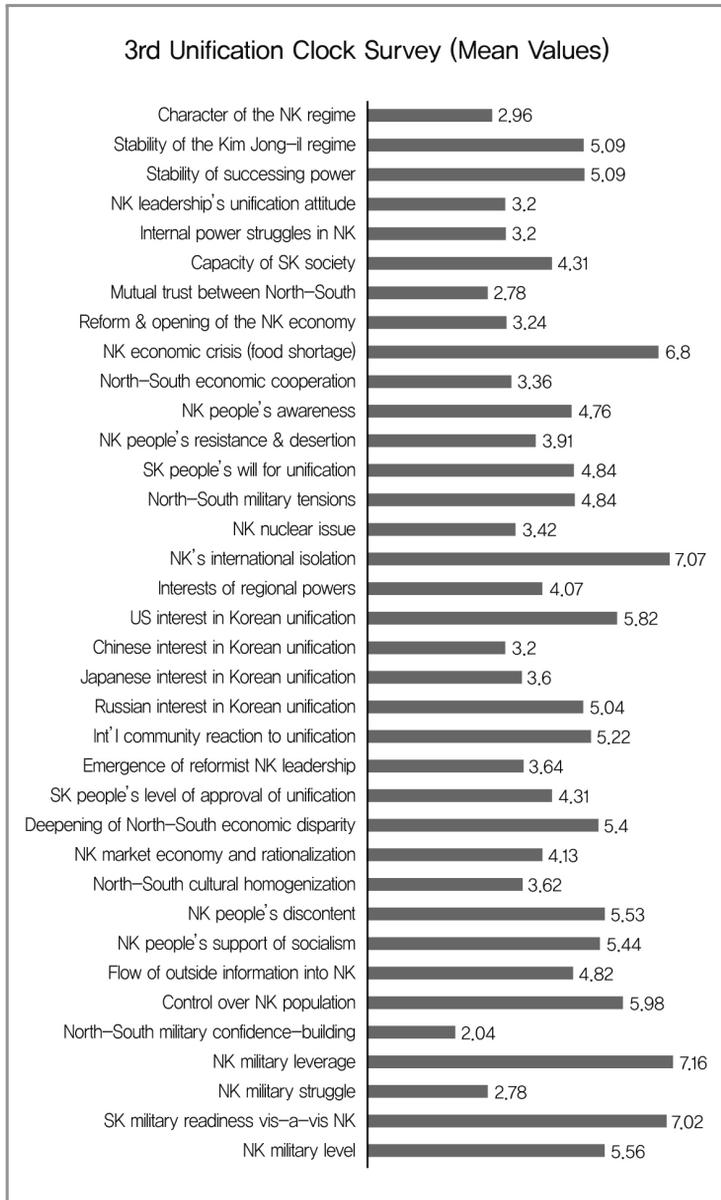
On the basis of the factors selected via the 1st and 2nd Delphi survey rounds, in the 3rd Delphi expert survey, to enable a systematic and objective measurement of the factors affecting unification, the results were evaluated using a 10-point scale. The results are shown in <Figure 1>.

<Figure 1> Analysis chart of the results of the survey on unification factors

Question	Question Topic	N	Mean	Median	Mode	Std. Dev.
<Q1>	Character of the NK regime	45	2.96	3	3	.928
<Q2>	Stability of the Kim Jong-il regime	45	5.09	5	3	2.054
<Q3>	Stability of the succession & power transfer	45	5.09	5	7	1.952
<Q4>	NK leadership's unification attitude	45	3.2	3	3	1.575
<Q5>	Internal power struggles in NK	45	3.2	3	2	1.575
<Q6>	Capacity of SK society	45	4.31	4	3	1.649
<Q7>	Mutual trust between North-South	45	2.78	3	3	.974
<Q8>	Reform & opening of the NK economy	45	3.24	3	3	1.190
<Q9>	NK economic crisis (food shortage)	45	6.8	7	8	1.517
<Q10>	North-South economic cooperation	45	3.36	3	3	1.171
<Q11>	NK people's awareness	45	4.76	5	3	1.640
<Q12>	NK people's resistance & desertion	45	3.91	4	3	1.379
<Q13>	SK people's will for unification	45	4.84	5	5	1.224
<Q14>	North-South military tensions	45	4.84	5	7	1.718
<Q15>	NK nuclear issue	45	3.42	2	2	2.379
<Q16>	NK's international isolation	45	7.07	7	7	1.558

Question	Question Topic	N	Mean	Median	Mode	Std. Dev.
<Q17>	Interests of regional powers	45	4.07	4	5	1.572
<Q17_1>	US interest in Korean unification	45	5.82	6	6	2.146
<Q17_2>	Chinese interest in Korean unification	45	3.2	3	3	1.590
<Q17_3>	Japanese interest in Korean unification	45	3.6	3	3	1.750
<Q17_4>	Russian interest in Korean unification	45	5.04	5	5	1.833
<Q18>	Int'l community reaction to unification	45	5.22	5	5	1.536
<Q20>	Emergence of reformist NK leadership	45	3.64	3	3	1.300
<Q21>	SK people's level of approval of unification	45	4.31	4	4	1.635
<Q22>	Deepening of North-South economic gap (dependency on South)	45	5.4	6	6	1.698
<Q23>	NK market economy elements and privatization	45	4.13	4	3	1.687
<Q24>	North-South cultural homogenization	45	3.62	3	2	1.466
<Q25>	NK people's discontent	45	5.53	6	7	1.926
<Q26>	NK people's support of socialism	45	5.44	6	7	1.925
<Q27>	Flow of outside information into NK	45	4.82	5	3	1.709
<Q28>	Control over NK population (restrictions on movement)	45	5.98	6	8	1.971
<Q29>	North-south military confidence-building/arms control	45	2.04	2	2	.852
<Q30>	NK military leverage	45	7.16	8	8	1.977
<Q31>	NK military struggle	45	2.78	3	2	1.146
<Q32>	SK military readiness vis-à-vis NK	45	7.02	7	7	1.699
<Q33>	NK military level	45	5.56	5	7	1.752

〈Graph 1〉 Bar Graph of the results of the survey on unification factors



3. Sorting of Major Groupings of Factors Influencing Unification

Using the variables (survey items) chosen as overall unification factors, we performed a factor analysis. In other words, by analyzing the relationships existing among many of the variables, we identified the latent characteristics they had in common. In performing our factor analysis, we used the orthogonal rotation method, in which by assuming the mutual independence of the factors, the multicollinearity of the variables can be eliminated. For the results of the significance test on the factor analysis, the KMO index (a measurement of sampling accuracy) was 0.550, and Bartlett's test of sphericity showed statistical significance, meaning that the factor analysis was possible.

We selected only the variables with the highest factor loading values as a result of the factor analysis to determine the variable groupings. The selected variable groupings were 1) variable 1 (international environment), 2) variable 2 (policy change through reform and opening), 3) variable 3 (South Korea's capacity for unification), 4) variable 4 (North Korea's nuclear intentions), 5) variable 5 (North Korea's internal political environment), 6) variable 6 (the military environment), and 7) variable 7 (adaptability to the international community). The variables included in each grouping are as follows.

A. Factor 1 (The International Environment)

Whether reunification occurs by consensus or absorption, the results clearly reveal that the international environment - i.e., the interests of the regional powers and the cooperation of the international community - is the most important influence on unification. The variables making up the first factor, international environment, are as follows.

- Interests of regional powers (.880)
- Japan's interest in unification (.857)
- US interest in unification (.797)
- The international community's goodwill towards unification (.767)
- Russia's interest in unification (.670)
- China's interest in unification (.607)

B. Factor 2 (Policy Change through Reform and Opening)

We can confirm once again that North Korean policy change through reform and opening is an essential task for unification. The 2nd factor determined through factor analysis, policy change through reform and opening, is made up of the following variables.

- Reform and opening of the North Korean economy (.819)
- The North Korean people's awareness about opening and liberalization (.741)
- Mutual trust between North and South (.720)
- North Korean people's regime resistance and desertion (.620)
- North-South economic cooperation (.519)

C. Factor 3 (South Korea's Capacity for Unification)

Among the tasks for Korean unification, the need to strengthen not only North Korean but also South Korean capacity for unification clearly emerged as a factor. The 3rd factor determined through factor analysis, South Korea's capacity for unification, is made up of the following variables.

- Capacity of South Korean society (.822)
- The South Korean people's will for unification (.686)

D. Factor 4 (North Korea's Nuclear Intentions)

Predictably, North Korea's nuclear intentions stood out as a significant factor for unification. The 4th factor determined through factor analysis, North Korea's nuclear intentions, is made up of the following variables.

- The North Korean nuclear (disarmament) issue (.830)
- The North Korean leadership's will for unification (.648)

E. Factor 5 (North Korea's Internal Political Environment)

As a major influence on unification, North Korea's internal political environment is undeniably an essential factor for consideration. The 5th factor determined through factor analysis, North Korea's internal political environment, is made up of the following variables.

- Stability of the Kim Jong-il regime (.805)
- Stability of the succession & power transfer process (.710)

F. Factor 6 (The Military Environment)

The 6th factor selected, the military environment, included only one factor.

- The military tension between North and South (.827)

G. Factor 7 (Adaptability to the International Community)

For the final factor, North Korea's adaptability to the international community, the following two variables applied.

- North Korea's international isolation (.867)
- Character of the North Korean regime (-.768)

Summary and Conclusion

To determine the Korean unification clock for the 2nd half of 2009, we conducted 3 rounds of Delphi surveys on specialists, the results of which can be viewed in <Figure 2> below. We surveyed overall unification clocks for two types of unification, consensus and absorption, as well as 5 area-specific clocks (political, economic, social, military, and international relations), and at the same time we conducted surveys on the factors (conditions) considered in determining the unification time(score).

There were no major changes in the times for the various clocks per survey iteration, but there was a significant difference in the time results by unification type between consensus and absorption.

<Figure 2> 2009 Unification Clock – Result Comparison Chart for Delphi Survey Rounds 1, 2, & 3

	Overall		Political		Economic		Social		Military		Int'l Relations	
	agreement	Absorption	agreement	Absorption								
1 st (avg)	39.00	50.40	34.67	48.79	46.41	56.52	40.67	47.52	27.82	37.86	41.31	46.57
2 nd (avg)	38.37	51.58	33.38	49.25	43.38	55.03	38.73	47.45	26.00	36.75	39.68	46.77
3 rd (avg)	35.92	49.50	32.41	47.73	41.28	53.65	36.92	47.00	23.81	40.65	37.11	47.28
1 st (avg)	4:41	6:03	4:10	5:51	5:34	6:47	4:53	5:42	3:20	4:33	4:57	5:35
2 nd (avg)	4:36	6:11	4:00	5:55	5:12	6:36	4:39	5:42	3:07	4:25	4:46	5:37
3 rd (avg)	4:19	5:56	3:53	5:44	4:57	6:26	4:26	5:38	2:51	4:53	4:27	5:40

Further, the most common responses from the 1st and 2nd Delphi surveys on factors influencing unification were determined and included in the 3rd survey questions. We composed the survey by selecting 10 overall unification factors for each type (consensus, absorption) and 5 factors in each of the specific areas. Then, in the 3rd Delphi survey round we asked respondents to evaluate these influencing factors on a 10 point scale to enable systematic and objective measurement.

At the same time, we performed a factor analysis using the variables (survey items) selected as overall unification factors, in order to identify the mutually independent characteristics (dimensions) present in many of the variables. Using this factor analysis we sorted the results into a few major factors (dimensions) according to the cohesive aspects found among many of the variables; the results showed that the variables can be divided according to the following 7 distinct dimensions. The factor divisions produced by factor analysis are 1) factor 1 (international environment), 2) variable 2 (policy change through reform and opening), 3) variable 3 (South Korea's capacity for unification), 4) variable 4 (North Korea's nuclear intentions), 5) variable 5 (North Korea's internal political environment), 6) variable 6 (the military environment), and 7) variable 7 (adaptability to the international community).

Using this research as a foundation, in the future we will continuously conduct panel surveys quarterly or semi-annually using specialist panels, and through this process we will be able to

perform a trend analysis to grasp the trends in unification factors according to changes each quarter or semester in the conditions inside and outside of the Korean peninsula. After establishing a predictive model on this foundation, we can construct area-specific and consolidated predictive unification clocks using the selected unification conditions. Further, through consideration of the unification factors we determined, as well as improvement in the overall comprehension and awareness about these factors, our research will greatly contribute to the proposal and execution of future North Korea policy and unification policy.

In addition, this research has brought into focus an investigation of the present unification clock time and influencing factors based on experts' understanding, but in the future, along with additional study of the influencing factors selected on the basis of these results, we will also carry out a project on the general public's awareness and evaluation of factors influencing unification, so that we can make a comparative analysis of the differences in awareness between North Korea specialists and the general public.

In the future, while considering the practical impossibility of ever being able to directly grasp the internal affairs of North Korea, by conducting surveys targeting defectors on the subject of unification time prediction and influencing factors, we believe that we can help to compensate for some of the limitations on information about the character of the North Korean system and actual conditions inside North Korea, as observed from South

Korea. At the same time, referring back to the experience of a project conducted by Park Young-Ho et al. in 2003, “*A Study on Unification Model for Unification Developing Indices and Analyzing Trends in the Korean System,*” in which a predictive model was created using trends in the North Korean system and variables taken from defector surveys, we can do a comparison of the trends in the North Korean system at present with those gleaned from the 2003 project using a Cohort Analysis, to make a prediction of the unification time.

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