

North Korea as a complex humanitarian emergency

RIETI

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September 2023

Key messages



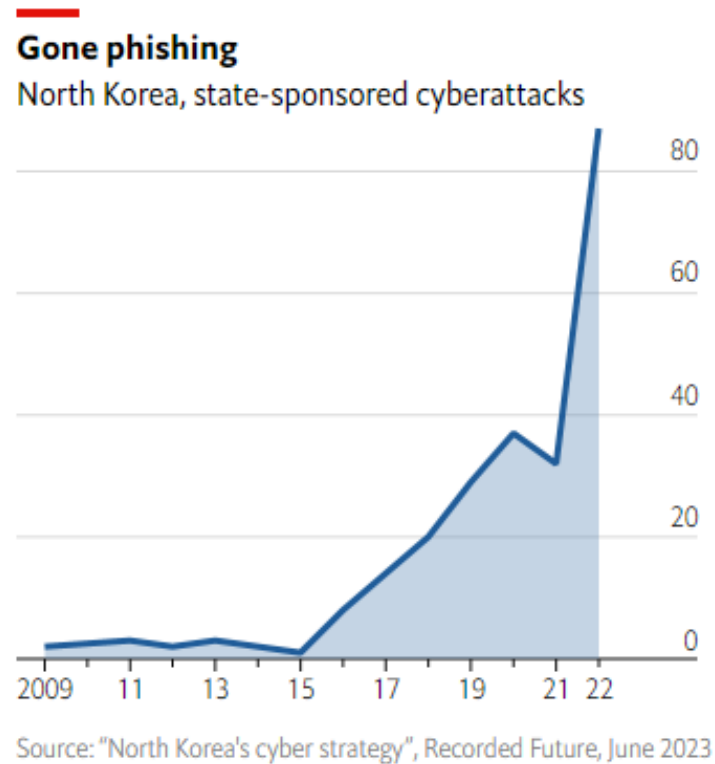
- **Complex humanitarian emergency, but...**
- **In a “hard” state, intensifying external belligerency**
- **Quantity and price evidence suggests lack of food**
- **Legal and institutional changes may affect the incidence of food insecurity**
- **Longer-run questions**
 - Will North Korea turn decisively toward reform?
 - Is muddling through a long-run option?

Strategic context



- Embrace of nuclear weapons, first strike doctrine, florid language
- Under nine UNSCRs
 - Initially targeted arms (“defensive”), luxury goods (aimed at elite)
 - No evidence of effectiveness either on luxury products or raising risk premia more broadly
 - Some evidence of disrupting arms trade
 - Three resolutions in 2017 greatly broadened sanctions, no longer targeted
- China and Russia blocked new sanctions resolutions after multiple ICBM launches in 2022-23
- Sanctions evasion increasingly cyber oriented

So how do they pay for the military?



- Conventional exports minimal
- Historically illicit sources of revenue: drugs, counterfeiting, etc.
- Cyber/crypto
 - 2011 DoS attacks, harassment
 - 2014 Sony Pictures hack
 - 2016 Lazarus Group \$951 million Bangladesh central bank heist; 90% recovered
 - 2017 Lazarus Group Wannacry ransomware attacks
 - 2022 Lazarus group multiple crypto platform attacks netting \$600-700 million
 - Chainalysis puts total 2022 revenue at \$1.7 billion
 - Anne Neuberger, Deputy National Security Adviser for cyber claimed cyber finances as much as 1/3 of missile program (July 2022)
 - Echo chamber claim: 40% of GDP

Economic context



Macro:

- Already under sanctions
- Pandemic response: January 2020 border closure
- April 2020 bond issuance sign of fiscal distress
- Low reported budget growth

Tightening:

- Eighth WPK Congress January 2021: recentralization, call for revival of heavy industry
- Crackdowns on Chinese cell phones, August 3rd workers, regulation of *waku* and *kiji* etc.

Signals of challenges in the food economy throughout 2021:

- Kim invokes “Arduous March” (code for 1990s famine) (April)
- Focuses on agriculture at WPK Central Committee (December)
- Scattered reports of hunger-related deaths

Re-opening this spring, reported trade values up

Institutional change in agriculture



- New laws and amendments:
 - Law on Agriculture (amended 2020)
 - Law on Farms (amended four times between 2020-21)
 - Law on Grain Policies (amended 2021)
 - Law Against Institutional Specialization and Selfishness (2021)
 - False Report Prevention Law (2022)
- Net impact:
 - Increase direct state control over cooperative farms
 - Reduce the role of prices and the market
 - Channel distribution through state stores
 - Access to food shifting from market-based to politically-determined, recalling the old system

Grain balance—FAO/WFP methodology

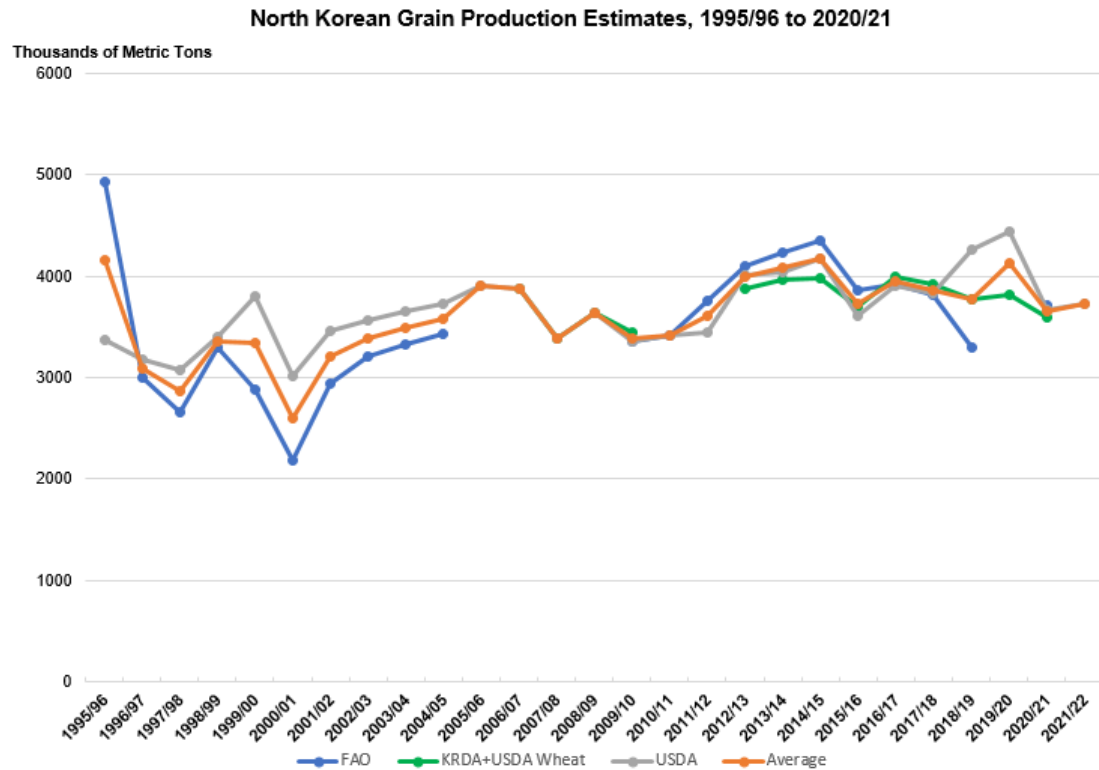
- **Domestic availability (domestic production)**
- **Total utilization**
 - Food use
 - Feed use
 - Seed requirement
 - Post-harvest losses
 - Stock build-up
- **Import requirements**
 - Anticipated commercial imports
 - Aid on hand or pledged
- **Uncovered deficit**
- **Uncertainties about all these entries**
 - Production
 - Human consumption—composition of diet, population size

Figure 1
Price Data Collection Sites



 **PIIE** Source: OpenStreetMap contributors.

Estimates of domestic grain production



- Three data sources:
- FAO
- KRDA
- USDA
- Compositional definition of “grain” consistent over time, consistent with demand estimate

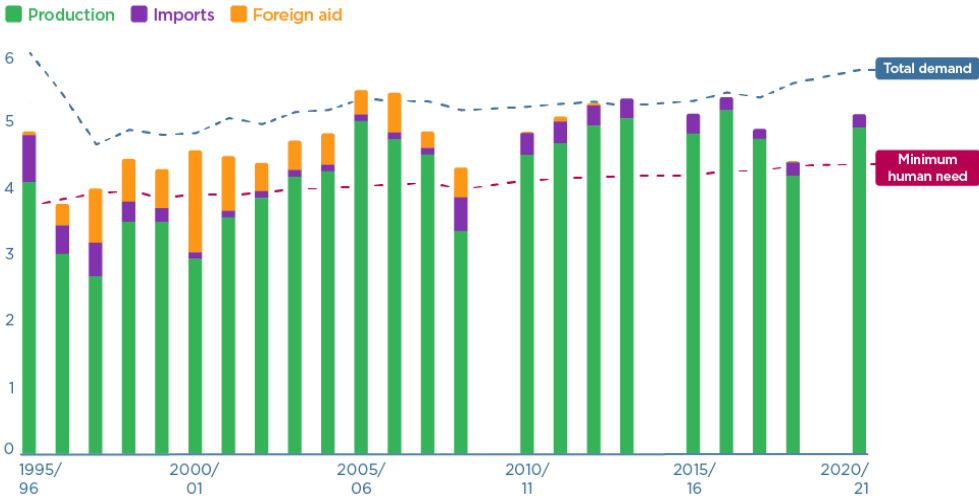
Notes:

[1] Grain estimates in this instance include rice, corn, and wheat.

[2] In order to ensure comparability, KRDA's estimate of corn and rice production was adjusted by adding the USDA's estimate of wheat production.

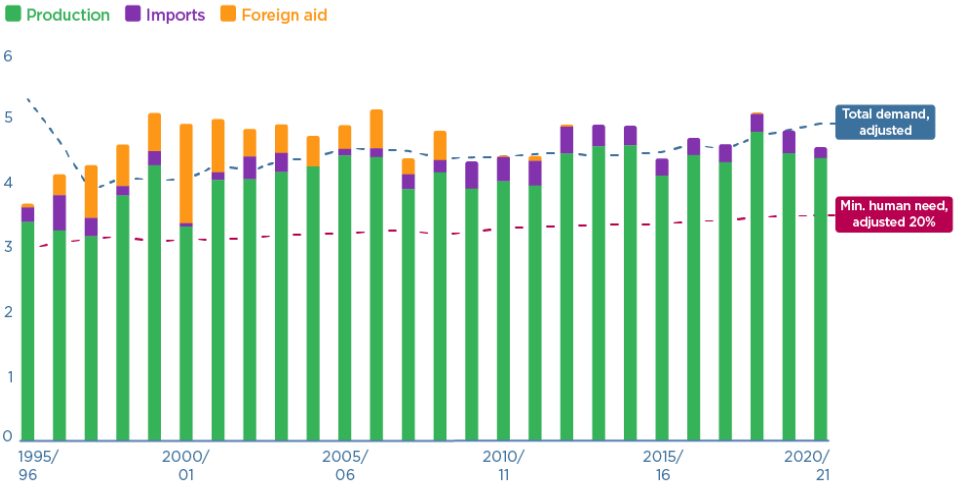
Alternative estimates of grain balance

North Korean grain balance, UN sources; 1995/96–2020/21, millions of metric tons



PIIE **Note:** The UN Food and Agriculture Organization (FAO) did not publish production estimates for 2009/10, 2014/15, and 2019/20.
Sources: UN Food and Agriculture Organization and UN World Food Program.

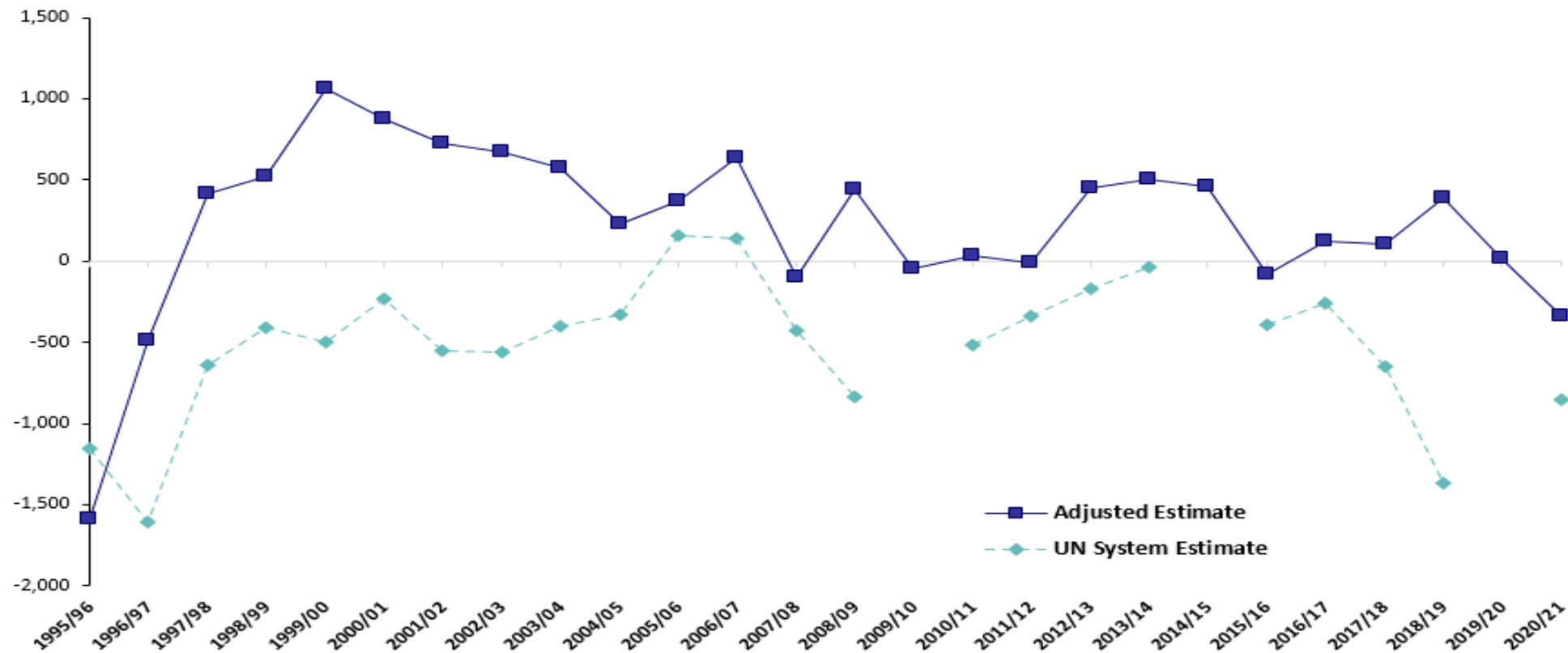
North Korean grain balance, alternative sources, 1995/96–2020/21, millions of metric tons



PIIE **Note:** Adjusted demand and need modifies UN estimates to account for overstated importance of cereals to the North Korean diet.
Sources: UN Food and Agriculture Organization, UN World Food Program, USDA, and author's calculations.

Two Estimates of the North Korean Grain Balance

Thousands of Metric Tons



Sources: FAO/WFP; Adjusted Estimate: Author's Calculation

Price evidence

Two NGO sources of data: DailyNK, AsiaPress

- DailyNK reports for three cities: Sinuiju, Pyongyang, and Hyesan
- AsiaPress data from Ryanggang, North Hamgyong, North Pyongan, and unnamed locations

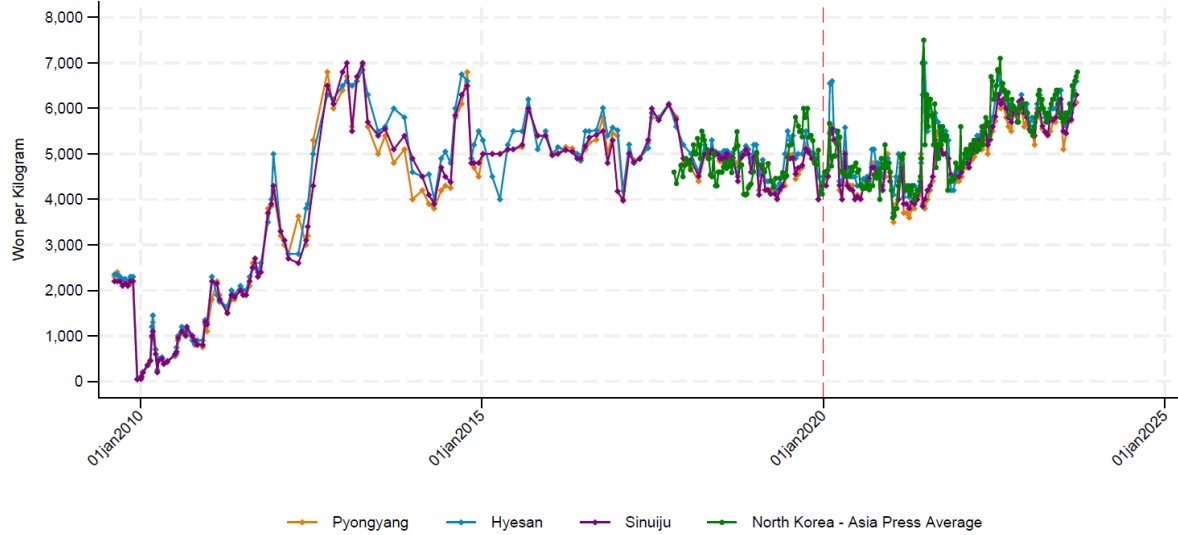
Data on corn, rice, parallel market rate for US dollar and Chinese yuan

Figure 1
Price Data Collection Sites



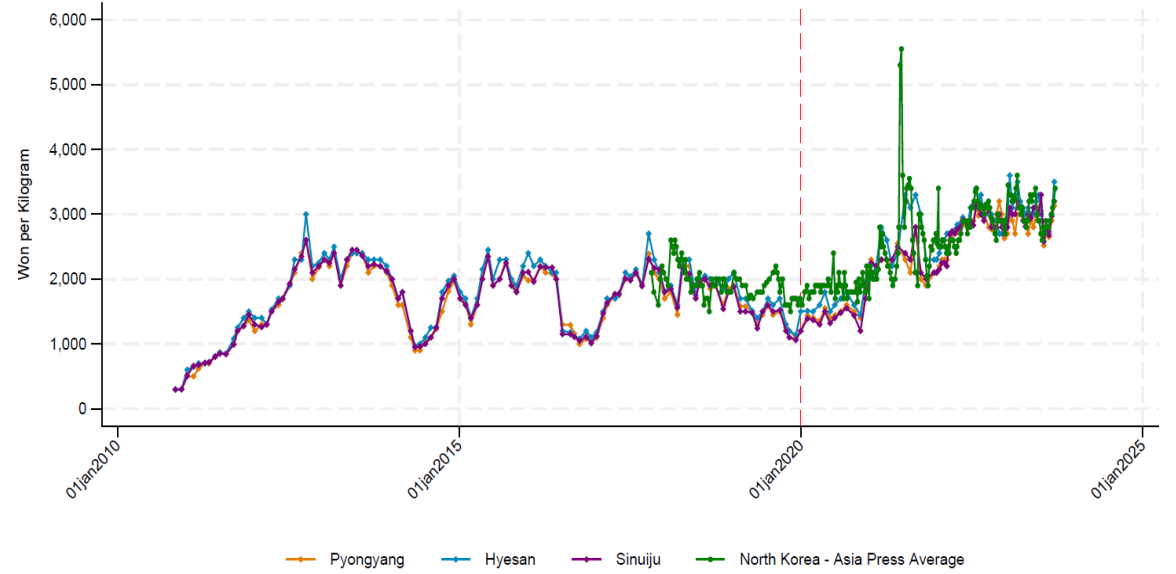
PIIE Source: OpenStreetMap contributors.

Rice Prices in North Korea
August 2009 - September 2023



Sources:
 [1] Daily NK
 [2] Asia Press
 Note:
 [1] The vertical red line indicates the January 2020 border closure.

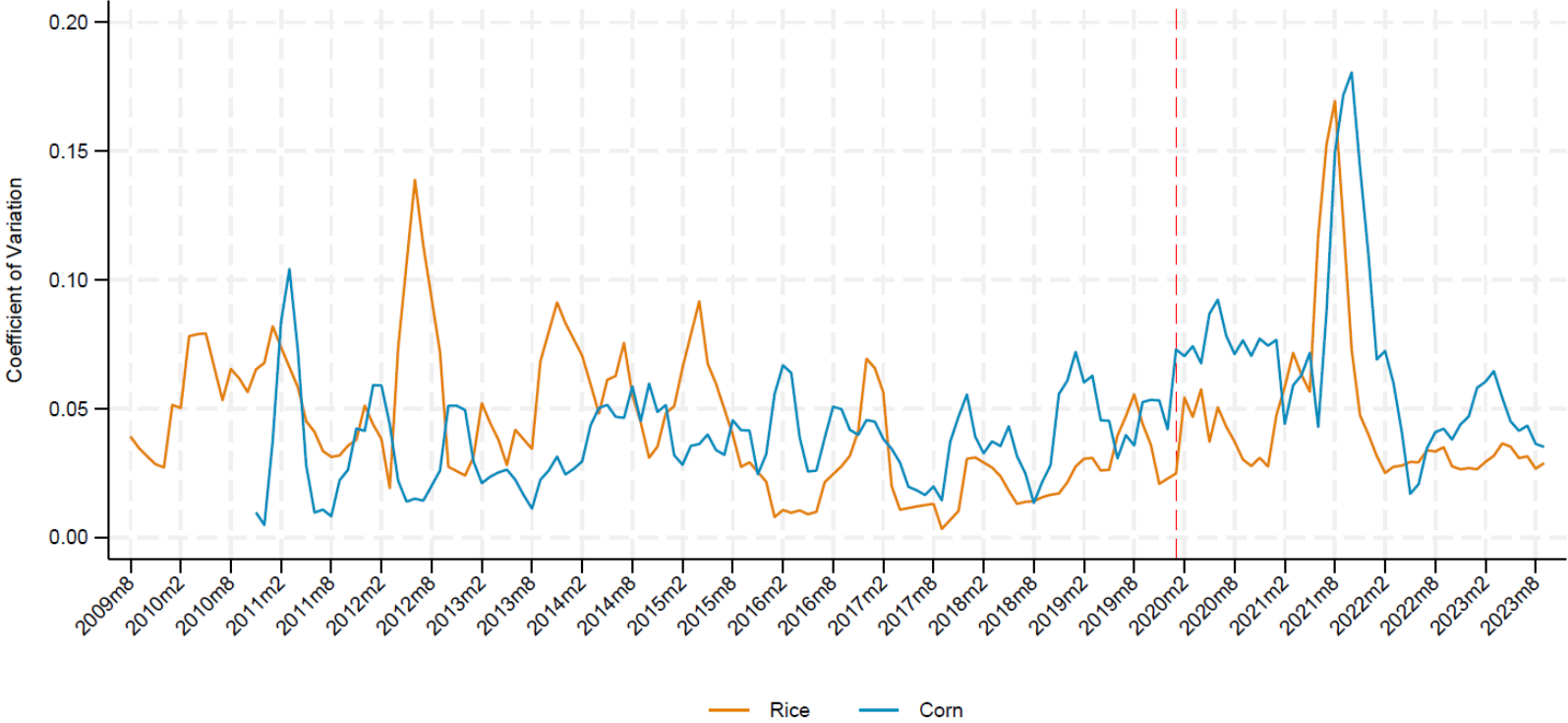
Corn Prices in North Korea
November 2010 - September 2023



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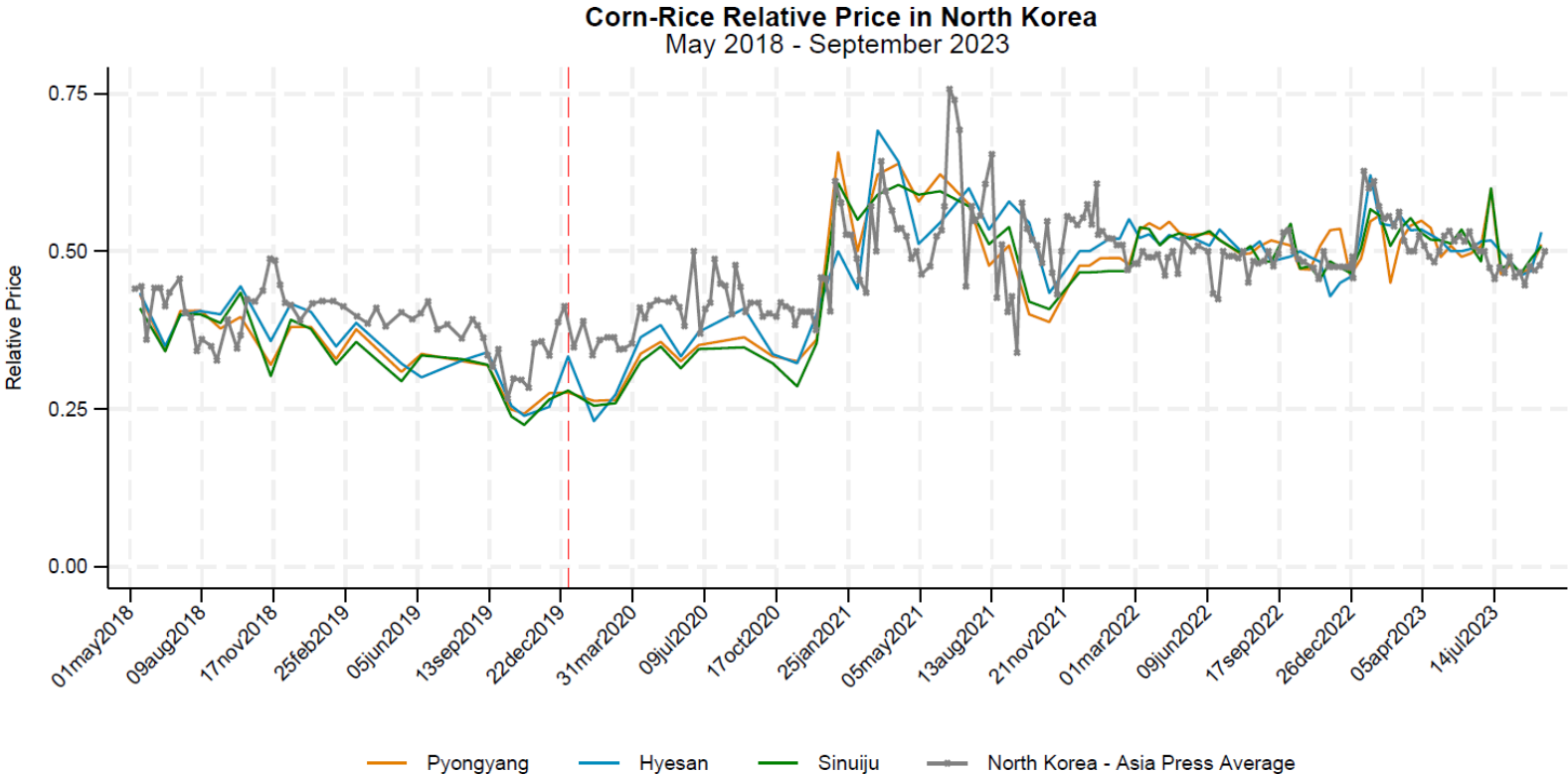
Increased volatility post-border closure

3-Month Moving Coefficient of Variation - North Korean Prices
August 2009 - September 2023



Source:
[1] Daily NK
Note:
[1] The vertical red line indicates the January 2020 border closure.

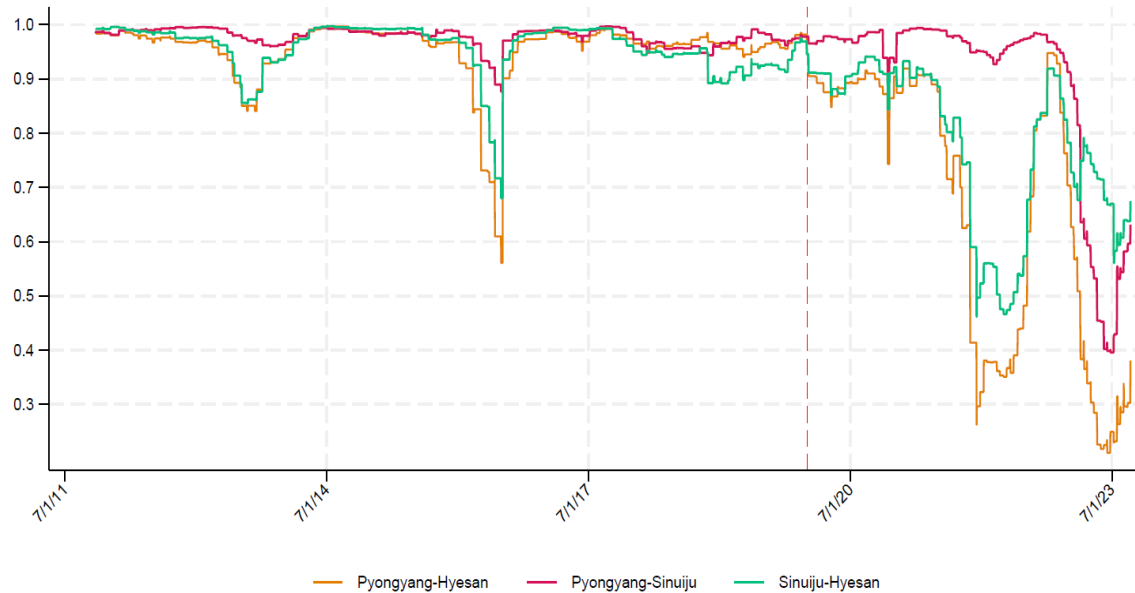
Domestic corn-rice relative price



Sources:
 [1] Daily NK
 [2] Asia Press
 Note:
 [1] The vertical red line indicates the January 2020 border closure.

Domestic price factoids

12-Month Rolling Correlations of North Korean City Corn Prices
November 2011 - September 2023

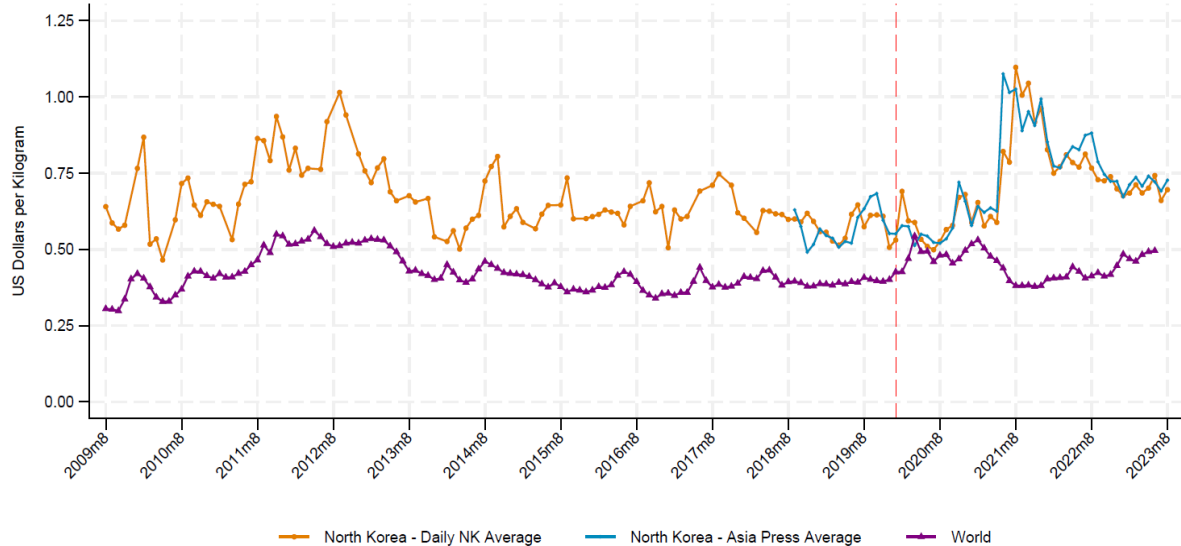


Source:
[1] Daily NK
Note:
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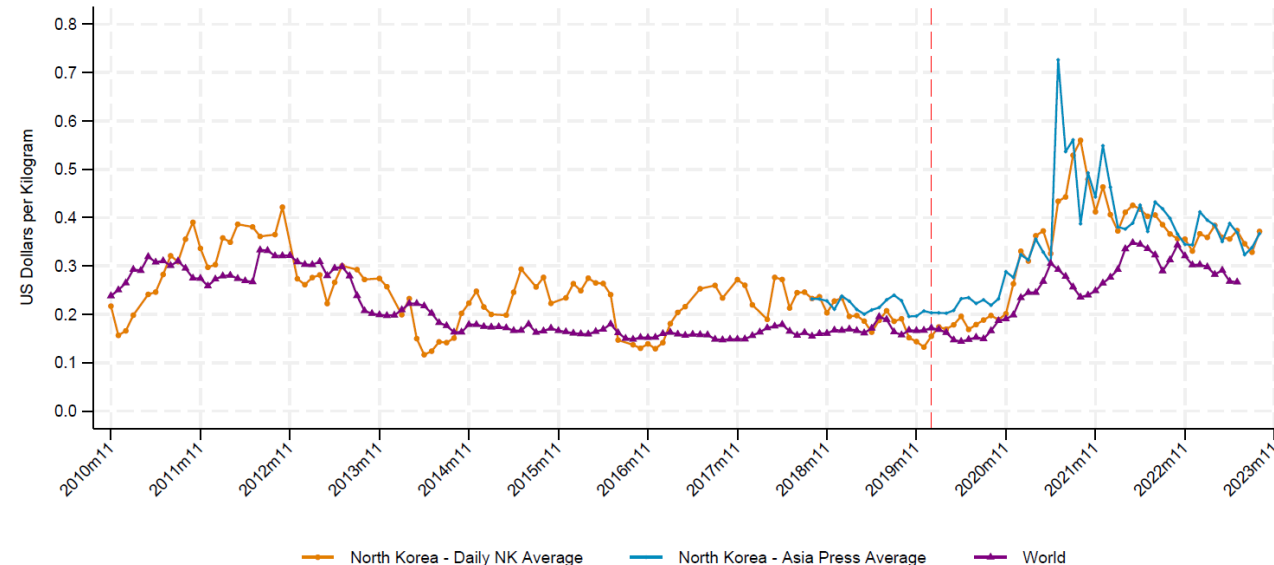
- FX prices more highly correlated than grain prices
- All prices across sources, cities correlated at 5% or greater level
- Rice price correlation between Daily NK Pyongyang and Asia Press lowest (0.3).
- Econometric results:
 - Corn prices rise post-border closure
 - Hyesan distinct:
 - Corn prices rise less than other cities,
 - Rice prices rise more than other cities
- Increase cross-city price dispersion post-border closure

Comparison to world and Chinese prices

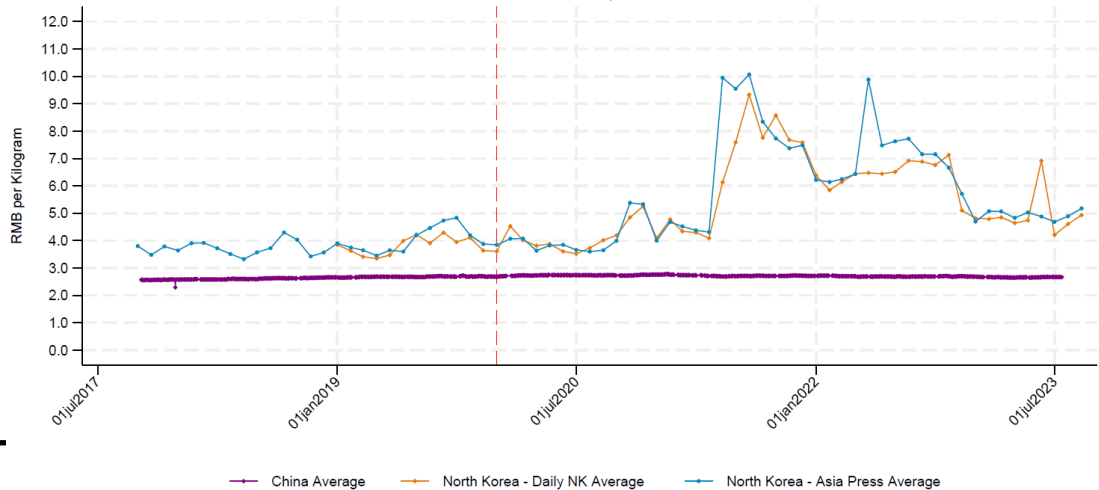
Rice Prices in North Korea vs World
August 2009 - September 2023



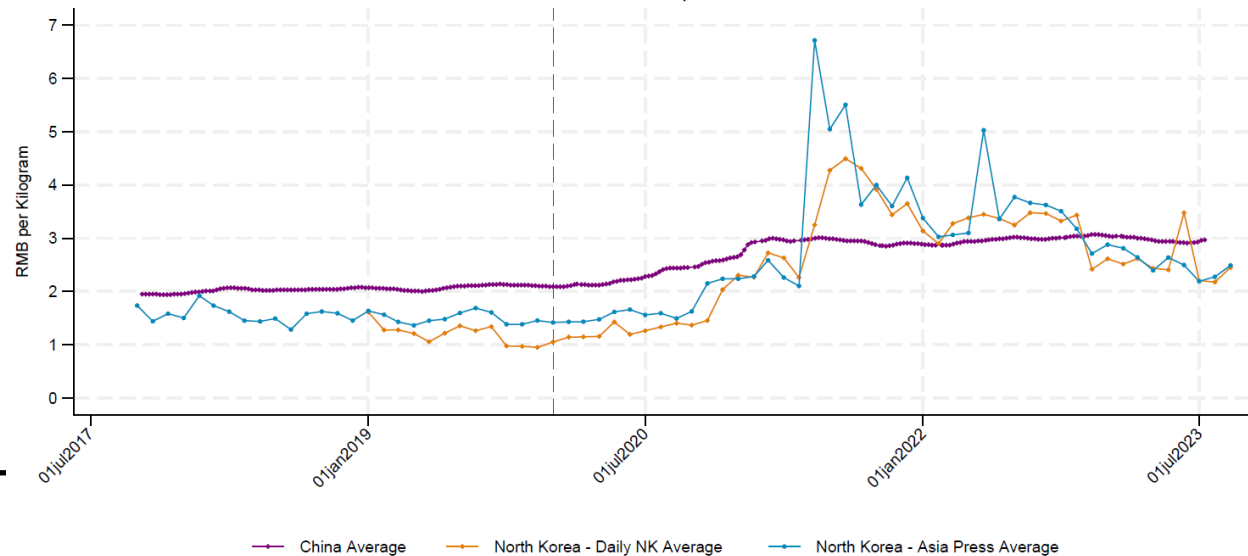
Corn Prices in North Korea vs World
November 2010 - September 2023



Rice Prices in North Korea vs China
October 2017 - September 2023



Corn Prices in North Korea vs China
October 2017 - September 2023



Sources:
 [1] China's Ministry of Agriculture
 [2] Daily NK
 [3] Asia Press
Note:
 [1] The vertical red line indicates the onset of Covid-19 lockdowns in January 2020.

Pandemic and war in Ukraine as added drivers

Pandemic

- Border closure hurt economy
- Refused multiple offers of vaccines
- Admitted outbreak associated with re-opening, but reported data not credible
- Pandemic response seemingly low diplomatic salience

War

- Contributed to adverse rise in global food prices
- Pushed Russia, China, and North Korea closer together diplomatically e.g. failure of UNSCR sanction resolutions
- North Korea selling arms, personnel (?); Kim-Putin meeting suggests arms for food, energy, military technology swap

Most likely medium-run scenario: Muddling through



- Short-run
 - Weakening of sanctioning coalition,
 - De facto acceptance of North Korean nuclear status
 - Levitating North Korean economy
- Longer-term
 - Generational and demographic change means South Korea likely to accommodate North Korea and China
 - Conditional on US diplomacy, Japan may either acquiesce or draw closer to US
 - Ever present possibility of German-style collapse and absorption

Long-run questions



- Will North Korea turn decisively toward reform?
 - Will more formal market supporting institutions be embraced?
 - What extent can such reforms contribute to poverty alleviation and a reduction in inequality?
- Answer
 - Past history and oddly supportive international environment suggests not, however...
 - KJU far younger than KJI was—standing pat and dying peacefully in your bed as the king of North Korea lower probability

Leadership



Eric Schmidt, Executive Chairman of Google, on first and only visit to North Korea



Dennis Rodman, on second of four visits to North Korea

Final thoughts: buckle your seatbelt



Complex humanitarian emergency...in a belligerent state

Institutional changes in the food economy imply incidence of food insecurity may be increasingly politically determined, an echo of the old system

Lack of internal accountability and enablement primarily by China and Russia allow North Korea to maintain this contradiction

Likely to muddle through—but at enormous cost to the population