

Project Report:

**Democratic People's Republic of Korea
Economic Statistics Project
(April –December 2008)**

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List of Abbreviations

AMA	Analysis of Main Aggregate (database, by UN)
BOK	Bank of Korea
CIA	Central Intelligence Agency (of US)
CIC	Center for International Comparisons (University of Pennsylvania)
DPRK	Democratic People's Republic of Korea
ESDS	Economic and Social Data Services
ERINA	Economic Research Institute of Northeast Asia
EU	European Union
FAO	Food Agriculture Organization
GDP	Gross Domestic Products
GNI	Gross National Income
GTIS	Global Trade Information Service
IDB	International Data Base (US Census Bureau)
ITC	International Trade Center (UNCTAD/WTO)
KCS	Korea Customs Service
KDI School	Korea Development Institute School of Public Policy and Management
KIEP	Korea Institute for International Economic Policy
KINU	Korea Institute for National Unification
KITA	Korea International Trade Association
KOSIS	Korea Statistics Information Service (of NSO)
KOTRA	Korea Trade-Promotion Agency
IFI	International Financial Institution
IMF	International Monetary Fund
MDG	Millennium Development Goals (UN)
MOC	Ministry of Commerce (of China)
MOU	Ministry of Unification (of Korea)
NSO	National Statistical Office (of Korea)
OECD	Organization for Economic Cooperation and Development
PPP	Purchasing Power Parity
PWT	Penn World Table
ROK	Republic of Korea
SIPRI	Stockholm International Institute for Strategic Studies
TPI	Trade Performance Index
UNCTAD	United Nations Conference on Trade and Development
UNFPA	United Nations Population Fund
UNICP	United Nations International Comparisons Programme
UNICEF	United Nations Children's Fund
UNSD	United Nations Statistics Division
UNPD	United Nations Population Division
WDI	World Development Indicators (World Bank)
WHO	World Health Organization
WTO	World Trade Organization

PART THREE: CONCLUSIONS AND RECOMMENDATIONS

VI. Toward Knowledge Sharing

A. Major Findings and Lessons Learned

The Project identified DPRK economic and social statistics available in the public domain, and gathered selected data for in-depth analysis. The Project systematically reviewed different types of entities such as international organizations, UN agencies and departments and bilateral official governments, encompassing a wide geographical area, covering not only South Korea but also other Asian countries, the United States and European Union member countries.

Out of 221 data sources or databases checked, two-thirds contain North Korean statistical data, of which roughly 60% (141) is available only in English, while 18% is available only in Korean. Databases that contain comprehensive data, defined as covering over ten-year historical data, account for about 40% of the identified sources, while partial data sources account for 56%. The remaining 5% of databases do not list DPRK data in the public domain, or such data possession could not be confirmed.

The Project conducted an overall assessment of identified databases, using supply and demand side criteria, including: (1) data update frequency; (2) institutionalization of staff members who collect and analyze North Korea economic statistics; (3) sources of data and technical notes/explanations; (4) reliability of methodology; (5) comprehensiveness of data; (6) data accessibility; (7) language; and (8) data presentation format and functions. Of 121 databases that were evaluated, those with the highest points share some common characteristics. Most of them are global entities providing comprehensive trade data or economic and social indicators through their databases in the public domain, including UN Comtrade, OECD database, and UNCTAD.

DPRK data is more prevalent than expected in the public domain, including in available databases. However, there were common problems identified in available DPRK statistical data: (1) limited primary sources; (2) limited accessibility to data and methods; and (3) a range of issues or obstacles encountered in terms of collection and analysis of data, depending on the types of economic and social indicators.

The relative absence of primary sources (North Korean official/non-official data) and the limited number of secondary sources (other “authoritative” sources) explains the questionable reliability issue of much of the DPRK statistical data available, especially in the microeconomic, macroeconomic and social indicator data categories. Many third-tier databases or analysis rely on extremely limited primary statistical sources made available by the North Korean authorities, or the limited number of “authoritative” secondary data sources, such as the South Korean and other governmental agencies, as well as the UN agencies to which the North Korean authorities submit statistical data.

This creates a “reverse pyramid structure” of available DPRK statistics. The North Korean primary data sources are at the bottom and the secondary sources at the second tier, servicing an increasing number of third-tier entities on the top by providing key DPRK economic and social statistics. The amount and reliability of new information becoming available at the bottom (from North Korea) is extremely limited, complicating the efforts of the second tier authoritative entities to make progress in terms of compiling data or improving estimation methods. Meanwhile, numerous third-tier entities cite secondary sources in their databases without much attention to technical notes or methodologies. DPRK economic analysis and policymaking rely on this fragile foundation. The issue is particularly acute in the case of macroeconomic data such as GDP and GNI per capita and price data. An increasing number of third-tier entities cite only a handful of secondary entities such as the BOK and the CIA.

The Project confirmed that data accessibility issues limit the ability of researchers to gain a better understanding of certain datasets, methods and assumptions adopted, and the underlying objectives behind them. Accessibility issues need to be understood in the context of language barriers and proprietary access issues. Language barriers are problematic, but can be overcome with certain measures. There are a number of comprehensive and user-friendly databases in non-universal languages, which may be overlooked by English-speaking analysts. The Project identified valuable but potentially under-utilized statistical databases. Such examples include KOSIS (Korean) and China MOC trade database (in Chinese). These entities were introduced in the draft final report, and selected datasets from their databases have been reflected in the Project datasheet.

Proprietary access issues encompass non-financial and purely financial factors (i.e., fees payable for data services), which require more elaboration. Accessibility restricted by non-financial types of proprietary rules can be further broken down and need to be understood as individual or institutional level obstacles. Individuals who have access to North Korea data are often unwilling to share it with others, but only make public a part of the data as research findings, in order to protect “exclusive contacts” with data providers in North Korea. This finding is not necessarily new but confirmed what we have already known as a challenge, requiring creative solutions for knowledge sharing. This will continue to pose serious implications for future knowledge sharing endeavors including the next phase of this Project, if extended.

Proprietary access issues at the institutional level include not only the above-mentioned obstacles, but also restrictions set on data access by rules, procedures and regulations. Some South Korean entities request membership registration and member log-in, often requiring Korean resident identification numbers, before access is allowed to North Korean data, especially data released by the North Korean authorities. This makes it virtually impossible for non-Korean nationals to access to such data in the public domain even if they possess Korean language ability. Some entities have two channels, one for Korean nationals and the other for foreigners (i.e., Samsung Economic Research Institute). But the majority of such entities’ underlying assumption is that only Korean nationals should access such data.

Accessibility limitations derived from purely financial proprietary issues also exist. For example, the GTIS trade database and China Data Online (subscription-based accessibility) are widely subscribed to by US government institutions, universities and research institutions. But it may be the case that Korean institutions or individual analysts may under-utilize these highly useful databases with advanced functions.

These issues on data sources and accessibility have created a vicious circle undermining the reliability of DPRK statistics. Under the prevailing circumstances, North Korea analysts in general and third-tier entities in particular take a conservative but second-best approach to cite estimations made by “authoritative” secondary entities or individual experts. These figures have rarely been challenged in a true sense, mainly because of the lack of alternative data or information to contest or prove otherwise. There is little way in such a situation to realize improvement or progress in terms of the reliability of DPRK statistics data. Also, if there are errors in the first tier, the same mistakes are circulated and perpetuated in other databases, as is seen in some trade mirror statistics.

The Project also revealed that different analytical approaches are necessary to address DPRK statistic problems, especially the reliability and usability of datasets, depending on the types of data. For analytical purposes, the Project divided identified DPRK statistics into two sections for technical analysis. First, the study of *Major Economic and Social Indicators* discussed entities estimating macroeconomic indicators such as GDP, but also took up population and health indicators, as well as microeconomic data such as prices as critical building blocks or assumptions, which are in turn used to derive macroeconomic figures such as GNI per capita. Second, the Project's study of *Trade Data* resulted in intended to serve as a “user guide” to help North Korea analysts understand the advantages and disadvantages of available trade databases and to choose among them appropriately depending on the analytical purpose.

For analysis on population and social indicators, selected entities or databases included DPRK official statistics, the ROK National Statistics Office, UN Statistics Division, UN Population Division and US Census Bureau. For macroeconomic indicators such as GNI, the Bank of Korea, US Central Intelligence Agency, the United Nations and CIC's Penn World Table were evaluated. Good Friends and Deutsche Bundesbank are among the entities selected for analysis and introduction of microeconomic datasets. Some noteworthy findings are as follows:

- North Korea's demographic and population data remain questionable, given that all reporting entities, regardless of some differences in assumptions on mortality rates, rely on North Korea's first and only census conducted in 1993. These questionable population figures create complicated issues and exacerbate the unreliability of other basic economic and social indicators, especially when calculated on a per capita basis. Until the results of the second nation-wide census survey funded by UNFPA (October 1-15, 2008) is released in late 2009, North Korea analysts have no choice but to interpret any demographic data with special caution.
- Major supply-demand gaps in information continue to exist in the area of microeconomic data. Price data (i.e., price datasets of basic commodities and items,

market versus planned portions) as well as reliability methodologies concerning how to assign values to production are difficult to obtain. Yet such facts are fundamental as critical building blocks or assumptions, which are in turn used to derive aggregate macroeconomic data. The current phase of the Project could not meaningfully fill the supply-demand gap by integrating price data in the final datasheet due mainly to the data accessibility issues and obstacles explained above.

- Methods and general procedures adopted by selected entities to estimate North Korea's GDP, the SNA-based or PPP-based approaches, seem to be logical. But some assumptions such as concerning prices and value-added ratios are questionable.
- The BOK's unique perspective in estimating North Korea's GNI does not seem to be well understood by outside analysts. By taking the Systems of National Accounts production approach, with assumptions of ROK prices and value-added ratios, the underlying objective of and rationale for BOK's method seems to grasp North Korea's economic state from the One Korea perspective. In theory, the two Koreas' GNI can be comparable, and when combined, they can be viewed as the economy of a "single country." The BOK's assumptions are problematic, however. One must interpret the resulting data with caution and realize that North Korean GDP derived using BOK's method is consistently (but logically) over-valued. Still, the BOK data may be more reliable than other estimations based on speculative assumptions of North Korean prices and value-added ratios.
- Historical and spatial comparability and usability of datasets vary depending on entities and methods adopted. For example, the BOK's data on North Korea GNI is not intended to be compared with other nations, except South Korea. CIA data, both PPP-based and OER-based GDP, are not supposed to be comparable over time, as clearly stated in its website explaining non-comparability in technical notes.
- Debates surrounding North Korean GDP data often stem from misuse or misinterpretation of the existing data and methods. For instance, third-tier entities frequently cite and list CIA's GDP estimations historically as if they were comparable overtime. Some data users and analysts also make arguments, comparing incomparable sources such as SNA-based GDP and PPP-based GDP.
- The United Nations' estimates of GDP are satisfactory in terms of comparability and usability, based on North Korea's official statistics as original sources, but adopting unique assumptions to estimate GNI, especially in the mid 1990s.
- The actual and potential utility of the CIC's Penn World Table is high and promising given that it is backed by on-going academic research and practical application to refine methodologies such as international comparability of national accounts, in cooperation with organizations including the UN and the World Bank, demonstrating a useful example of well-intentioned knowledge-sharing.
- The Project also identified the cause of unnecessary misunderstandings directed toward certain entities. For instance, the BOK discloses its GNI calculation methods in a completely separate webpage, but not under GNI tables. The unnecessary misunderstanding that "the BOK does not share methodologies" could be resolved simply by displaying its methodology notes on the same page of data or linking to such a paper.

As for trade data, the Project adopted a somewhat different “user guide” approach, while clarifying issues to be addressed to assess the reliability and usability of selected datasets. Here, the central issue is not the lack of available data. There are a quite a number of entities announcing North Korea’s international trade figures (albeit almost all are mirror statistics). But there are confusingly wide gaps in figures that cannot be explained as minor statistical errors. Some noteworthy findings regarding trade data include the following, among others:

- None of the entities can provide completely accurate international trade data for North Korea, especially aggregate figures, due to factors including: (1) errors caused by mirror statistics; (2) non-inclusion of trade with other non-reporting countries; and (3) non-inclusion of inter-Korean commercial trade.
- Excluding these factors, North Korea’s aggregate trade figures by different entities still show wide gaps, varying from the low estimate of KOTRA (\$2.9 billion in 2007) to those of the IMF (\$4.7 billion) and World Bank (\$4.9 billion).
- KOTRA’s data is widely used among Korean analysts. To grasp the aggregate level of North Korea’s trade, however, it is advisable to interpret KOTRA’s data with caution; KOTRA’s data understates actual figures due to its method of adjusting mirror statistics. KOTRA subscribes to the GTIS World Trade Atlas as one of the major sources for its trade data (a subscription-based database that is widely used by the U.S. government agencies due to its extremely user-friendly format and functions to analyze worldwide trade data). But in-depth discrepancy analysis in trade aggregate figures among different entities reveals that KOTRA drops “unreliable or unverifiable” trade data, especially small developing countries from the WTA. KOTRA also makes substantial downward adjustments from the WTA data after checking with foreign customs data through KOTRA’s overseas representatives and the ROK’s relevant government authority.
- Aggregate trade data published by the UN and the IMF are likely to more closely reflect reality, given their more comprehensive coverage of trading partner countries (over 120 member countries). GTIS’s coverage of North Korea’s trading partners is about half that in terms of number; KOTRA’s coverage is even smaller due to its downward adjustments and dropping some trading countries. But there are mistakes and errors by reporting countries in the IMF and UN databases, which are not corrected unless relevant trade authorities make an official announcement of changes or corrections.
- Based upon various statistical sources, one can observe an undeniable trend of increasing trade between North Korea and developing countries over time. Given this trend, the practice of dropping small developing countries from North Korea’s trade data (as adopted by some entities including KOTRA) may pose serious problems in interpreting accurately the historical trend and composition of North Korean trade by country or region.
- Inter-Korean trade does not seem to constitute a critical factor influencing wide gaps in aggregate trade figures *among* major entities mentioned above, but it does result in consistent overall under-reporting by all those entities. Given that the ROK government is restricted by law and not likely to announce North Korea’s international trade data inclusive of inter-Korean commercial trade, DPRK

analysts will need to continue the practice of aggregating the two statistics (North Korea's external trade and inter-Korean trade) as a necessary step to derive North Korea's "real" international trade. But a simple aggregation, as currently practiced by many entities and analysts, should be interpreted cautiously as inter-Korean trade figures include considerable grant aid as "non-commercial trade."

- The Project accessed a variety of bilateral and multilateral trade databases which could enable enterprising analysts to conduct in-depth commodity-level trade analyses, such as Japanese MOF/Customs database and the UN Comtrade.
- The Project also encountered examples of highly sophisticated and readily available analytical tools embedded in some trade databases. The International Trade Center's trade competitiveness index (TPI) based on UN Comtrade is among such examples. TPI is an effective tool expressing both static and dynamic aspects of trade performance and competitiveness. The database also provides export performance indices such as the Balassa index for HS 2-digit commodities, instantly. These tools could enable North Korean authorities as well as DPRK analysts elsewhere to gain an insightful overview of DPRK's trade performance and competitiveness. But again, these analyses need to be interpreted with caution, as the raw data all comes from mirror statistics which may not correct some major reporting errors.
- The US GTIS database (i.e., World Trade Atlas) enables analysts to quickly derive valuable analytical figures such as unit costs of North Korea's imported products from various countries, to see if such such imports are based on commercial terms from particular countries.
- Available FDI data are all estimates, requiring careful interpretation especially in the case of sudden jumps in figures occurring in some years.

The above-mentioned issues, namely, data sources, accessibility and different types of issues depending on the types of statistics, are problematic obstacles. They often prevent DPRK analysts and policymakers from understanding accurately the North Korean economy, conducting meaningful economic analysis and deriving sound policy implications. Nevertheless, the Project has taken steps to improve knowledge-sharing of DPRK statistics data, clarifying the issues to be addressed and providing resources on how to tackle these issues.

At the same time, many problems and issues remain unanswered by the current Project plan and its implementation. First, the identification and collection of data available in other non-universal languages such as Russian remains to be done. As for proprietary data, which is not publicly available, the Project needs to take a more targeted approach to contact selected entities which are willing to share DPRK data, to ascertain the possibility of future collaboration.

B. Recommendations: Operationalization of the DPRK Statistics Databank

During the course of Project implementation, the Project identified what sources and datasets tend to be used more and why, as well as what is lacking in available sources, and therefore most needed in the future.

Based on the overall analysis in Part I and case studies in Part II, the Project identified four characteristics for a new database for effective knowledge-sharing beyond the current phase of the Project, namely:

- (1) Inclusion of comprehensive data along with user-friendly and simple but powerful functions;
- (2) Inclusions of listings of data from multiple sources, with methodologies for comparisons;
- (3) Highlighting of rare and unique data; and
- (4) Database sustainability, through partnership with selected entities and a data depository system.

Table 29 shows examples of databases that are equipped with the above-mentioned characteristics. The Project could learn from each of the following databases (and other databases), while determining a model for an ultimate Project output beyond December 2008.

Table 29: Expected Database Characteristics and Examples of Data Sources

<p>(1) <u>Comprehensive database w/ user-friendly functions</u></p> <ul style="list-style-type: none"> • Korea Statistical Information Services • CIC-Penn World Table • IMF DOT • ITC-UNCTAD/WTO • GTIS World Trade Atlas 	<p>(2) <u>Listing of data from multiple sources for comparisons</u></p> <ul style="list-style-type: none"> • CIA (2 GDP estimates) • Korea Rural Economic Institute • Kyungnam University • Hyudai Research Institute
<p>(3) <u>Rare and unique data</u></p> <ul style="list-style-type: none"> • Korea Institute for National Unification • Good Friends • Inter-Korean Summit Secretariat 	<p>(4) <u>Sustainable database</u></p> <ul style="list-style-type: none"> • SIPRI First Database, w/ collaborating institutes as data sources • Economic Social Data Service (ESDS) – Universities of Essex and Manchester

Comprehensiveness: Some entities offer “comprehensive” North Korea statistics, as well as user-friendly functions for data analyses. For instance, the National Statistical Office’s Korea Statistical Information Services (KOSIS) provides open DPRK statistics encompassing a wider range of time-series economic and social indicators in its Korean website. While it is widely known among Korean analysts, it is highly likely that non-Korean users under-utilize the database due to language barriers. KOSIS also makes available the published version of its database only in Korean. Given KOSIS’s coverage

of comprehensive DPRK statistics data in Korean, the Project should keep close contact with the National Statistical Office to explore areas for potential future cooperation and collaboration to learn from their databases as well as to disseminate such information to non-Korean analysts.

Other databases that the Project has so far identified as comprehensive and user-friendly include CIC's Penn World Table, especially for macroeconomic indicators such as GDP. The database is backed by authoritative economists engaged in research and application of macroeconomic indicator estimation methodologies. The IMF's DOT database, the CIC's Penn World Table, and GTIS all have common features, that is, simple but powerful functions to derive data and conduct analysis. Each database's strengths should be further studied and integrated into a databank at an operational stage.

Listing Data from Multiple Sources for Comparison: Some entities such as the Korea Rural Economic Institute (KREI) have already done what the Project has intended to do, that is, listing DPRK datasets from multiple sources for comparison. For instance, KREI's database lists DPRK's historical demographic trends (populations) from three different sources, Food Agriculture Organization (1961~), KOSIS (1944~) and the North Korean authorities (only selected years).

While databases with multiple sources of datasets exist, it is still rare to find databases that provide detailed technical analysis and comparative notes of datasets from multiple sources (as attempted in the Project through trade aggregate figures discrepancy analysis). The databank should be structured to provide value-added analysis on factors influencing discrepancies in DPRK statistics from different sources.

The CIA is the first entity to disclose GDP data using two different methods with technical notes and limitations. This should be viewed as a positive step to clarify issues revolving GDP estimations, and avoid misuse of data to compare with non-comparable sources.

Rare and Unique Data: The Project also identified some rare and unique data collected or produced by various entities and individual researchers, both Korean and non-Korean. The Korea Institute for National Unification has a series of DPRK statistical data announced by North Korean authorities, which is difficult to access even though they are listed in the public domain. Good Friends, an NGO advocating the need for external interventions to prevent the North Korean people from suffering from food shortages and famine, has conducted a series of surveys revealing malnutrition of specific age-group populations. Good Friends has also monitored prices of about 80 commodities starting from 2004. It is also exceptionally cooperative and willing to share the information. The Project should consider Good Friends as one of the promising candidates to explore forging partnership in this sense.

Also some unique data such as data related to inter-Korean summit meetings by themes, politics, economy, military and culture are made available by the Inter-Korean Summit Secretariat. The Nuclear Threat Initiative offers detailed information regarding DPRK's

military exports and imports in a chronological order, which may be useful for deriving assumptions for calculate transactions which do not appear in official statistics.

As discussed, proprietary access issues have data turned out to be obstacles to compiling price data, either from institutional or individual sources. There are a number of entities and individuals identified during the course of the Project research as possessing or being likely to have rare data. Given that the majority of these people are unwilling or unlikely to share data for knowledge-sharing purposes for various reasons, the databank can start with the minimum available data from cooperating/willing individuals and entities.

While these data may pose challenges in terms of regular updating and consistency, the databank should take into consideration the most effective and feasible ways to integrate rare and unique data into the databank.

Sustainable Database: Sustainability is another characteristic that the Project should look into when determining the ultimate goal of the Project database beyond the current phase of the Project. So far, some entities from the EU have offered potential models for the future direction of the Project. For instance, the Stockholm International Peace Research Institute (SIPRI) has tied up with over 30 project partners and cooperators in drawing statistical data and information for its database called Facts on International Relations and Security Trends Database (FIRST). Social and health statistics (i.e., population, life expectancy) in FIRST are cited from a World Bank Group database, the World Development Indicators. Aside from original data sources, FIRST includes critical information such as data update frequency, dates for last update, and technical notes that are linked to detailed explanations.

Economic Social Data Services (ESDS) also offers a promising model for database sustainability. ESDS is jointly funded by the U.K. Economic and Social Research Council and the Joint Information Systems Committee, and operated by both University of Manchester and University of Essex. Like SIPRI, ESDS has also forged partnerships with premier data-producing organizations as data providers. ESDS also operates the unique data deposit system, through which its sustainability is partially maintained. Data creators and producers can deposit their original datasets to ESDS. The Acquisitions Review Committee of ESDS reviews critically submitted datasets and their quality, to determine if they can be included in the ESDS databases.

The ESDS model can be utilized for gathering and compiling North Korea's most needed microeconomic data. Microeconomic data is often collected by individual researchers conducting surveys or NGOs operating in North Korea. By calling for such data for submission, the Project may be able to build a sustainable mechanism for the Project database. Still, given the nature of accessibility issues as discussed above, many may be reluctant to share the information. That said, the ESDS model is a potentially promising way to sustain a database. Cost and human resource implications for such operations should also be examined and discussed.

Comprehensiveness, comparability (or incomparability explained in technical notes), uniqueness, and sustainability are among the ideal characteristics that the Project

databank should take into consideration. Time and cost implications, as well as feasibility will be examined for establishing a database that is equipped with these characteristics.

C. Concluding Remarks

The Project identified and gathered available DPRK statistical data to the extent possible, and clarified issues and obstacles encountered in compilation of data. It also introduced some user-friendly and potentially under-utilized databases available to the public. In-depth technical analyses on selected entities and datasets provided methods and keys to answering the reliability and usability questions of some DPRK statistics (i.e., factors influencing data discrepancies among entities), while clarifying issues of inappropriate usage of certain data for particular analytical purposes.

The fragile and unreliable “reverse pyramid” structure of available DPRK statistics needs to be altered so that more North Korean primary data sources become available and are shared to make a foundation for sound economic analysis and appropriate policymaking. Ultimately, the best way to address the fundamental issue of the absolute lack of original sources and accessibility to DPRK statistics is to convince North Korea to become a more open society.

In October 2008, the United States removed North Korea from its list of State Sponsors of Terrorism in the context of the Six-Party Talks to denuclearize North Korea and build peace and stability on the Korean Peninsula. Although more symbolic than practical in nature, that step increased expectations that North Korea might be headed in the right direction to be integrated into the international community, leading to DPRK’s eventual participation in IFIs.

The DPRK Statistics Project should embody the cooperative spirit of on-going efforts by the rest of the world to attempt to integrate North Korea into the international community. If successfully implemented through cooperation among the concerned parties and North Korea experts from different parts of the world, the Project can have a demonstrative effect to convince North Korea to overhaul its statistical system in the future.