



Time-series Analyses for Inter-Korean Relations with GDELT Data Set

The analysis and explanation of North Korea reminds “*obscurum per obscurius*” which means ‘to explain what is unclear with the more ambiguous’, or “*ignotum per ignotius*”, which also means ‘to explain the unknown with the more unknown’. North Korean researchers called it a black hole and compared understanding of North Korea to a decipher or to seeing a black bird in the middle of the night in a sense that the subject of study was unknown. Although it is virtually impossible to grasp an objective reality due to the closed nature of the state and system of North Korea, we cannot stop the study of North Korea as it is the most important subject of research for achieving our national security and peace and prosperity on the Korean Peninsula.

This study has significance as an empirical study that tests several limitations on studying North Korea. First, using an event count data was regarded as a methodological experiment as a way overcoming the practical limitation. A scientific and appropriate analysis is literally impossible due to lack of data concerning North Korea.

Second, by applying the event count data, which has been continuously developed in international relations research, this will

analyze the inter-mechanical relationship at the level of bilateral relations and seek theoretical and policy consensus through the empirical analysis of inter-Korean relations.

Third, as an alternative approach to the conventional explanation on inter-Korean relations, this study produces an objective ground to attempt a new explanation with statistical approach instead of traditional explanation based on ideological and policy preferences.

Finally, a diversification of research is also a major goal of this study for cross-validation with existing event count data by creating a new data. The news sources from North and South Korea can explain more precise inter-Korean relations using in recognition of the usefulness of event count data.

This study utilizes the GDELT (Global Data on Events, Location and Tone) time series data for 241 months which is collected as a daily measurement for a total of 20 years and 1 month (7,331 days) from January 1, 2000 to January 31, 2020. By accumulating as monthly time series data, the bilateral relations between South and North Korea at the governments level were classified into cooperation and dispute.

The core contents of this study can be summarized as follows. North Korea attempted to develop nuclear and missile as an asymmetric balanced strategy for the survival of the regime, and such military provocations turned out to be high-intensity and low-frequency conflict behavior of North Korea. On the other hand, as South Korea responded to North Korea's nuclear and missile development with low-intensity and high-frequency disputes, the conflict between the two Koreas tended to worsen.

Despite the continuing military tensions caused by North Korea's provocation, the mutual relations between the two Koreas are fundamentally reciprocal in terms of normal interstate relations. The

research of international relations has clarified that conflict interaction is not a hostile relationship that overwhelms cooperation, rather that cooperative acts accompany with conflictual reaction in the bilateral relations. The action of reciprocity means that the two Koreas can manage military tensions and achieve peace on the Korean Peninsula through joint efforts.

Contrary to the popular belief that the progressive government of South Korea would prefer a moderate approach to North Korea and the hard approach of the conservative government in inter-Korean relations, reciprocity was the more important factor that can explain the dynamics in the inter-Korean relations.

According to the Granger causality test results, inter-Korean cooperation has the effect of inducing North-South conflict and North-South cooperation at the same time. More specifically, South-North cooperation has a dual effect of inducing North-South cooperation and North South conflict. Some of the cooperation that South Korea provides to North Korea was interpreted that South Korean cooperation provokes North Korean disputes to South Korea as a threat to the regime's survival of North Korea. On the other hand, South Korea's cooperation with North Korea can be summarized as being able to manage North Korea's conflict to South Korea by promoting North Korea's cooperation with South Korea.

Obviously, South Korea's military conflict or threats against North Korea cannot manage or reduce North Korea's conflict with South Korea. Rather, it can be interpreted that North Korea is not basically aggressive but has a strong defensive aggression for survival when South Korea assumes that North Korea is the target of absorbed unification led by South Korea.

In terms of inter-Korean relations, North Korea considers the dual

impacts of South Korean cooperation to North Korea. If South Korea's cooperation increases the possibility of absorbed integration of North Korea, South Korean cooperation is judged as a direct threat to the regime survival of North Korea. In order to manage North Korea's disputes with South Korea, South Korea needs a policy to continuously promote inter-Korean cooperation in a sense that South Korea attempts to coexist with North Korean regime and does not attempt absorption and unification through it.

Keyword inter-Korean relations, Time-series Analyses, GDELТ, cooperation, dispute