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The Impact of North Korea Sanctions : Insights from Statistical and Survey Data

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Abstract

This paper aims to assess the effects of sanctions on North Korean trade, industry, and market by utilizing South Korean and Chinese governmental statistics and surveys of North Korean defectors. In the realm of trade, despite a notable relaxation in COVID-19 border restrictions, the volume of exports to China remains at a mere 10%, with imports standing at 55% of pre-sanction levels. Compared to the post-sanction but pre-border closure period, such figures indicate a stagnation in exports and a significant reduction in imports. Therefore, the recent surge in North Korean trade volume is likely deceptive, primarily attributed to the easing of border restrictions, while the impact of sanctions persists robustly. According to the Bank of Korea estimates, substantial negative growth persists, particularly in the mining and heavy industries of North Korea, due to the repercussions of export and import sanctions. Concurrently, there is a noticeable worsening of power supply instability. North Korean defectors further attest to a significant decline in factory operational rates within the mining and manufacturing sectors, attributable to raw materials and electricity shortages. Testimonies from defectors reveal a decrease in market distribution share alongside an increase in planned distribution share regarding industrial and agricultural products. Market merchant incomes have diminished, with a decline in the proportion of private loans allocated for business financing, juxtaposed with increased loans designated for living expenses. These shifts are interpreted as consequences of diminished market supply and demand, attributed to the impact of sanctions and market suppression measures enforced by authorities. As sanctions persist, indications suggest a potential resurgence of the discourse surrounding the purported 'ineffectiveness of sanctions.' Nevertheless, sanctions represent one

of the primary non-military strategies available to address the North Korean nuclear threat. Consequently, it becomes imperative to actively counteract the sanction inefficacy narrative and enhance international collaboration to rectify shortcomings in their implementation.

Keywords

Sanctions against North Korea, economic effects of sanctions, decrease in trade, industrial recession, market contraction

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Seven years have passed since the international community imposed sanctions against North Korea.[1] The current sanctions regime imposed on North Korea is widely regarded as the most stringent set of economic sanctions directed at a specific country since the conclusion of the Cold War. It includes embargoes on military and strategic materials, export sanctions on a wide range of general commodities, import sanctions targeting crucial capital goods, and associated measures restricting transportation and financial activities.

Simultaneous export and import sanctions have precipitated a sharp downturn in North Korea's trade volume, resulting in stagnation within its industries and markets. This paper aims to ascertain the economic ramifications of these sanctions through a multifaceted analysis encompassing various statistical datasets and survey data from North Korean defectors. Statistical data utilized in this paper include data on the North Korean economy from the South Korean National Statistical Office (Statistics Korea), the Bank of Korea (BOK), and the Chinese General Administration of Customs (GACC).[2] Survey data are drawn from the recently

1) The current North Korea sanctions regime, led by the United Nations, was initiated in March 2016, with China fully participating in sanctions enforcement in 2017.
2) The following trade data can be obtained from Statistics Korea (https://kosi

published Report on North Korea's Economy and Society as Perceived by 6,351 Defectors (February 2024, hereafter referred to as the Survey Report), issued by the Ministry of Unification.[3]

Sanctions and Decline in Trade

North Korea's trade decline is readily apparent from the available trade data. Compared to the pre-sanctions year of 2016, the nation witnessed a substantial export reduction by approximately 90%, sliding from $2.82 billion to $280 million in 2019, just before its border closure. Similarly, imports declined by about 20%, falling from $3.71 billion to $2.97 billion during the same period. These reductions are likely attributable to the simultaneous enforcement of export and import sanctions. Subsequently, from 2020 to 2021, the annual average of exports amounted to $80 million, with imports totaling $700 million, both experiencing a significant downturn once again while approaching their lowest levels. The additional plunge during this period was influenced primarily by the repercussions of the border closure rather than the effects of sanctions.

Conversely, following July 2022, with the relaxation of its border closure, North Korea's exports surpassed pre-closure levels, albeit with imports only partially recovering, reaching slightly more than half of the pre-closure levels. For instance, when comparing the post-sanctions, pre-closure period (July 2018~December 2019)

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s.kr/bukhan) and GACC (https://english.customs.gov.cn), while industrial data can be acquired from the BOK (https://ecos.bok.or.kr/#/SearchStat).

3) This report is based on in-depth surveys of North Korean defectors conducted annually by the Ministry of Unification from 2010 to 2020. The survey includes 6,351 participants categorized based on the timing of defection: 683 before 2000, 934 from 2001 to 2005, 1,320 from 2006 to 2010, 2,501 from 2011 to 2015, and 913 from 2016 to 2020. For the original report, see (https://unikorea.go.kr/nk_realities/, search date: 2024.2.28).

with the post-easing of closure period (July 2022~December 2023), exports to China increased to 120.6% (from USD 320 million to USD 390 million) while imports from China amounted to only 67.4% (from USD 3.8 billion to USD 2.56 billion).

Nevertheless, even after North Korea eased its border closure, exports remain significantly lower than pre-sanction levels, with imports merely reaching only half their former volume. For example, in comparison to the pre-sanctions period from July 2015 to December 2016, exports to China from July 2022 to December 2023 amounted to a mere 9.9% (from $3.93 billion to $390 million), while imports from China also stood at only 54.6% (from $4.69 billion to $2.56 billion). Notably, the scale of exports mirrors the observations of the post-sanctions, pre-closure period, whereas the scale of imports has significantly decreased. Therefore, the recent upturn in North Korean trade appears deceptive, primarily attributed to the easing of border restrictions, while the impact of sanctions persists robustly.

Sanctions and Industrial Recession

In theory, a substantial trade decline due to sanctions will adversely impact various sectors of North Korean industries. Firstly, export sanctions precipitate a sharp decrease in the operational capacity of mines engaged in export activities and domestic consumption, as these have historically relied on export revenues to sustain operational expenses.

Secondly, the diminished operational rate of coal mines leads to lower coal production and power supply instability. During the initial phases of sanctions, coal for exports may be redirected to meet domestic demand and augment power generation. However, the depletion of coal inventories ultimately results in reduced coal supply for domestic consumption. As a result, the country will rely more on hydropower generation, which is contingent upon weather conditions, exacerbating power supply instability. Concurrently, import sanctions contribute to additional instability and decreased power generation by constraining the supply of power generation equipment and components.

Thirdly, the precarious power supply situation harms the country's manufacturing operational rate. In particular, given North Korea's prioritization of the military industry, instances of power supply instability may result in diverting power supply from civilian sectors to maintain the operational rate of the military sector.

Fourthly, the scarcity of capital goods arising from import sanctions negatively impacts manufacturing operational rates, albeit to a varying degree across industry sectors. While light industries, with their elevated rate of import substitution for equipment and components, may experience a relatively minor impact, heavy industries, with a lower import substitution rate, are expected to be significantly affected.

Fifthly, the reduced supply of coal and electricity exerts adverse ramifications on the chemical and steel industries, which form the bedrock of North Korea's heavy industries. Declines in the operational capacity of these sectors cascade into reduced production in downstream sectors such as fertilizer and consumer raw material production, consequently dampening agricultural output and impacting the operational efficiency of light industry sectors. Furthermore, diminished steel industry output negatively affects the machinery manufacturing and construction sectors.

Sixthly, as the operational capacity of the chemical industry declines, the production of agricultural materials such as fertilizers decreases, compounded by reductions in food imports due to dwindling foreign exchange earnings, thereby diminishing food supplies for workers and subsequently impinging upon overall industrial operational rates.

Such effects of sanctions are substantiated by industrial growth rate estimates provided by the Bank of Korea. As depicted in the table below, North Korea's growth trajectory has witnessed a sharp downturn since 2017, coinciding with the onset of sanctions, with the mining and heavy industries registering the most pronounced declines. Conversely, the impact on the light industry is comparatively less pronounced. The annual variability in power generation underscores the inherent instability in power generation.

[Growth Rate Trends by Industry in North Korea]

unit: %

	2016	2017	2018	2019	2020	2021	2022
Agriculture, Forestry and Fisheries	2.5	-1.3	-1.8	1.4	-7.6	6.2	-2.1
Mining and Manufacturing	6.2	-8.5	-12.3	-0.9	-5.9	-6.5	-1.3
Mining	8.4	-11.0	-17.8	-0.7	-9.6	-11.7	4.6
Manufacturing	4.8	-6.9	-9.1	-1.1	-3.8	-3.3	-4.6
Light Industry	1.1	0.1	-2.6	-1.0	-7.5	-2.6	5.0
Heavy Industry	6.7	-10.4	-12.4	-2.3	-1.6	-3.7	-9.5
Electricity, Gas and Water Utilities	22.3	-2.9	5.7	-4.2	1.6	6.0	3.5
Construction	1.2	-4.4	-4.4	2.9	1.3	1.8	2.2
Service	0.6	0.5	0.9	0.9	-4.0	-0.4	1.0
Government	0.6	0.8	0.8	0.5	0.8	0.1	0.6
Etc	0.5	-0.3	1.2	1.8	-18.0	-2.0	2.7
GDP	3.9	-3.5	-4.1	0.4	-4.5	-0.1	-0.2

Source : Bank of Korea

The Effects of Sanctions as Evidenced in Surveys

The impact of sanctions against North Korea regarding its industrial slump is vividly elucidated in the Report on North

Korea's Economy and Society as Perceived by 6,351 Defectors (February 2024), recently issued by the Ministry of Unification. Moreover, this report furnishes detailed insights into the market downturn subsequent to the imposition of sanctions. The report delineates the repercussions of sanctions on North Korea's industry and markets as follows :

Firstly, following the imposition of sanctions against North Korea, a substantial decline in operational rates within the mining and manufacturing sectors is observed. According to the Survey Report, 47.2% of defectors who fled North Korea between 2016 and 2020 responded that the country's factory operation rates were below 60%, which is an increase from 30.3% of defectors who escaped between 2016 and 2020 testifying to such operational rates. Particularly noteworthy is the surge in replies indicating factory operation rates below 20%, escalating from 6.5% to 11.3%. Conversely, responses indicating operation rates exceeding 60% declined significantly from 42.7% to 34.3%. This trend underscores a substantial reduction in operational rates within the mining and manufacturing sectors attributable to the impact of sanctions. Concurrently, estimates from the Bank of Korea suggesting a more pronounced slump in the mining and heavy industries compared to the light industry indicate a potentially more severe situation in the former sectors.

Secondly, there is a notable decline in power supply. The responses indicating power supply durations ranging from 1 to 6 hours plummeted from 41.5% among defectors who defected in 2011-2015 to 32.4% among those in 2016-2020, with responses indicating durations of 7 to 12 hours also declining from 23.1% to 21.2%. This indicates an overall reduction in power supply. However, recent North Korean defectors have mostly come from Ryanggang Province, which is known to have a relatively weak heavy industry infrastructure. In addition, when considering North

Korea's prioritization of electricity supply to the military and heavy industries, one cannot exclude the possibility of overestimating the actual decline in overall electricity supply.

Thirdly, there has been a decline in the availability of raw materials. The response citing difficulties in securing raw materials as the foremost obstacle to corporate production surged from 29.7% among defectors who defected in 2011-2015 to 37.5% among those in 2016-2020. This is construed as an effect of reduced import capabilities stemming from import sanctions and dwindling foreign exchange earnings due to export sanctions, alongside a decline in factory operational rates related to raw material supply within North Korea.

Fourthly, there has been a decrease in the proportion of market distribution among products manufactured by enterprises. The Survey Report indicates the share of products supplied by national plans declined continuously from 67.3% (according to defectors who defected before 2000) to 48.2% (among 2011-2015 defectors) but surged sharply to 60.9% (among 2016-2020 defectors) following the imposition of sanctions against North Korea. Conversely, responses indicating the share of products sold in the market plummeted from 18.8% in 2011-2015 to 14.5% in 2016-2020. These trends suggest a diminution of the market mechanism and an expansion of the planning mechanism in inter-company transactions.

Fifthly, changes in the distribution mechanism of agricultural products are discernible. According to the Survey Report, the share of national purchases among agricultural products surged sharply from 47.2% (among 2011-2015 defectors) to 57.4% (among 2016-2020 defectors), while responses indicating the share of farms and farmers decreased markedly from 17.6% to 12.6%. The reduction of the latter, which serve as sources of market food transactions, signifies a decline in the market supply of food.

Sixthly, there has been a modest decrease in merchants' business income. Responses implying an increase in business income declined from 27.6% among defectors who defected in 2011-2015 to 22.6% among those in 2016-2020, while those indicating a decrease in income rose from 31.3% to 37.4%. This suggests a contraction in market supply due to sanctions coupled with a reduction in market demand resulting from a decline in residents' income.

Seventhly, regarding private loan utilization, loans for business purposes decreased while loans for living expenses increased. The responses indicating the share of the former declined from 60% among defectors who defected in 2011-2015 to 54.8% among those in 2016-2020, while replies for the latter share increased from 33.6% to 37.7%. This trend appears to reflect the overall market contraction and a decrease in residents' income due to sanctions. However, in the case of the sixth and seventh trends, given that the contraction of the market began in earnest with the COVID-19 pandemic, the extent of change within the current five-year sample spanning until 2020 does not appear to be substantial. Hence, a survey conducted on post-2021 defectors will likely display a more significant shrinkage in the market.

Implications

As the duration of sanctions against North Korea extends, indications suggest a potential resurgence of the discourse surrounding the purported 'ineffectiveness of sanctions' both domestically and internationally. Nonetheless, as evidenced by the aforementioned analysis, the impact of sanctions remains substantial. However, two variables warrant consideration concerning the prospective effects of future sanctions: the

Russian-Ukrainian War and illicit trade.

Since the onset of the Russian-Ukrainian War, economic collaboration between Russia and North Korea has expanded. North Korea provides military provisions such as artillery shells, while Russia reciprocates with military technology and tangible goods such as raw materials, oil, and food. Although the supplied goods are directed primarily toward the military sector, there is a possibility for some to be allocated to the civilian sector. Consequently, with the prolonged War, the efficacy of sanctions may endure significant attenuation.

Since the commencement of sanctions against North Korea, the nation has garnered the majority of its foreign currency through cryptocurrency heists and overseas laborers. The acquired foreign currency is mostly channeled into nuclear and missile development, but some portion may be directed towards the civil sector. This phenomenon introduces a 'loophole in sanctions,' thereby undermining their effectiveness.

Sanctions, in conjunction with bolstered deterrence against North Korea, represent the sole recourse to address the nuclear threat posed by North Korea. Hence, in the foreseeable future, it is imperative to actively refute the notion of the 'ineffectiveness of sanctions' while concurrently intensifying international collaboration to impede military-economic collaboration between Russia and North Korea, crypto hacking activities, and the deployment of laborers overseas.

The views and opinions expressed in this report are those of the author(s) and do not necessarily reflect the official position of INSS.