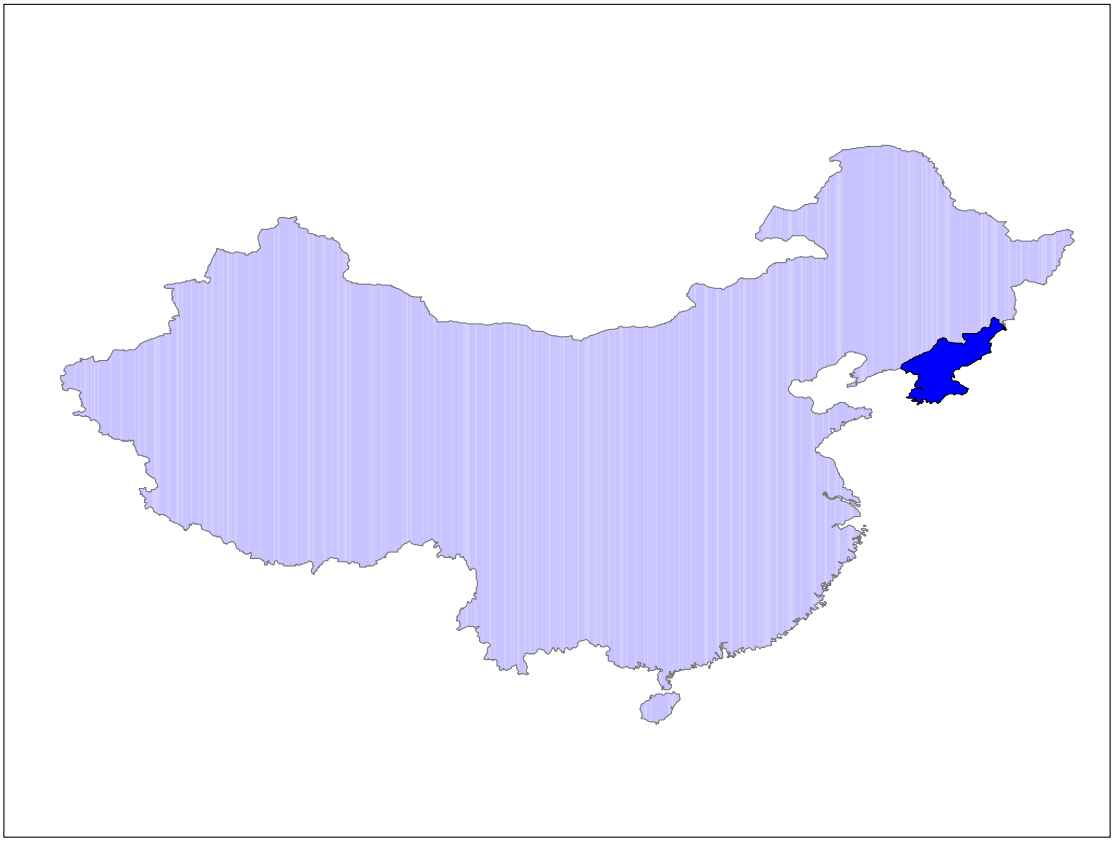
North Korean Trade with China as Reported in Chinese Customs Statistics: Recent Energy Trends and Implications



Abstract: China is North Korea's largest international trade partner. Since 1995, energy and fuels have dominated bilateral trade between the allies. North Korea is a net importer of Chinese crude oil and oil products; however, it became a net exporter of electricity and coal to China in 2003. Whereas North Korean coal and electricity exports are sold at sub-market "friendship prices," Chinese coal and oil products have been sold to North Korea at premium prices. Over the past ten years, North Korea's imports have become increasingly energy-intensive, while exports have become more labor-intensive. Chinese Customs data suggest that Beijing is taking a pragmatic, market-oriented approach to trade with its reclusive neighbor, while the increasingly asymmetrical energy embodiment of bilateral trade may reflect dilapidation of North Korea's non-military industries.

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1. Introduction

The People's Republic of China (PRC) currently ranks as the largest international trade partner of the Democratic People's Republic of Korea (DPRK). In 2005, bilateral trade with the PRC accounted for 39% of total North Korean international trade by value.[1] Insofar as they provide "mirror statistics," bilateral trade data offer a glimpse into the changing PRC-DPRK relationship, as well as the internal dynamics of North Korea's economy and energy system. In the absence of published, reliable North Korean data on the domestic energy system, economy, and foreign policy, Chinese bilateral trade data are an accessible, internally-consistent source of information.

2. Data Sources for DPRK Trade

North Korean trade data are compiled by partner-country Customs Bureaus, the United Nations (UN), and the International Monetary Fund (IMF). As North Korea's largest trading partners, China and the Republic of Korea (ROK) customs data provide the most extensive source of "mirror statistics." Chinese data are compiled and published by the China Customs Bureau and South Korean data are controlled by the Korean Trade-Investment Agency (KOTRA). Each dataset presents a different picture of DPRK trade due to the variety of sources and methodologies. In order to explore the PRC-DPRK relationship and its implications, this report analyzes Chinese Customs statistics.

Chinese Customs data describe the value and quantity of bilateral trade with the DPRK as classified by the World Customs Organization's Harmonized System (HS) codes system. These data were accessed through the World Trade Atlas. All price and value data are presented in nominal US dollars according to monthly exchange rates of the Federal Reserve Bank of New York, and adjusted for presumed CIF charges.[2] Quantity data are presented in metric tons, megawatt-hours (MWh), or discrete units (e.g., number of cars, bicycles, etc.), as noted. Unless otherwise noted, data in the text and figures of this report are sourced from the China Customs Bureau.

There are limitations for using China Customs data to understand the bilateral relationship, much less the dynamics of North Korea's energy system and economy. Incomplete coverage and potential reporting bias are the two basic limitations of China Customs data. By virtue of their focus on merchandise trade, customs data do not include aid shipments, official development assistance (ODA), direct government transfers, foreign direct investment, services, remittances, barter trade, smuggling, illicit trade, and trade in military equipment. Explosives trade is covered in Chinese Customs data; however, this category clearly does not refer to military equipment as exports are nil and

[1] Aggregate North Korean trade data are published in Li (2006); comparison with Nanto (2005) indicates that these data may not include trade with South Korea (ROK).

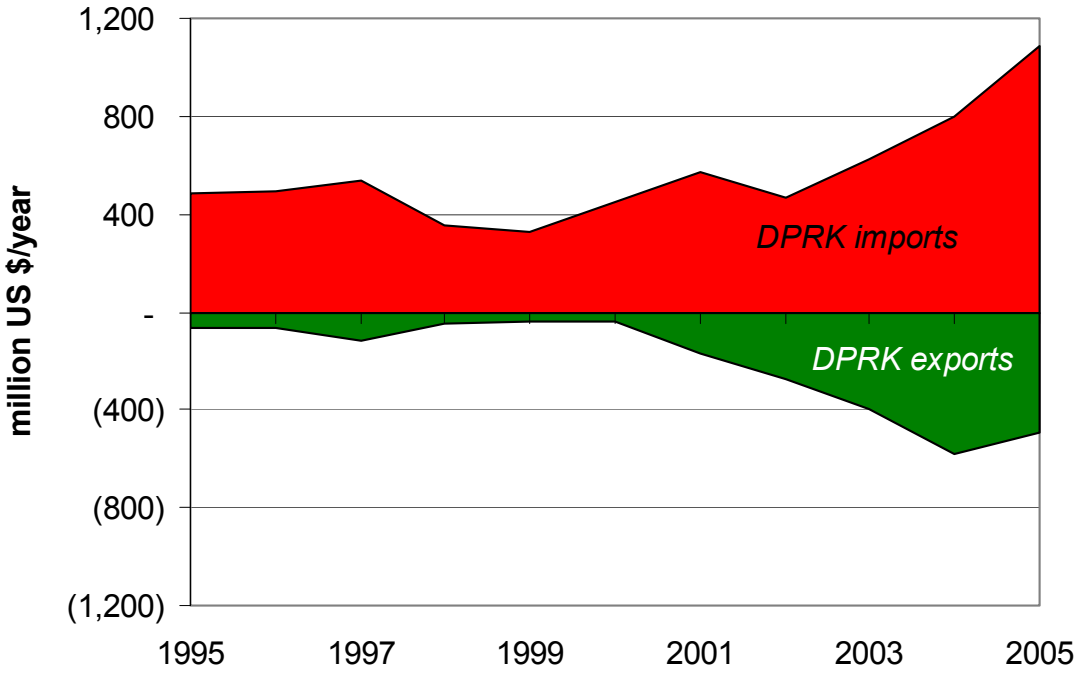
[2] Monthly exchange rates of the Federal Reserve Bank of New York are available at http://www.federalreserve.gov/releases/g5/current/.

imports only amounted to $24,000 in 2005. Nonetheless, the patterns in the available trade data tell an interesting story about the bilateral relationship and some characteristics of North Korea's energy system and economy.

3. The DPRK's Trade with China: Fuels and Energy Commodities

After diminishing in the late 1990's, the annual value of DPRK-PRC bilateral trade has grown from a ten-year low of $370 million current dollars in 1999 to a high of $1.6 billion dollars in 2005. Between 1995 and 2005 North Korean imports of Chinese merchandise more than doubled, from $490 million in 1995 to $1.1 billion in 2005; over the same period, the nominal value of DPRK exports to China increased more than nine-fold, from $64 million in 1995 to $582 million in 2004. Figure 1 illustrates the value of DPRK bilateral trade with China. The dominance of the red area shows North Korea's ongoing trade deficit with China, which grew from $422 million in 1995 to a ten-year high of $588 million in 2005.

Figure 1: Annual Nominal Value of Bilateral DPRK-PRC Aggregate Trade (1995-2005)

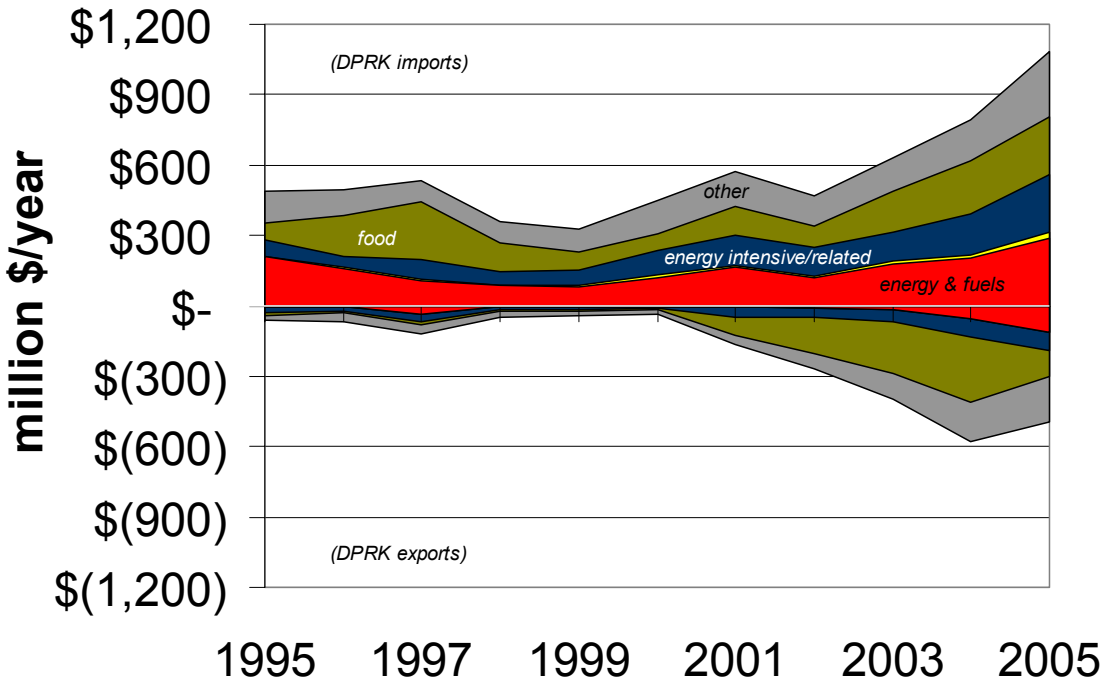


Energy has played a central and sustained role in reported commercial trade between China and North Korea. As highlighted by the red area of Figure 2, North Korea has been a consistent net importer of energy and fuels from China.[3] However, energy and fuels' share of DPRK imports diminished from 43% of total value in 1995 to 26% in 2005, as imports diversified to include more energy infrastructure (thin yellow area in Figure 2), energy intensive goods (blue area), food (green area), and other merchandise

[3] In Figure 2 *energy and fuels* is comprised of mineral fuels, oils, waxes, and bituminous substances (HS category 27).

(grey area). Among North Korean exports to China, the value of energy and fuels exports has grown from less than 3% in 1995 to 23% in 2005.

Figure 2: Composition of Total Annual DPRK-PRC Trade by Value (1995-2005)[4]



While Figure 2 illustrates the importance of energy trade over the past ten years, Table 1 provides a snapshot of the role of energy in bilateral trade in 2005. Fuel was the most important component of bilateral trade: among DPRK imports from and exports to the PRC, machine energy and fuels trade is followed by human fuels—meat and seafood, respectively. Within the top-ten commodities, North Korean trade is skewed toward energy-intensive imports and labor-intensive exports. Five of North Korea's top-ten imports have a high embodiment of energy (machinery, electrical machinery, iron and steel, vehicles, and iron and steel products are all energy-intensive goods), while six of the top-ten DPRK exports are highly labor-intensive: fish and seafood, woven apparel, wood, grain, seed and fruit, knit apparel, and edible fruit and nuts. Beyond North Korea's net fuels imports by value, energy embodiment patterns in Table 1 illustrate the overall energy flow from China to the DPRK in 2005.

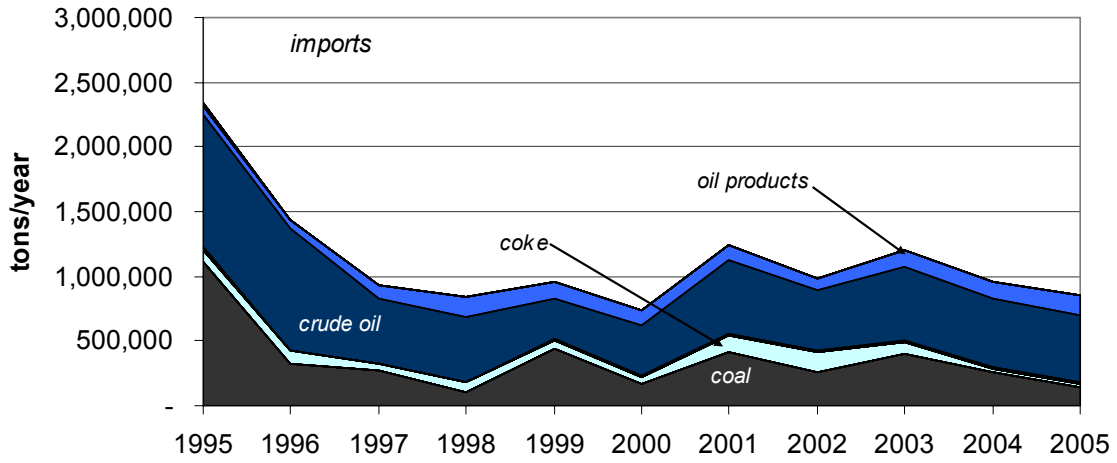
[4] The five categories in Figure 2 encompass all reported DPRK-PRC trade. *Energy infrastructure* is comprised of iron & steel products, railway materials, and ships & boats; *energy-intensive/related goods* include machinery, electrical machinery, iron & steel, vehicles (not railway), fertilizers, paper & paper products, aluminum, glass, stone products & cement, and aircrafts & spacecrafts; *food* includes meat, cereals, milling, malt, and starch products, fats & oils, grains, beverages, vegetables, salt, prepared meats & fish, fish and seafood, food waste & animal feed, edible fruit & nuts, sugar, miscellaneous foods, preserved food, spices, coffee, tea, cocoa, dairy, eggs, honey, live animals, and other vegetables; and *other* is a residual aggregation of the remaining 64 HS 2-digit level categories, largely composed of labor-intensive products such as footwear or tobacco.

Table 1: Top-Ten DPRK Imports from and Exports to the PRC by Value (2005)[5]

	DPRK Import		DPRK Export	
	Commodity	Value (million $)	Commodity	Value (million $)
1	Energy and Fuels	$ 286	Energy & Fuels	$ 112
2	Meat	$ 104	Fish and Seafood	$ 92
3	Machinery	$ 77	Ores, Slag, Ash	$ 92
4	Electrical Machinery	$ 57	Iron and Steel	$ 72
5	Plastics	$ 52	Woven Apparel	$ 58
6	Cereals	$ 50	Wood	$ 15
7	Iron and Steel	$ 35	Zinc & Articles Thereof	$ 11
8	Manmade Filament, Fabric	$ 29	Misc. Grain, Seed, Fruit	$ 7
9	Vehicles, Not Railway	$ 28	Knit Apparel	$ 5
10	Iron/Steel Products	$ 25	Edible Fruit and Nuts	$ 5
	Total imports	$ 1,085	Total exports	$ 497

Energy and fuels dominate DPRK-PRC trade, and North Korea is clearly a net importer in value terms. However, disaggregated energy and fuels trade data by *quantity* reveal an overall decline of imports and rapid growth of energy exports, which in North Korea's case have recently been composed entirely of coal. Figure 3 and Figure 4 illustrate the annual quantity of North Korea's energy and fuels imports from and exports to China, respectively.

Figure 3: Annual Volume of Selected DPRK Energy Imports from PRC (1995-2005)[6]



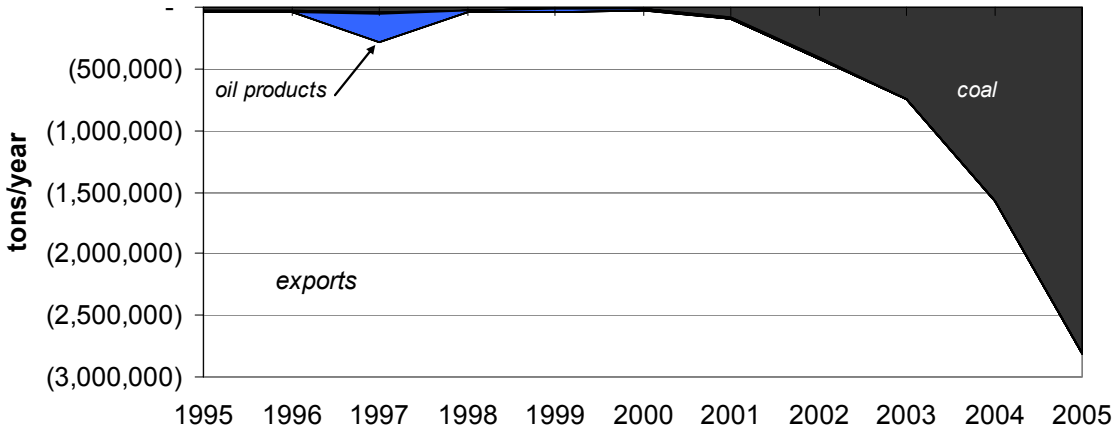
Note: Figure 3 does not include electricity imports.

Between 1995 and 2005, the volume of coal, coke, and crude oil imports from China diminished by 70%. Oil product imports doubled in quantity, though the starting volume was too small to offset the overarching trend of declining energy and fuels imports. The decline of energy import volumes in the face of increasing overall imports and trade may

[5] The categories in Table 1 correspond to two-digit HS commodity classifications.
[6] Figure 3 through 6 cover trade in coal, coke, crude oil, and oil products. Smaller energy and fuels categories are not displayed, namely: mineral tars, petroleum jellies, petroleum coke, pitch, and bitumen products.

reflect demand sensitivity to increased international market prices and/or North Korea's lack of hard currency with which to purchase imported energy and fuels.

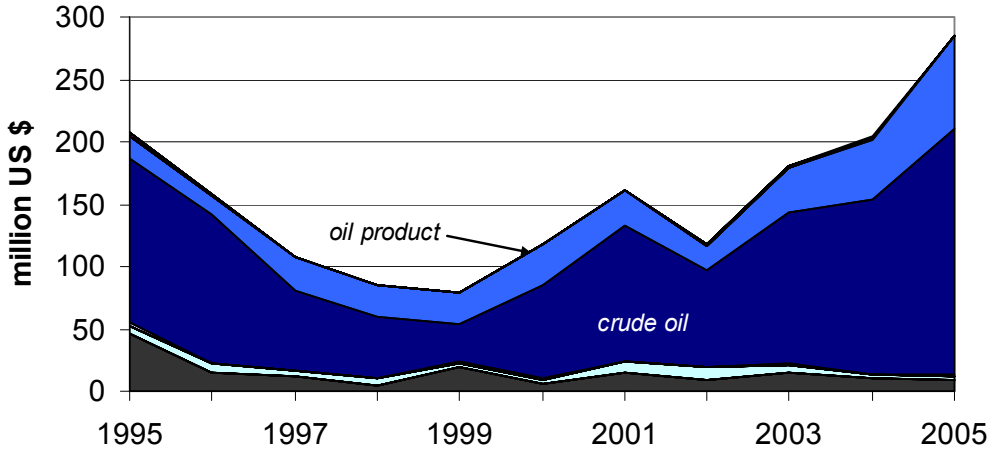
Figure 4: Annual Volume of Selected DPRK Energy Exports to PRC (1995-2005)



Note: Figure 4 does not include electricity exports.

Besides a brief peak of 240,000 tons of oil product in 1997, North Korea's energy and fuels exports were negligible until 2001, when coal exports began to grow rapidly. Figure 4 illustrates the quantity of North Korean energy and fuel exports, and particularly the rapid expansion to 2.8 million tons of coal exports in 2005. Energy content and value vary among fuels; however, it is noteworthy that North Korea became a net exporter by volume in 2004.

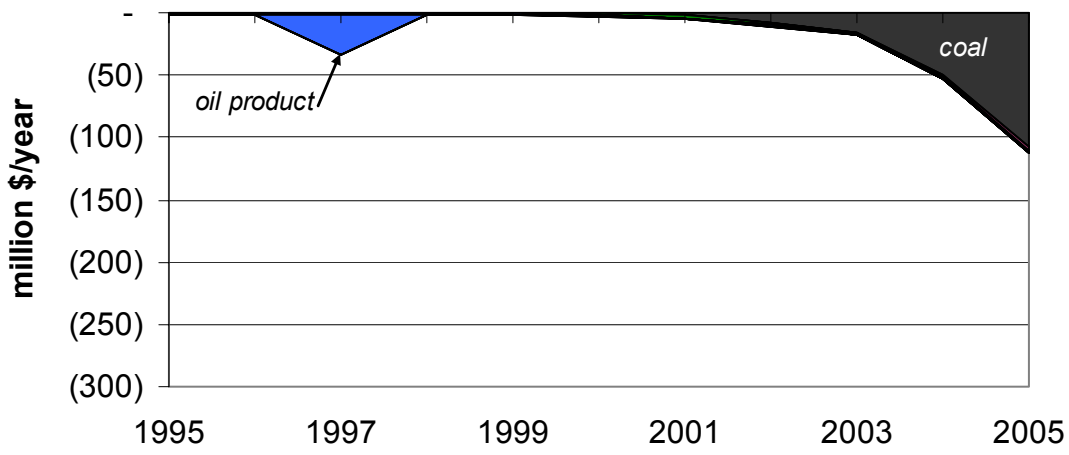
Figure 5: Annual Value of Selected DPRK Energy Imports from PRC (1995-2005)



Whereas Figure 3 showed North Korea's declining energy and fuels imports by volume, Figure 5 illustrates the DPRK's increased expenditure on imports. The juxtaposition of Figure 3 and Figure 5 shows that the DPRK has spent an increasing amount of money on diminishing quantities of energy imports, particularly Chinese crude oil. Moreover, Figure 6 data on the value of North Korean energy exports show that coal prices have

remained low in the face of increasing crude prices. Price differences among fuels have maintained North Korea's energy and fuels trade deficit with China in spite of rapidly rising coal exports.

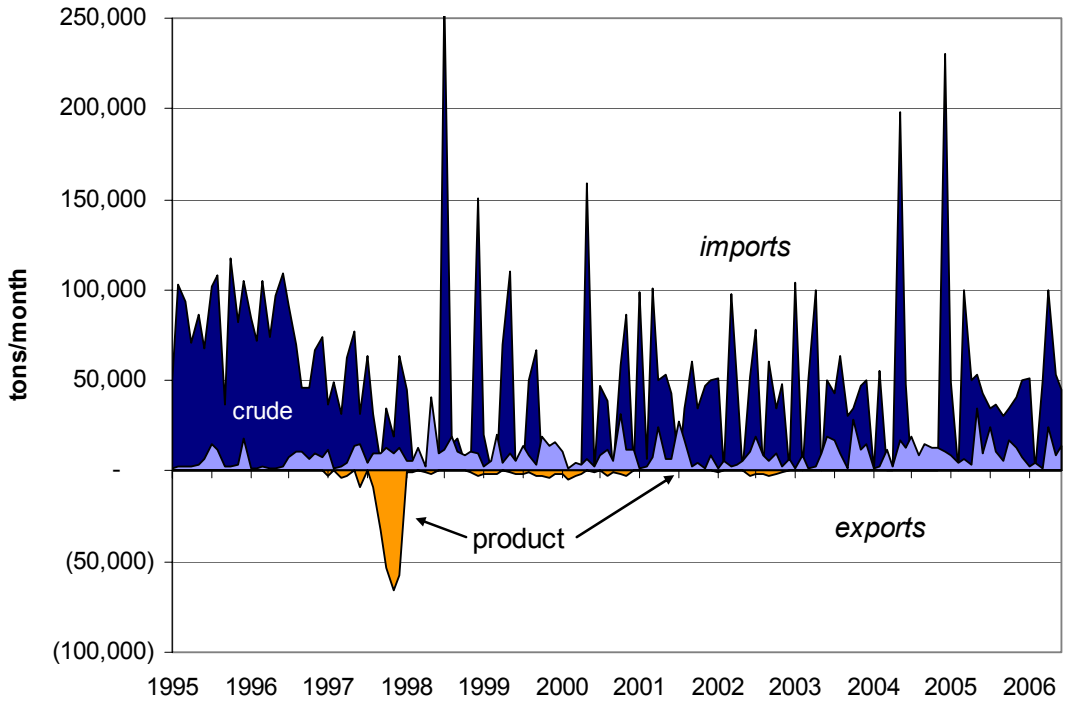
Figure 6: Annual Value of Selected DPRK Energy Exports to PRC (1995-2005)



3.1 Major Petroleum Products Trade

Between 1995 and 2005, DPRK expenditures on imported Chinese crude oil increased 67% while the volume of crude imports diminished by almost 50%. The quantity of oil product imports doubled over the same period, with annual expenditure increasing by more than 370%. Figure 7 shows the monthly value of DPRK-PRC crude and oil product trade. Aside from a brief flurry of product exports between October and December, 1997, North Korean oil exports have been negligible. On the imports side, product imports have grown more sustained, while crude import volumes declined and became erratic after the end of 1997. North Korean crude imports became more sustained in 2005, though the annual volume remained about half the 1995 level.

Figure 7: Monthly Volume of DPRK-PRC Crude & Oil Product Trade (January 1995- June 2006)



Note: categories of monthly trade volume data are displayed overlapping from the x axis, not cumulatively.

It is clear from Figure 7 that North Korea does not have surplus, if any, domestic crude oil production. Given the low volume of oil product imports and the brief flurry of product exports, it is clear that the DPRK has significant, ongoing refining capabilities. The absence of major domestic petroleum resources and the decline of import volumes also indicate a lack of development within North Korea's road transport sector.

3.2 Minor Energy Products

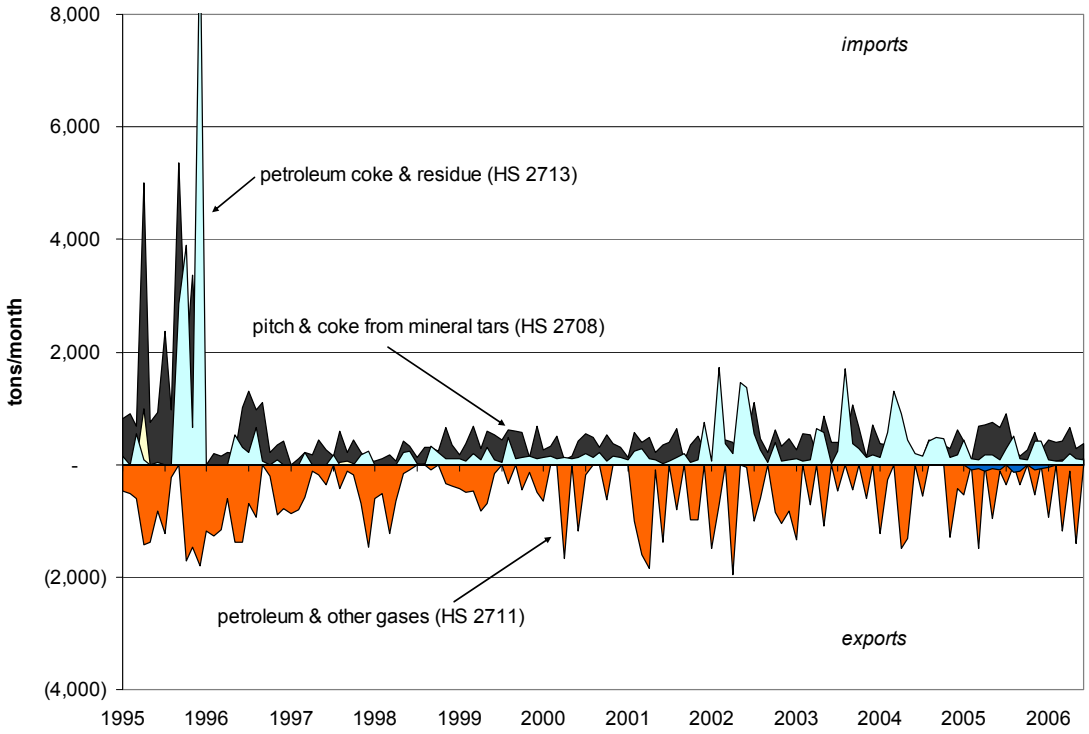
Outside of crude and oil products, customs data also cover minor petroleum products, as listed in Table 2.

Table 2: Value of Minor Energy Products Trade with China in 2005 (nominal 2005 dollars)

DPRK Imports		DPRK Exports	
Commodity	**2005 value**	**Commodity**	**2005 value**
COKE; RETORT CARBON	$ 2,572,495	PETROLEUM,OTHER GASES	$ 1,500,439
PITCH,COKE FM MN TARS	$ 1,076,962	MINERAL TARS	$ 55,249
PETROLEUM COKE,RESIDU	$ 682,618	LIGNITE,EXCLUDING JET	$ 336
PETROLEUM,OTHER GASES	$ 358,068	OILS FRO COAL TAR;S A	$ -
PETROLEUM JELLY;WAXES	$ 82,297	PITCH,COKE FM MN TARS	$ -
OILS FRO COAL TAR;S A	$ 5,880	PETROLEUM COKE,RESIDU	$ -
PEAT	$ 3,180		
BITUMEN,TAR RELATED	$ 345		

According to customs data, North Korea also imports lignite, coal gas, mineral tars, and bitumen, asphalt, and tar sand from the PRC, though it did not in 2005. Figure 8 illustrates the monthly volume of bilateral trade for most-traded minor energy products; trade for other minor energy products is negligible or sporadic.

Figure 8: Monthly Volume of DPRK-PRC Minor Energy Products Trade (January 1995-June 2006)

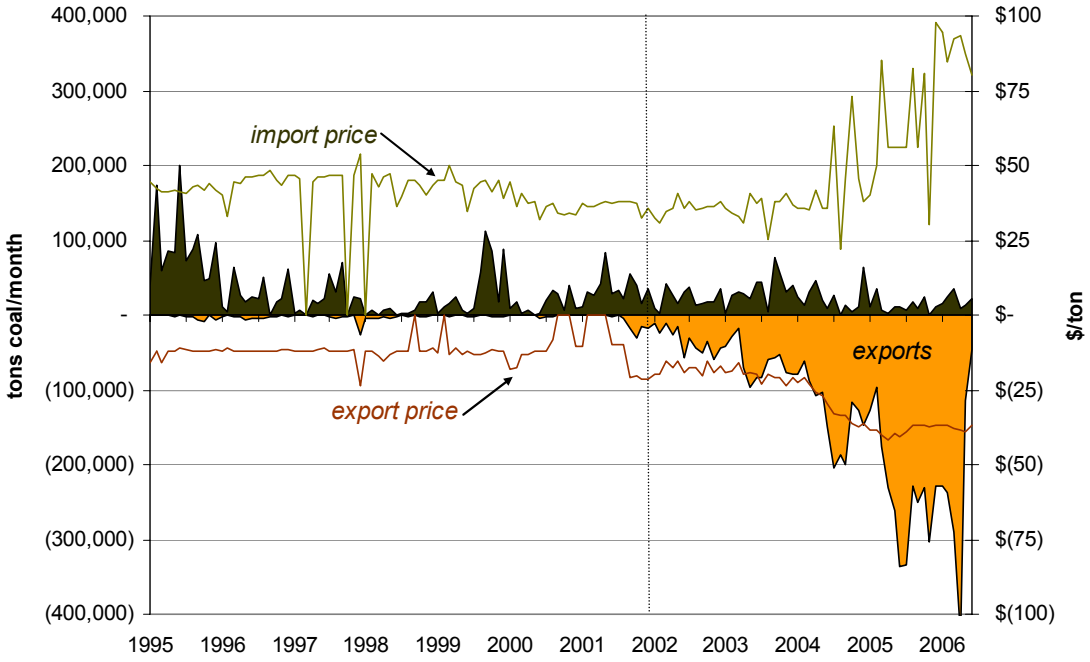


North Korea's most commonly exported minor energy products are petroleum gases and other gases (orange area of Figure 8), and mineral tars (small blue area of Figure 8). DPRK imports of minor energy products were largely comprised of mineral pitch and coke, petroleum coke and residue, and petroleum jellies and waxes.

3.3 Trade in Coal and Other Solid Fuels

Between 1985 and 2002, DPRK domestic coal production declined from 37.5 million tons to 21.9 million tons (Li, 2006). Nonetheless, North Korea increased its export quantity to 2% of total domestic production in 2002. Figure 9 illustrates the gradual decline of North Korean coal imports and the rapid growth of coal exports, as well the increase of import and export prices.

Figure 9: Monthly Volume and Average Monthly Prices of DPRK Coal Trade with PRC (January 1995- June 2006)

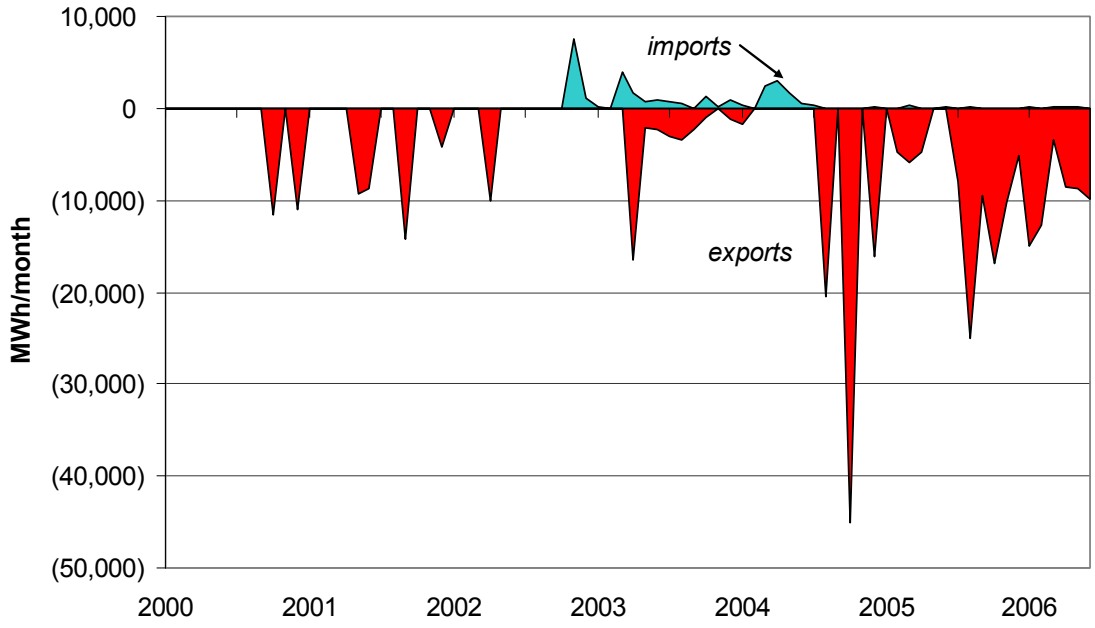


The past ten years of PRC-DPRK coal trade are bisected into two periods by China's accession to the World Trade Organization (WTO) in December 2001 (represented by the dotted line in Figure 9). Prior to China's WTO accession, the DPRK was a net coal importer, with the price of its limited exports remaining fairly fixed around $12/ton during the mid-1990's. Areas on the chart in which prices drop to zero do not indicate free coal transfers; rather, they illustrate cessations of trade. After China's WTO accession, DPRK export prices for coal began to rise, though not as quickly as export volumes. North Korea became a net coal exporter in 2002; by 2005, the DPRK exported 19 times more coal than it imported.

3.4 Electricity Trade

Bilateral electricity trade did not commence until the end of 2000, when North Korea began sporadic exports. Besides a brief flurry of imports between autumn 2002 and spring 2004, DPRK exports of electricity have been negligible. Starting in May 2005, North Korea has been an uninterrupted monthly electricity exporter.

Figure 10: Monthly Volume of DPRK-PRC Electricity Trade (January 2000 - June 2006)

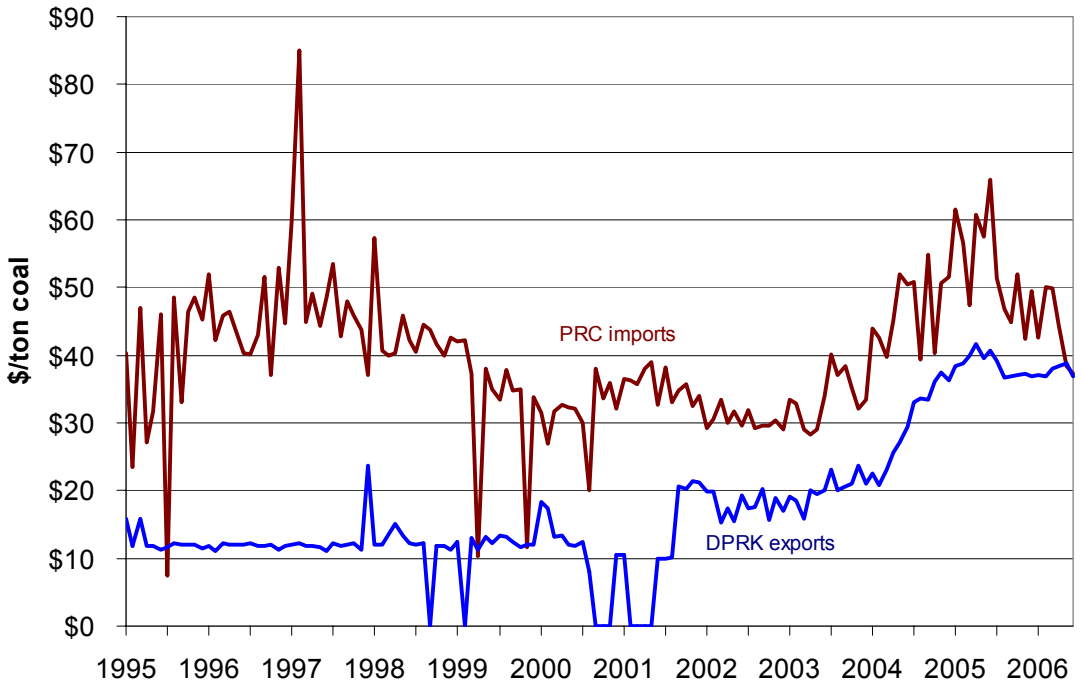


The periodic peaking of monthly DPRK electricity exports around December suggests that hydropower may account for much of North Korea's surplus electric power. In the same vein, increasingly sustained exports since 2005 indicate the possible completion of additional hydropower capacity. Chinese Customs data do not indicate the origin of electricity exports; however, increasingly sustained surpluses are likely to be related to the completion of Sino-North Korean hydro-electric joint venture projects.

3.5 Energy Pricing and Key Implications of Energy Trade Data

Beyond the value and volume of bilateral trade flows, energy prices reveal the increasingly pragmatic, market-oriented character of China's economic relationship with North Korea. Price changes over time and comparison of bilateral prices with overall Chinese import and export prices for the same commodity reveal an asymmetrical relationship. Figure 11 shows the average monthly price per ton for Chinese imports of coal from all countries including North Korea (red line), and the average monthly price for DPRK coal exports to the PRC (blue line).

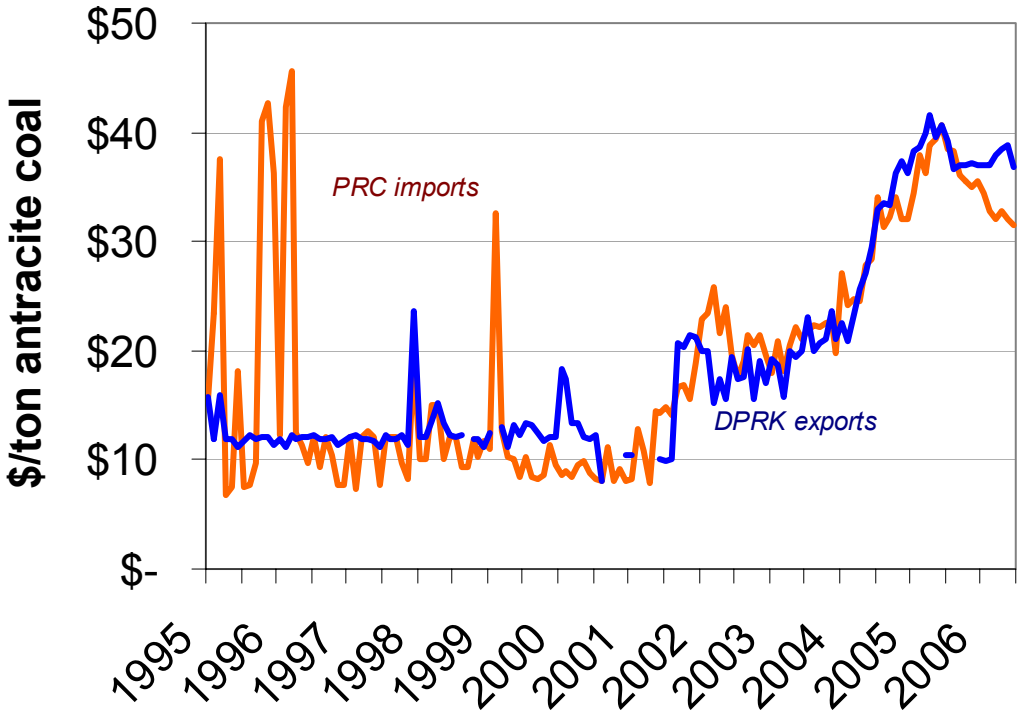
Figure 11: Monthly Average DPRK Coal Export Prices (for PRC) Compared to Overall PRC Coal Import Prices (January 1995 – June 2006)



The data in Figure 11 suggest that North Korea may be providing coal to the PRC at subsidized, "friendship prices" below those of China's other coal trading partners. Between January 1995 and June 2006, the average monthly coal price for aggregate Chinese imports was $40 per ton, while the average price for North Korean exports to the PRC was $19 per ton over the same period. Prior to price convergence at $38 in May 2006, DPRK coal was consistently cheaper than other Chinese imports.

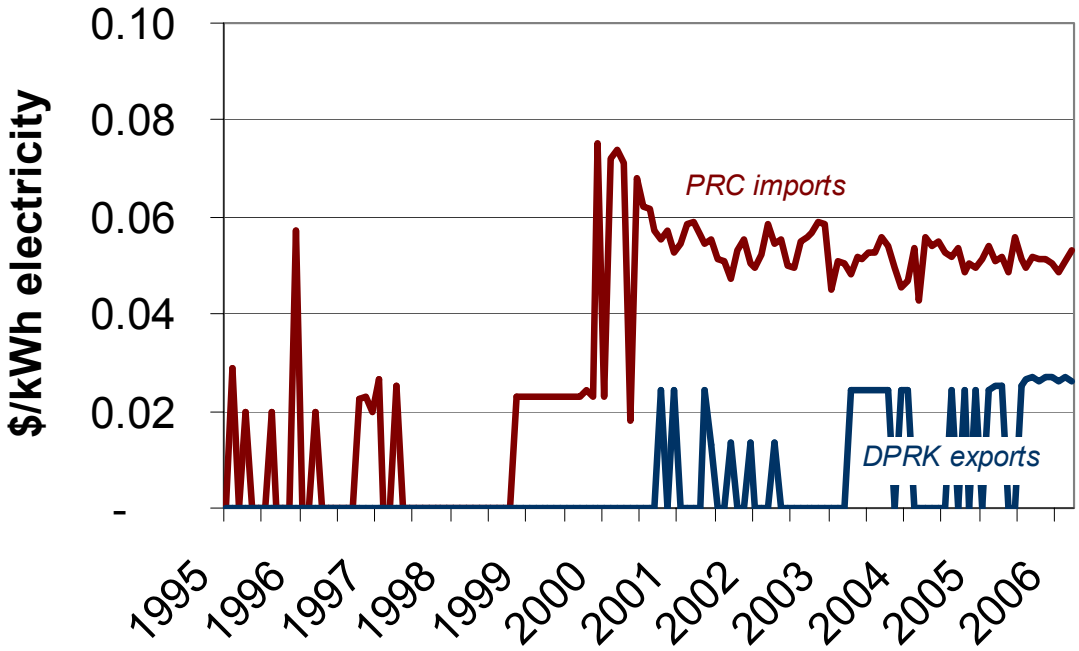
Aside from North Korean "friendship pricing" (which appears to have been fixed around $12 per ton until the end of 1997), there are three other likely factors that may explain the pricing differential. Methodology may be inconsistent: imports may be recorded at higher c.i.f. prices, while exports are calculated f.o.b. Geography and infrastructure may generate asymmetries: North Korean coal mines may be closer to Chinese buyers and/or North Korea may have lower transportation costs. However, the factor most likely to explain DPRK-PRC coal price differentials is the varying composition of bilateral trade flows—North Korean coal exports were composed of more than 99% anthracite coal in 2005, while North Korean imports were 97% bituminous coal by volume. Anthracite coal is often used for steam or power generation, while bituminous, or brown coal, is often used for coking. In order to eliminate the anthracite-bituminous factor in Sino-DPRK coal price differentials, Figure 12 compares prices for anthracite trade alone.

Figure 12: Average Monthly DPRK Anthracite Coal Export Prices (for PRC) Compared to Overall PRC Anthracite Import Prices (January 1995 – June 2006)



When it comes to anthracite coal trade, the Sino-DPRK coal price differential is less clear and consistent. Indeed, average DPRK anthracite export prices over the 138-month period are only $.12 cheaper than overall PRC anthracite import prices, compared to the $21 difference for coal trade overall. Nonetheless, the data in Figure 12 illustrate the early stability of North Korean export prices and the later market orientation of DPRK export prices to levels above the average contemporaneous Chinese import price. The trajectory of DPRK anthracite prices suggests an increased market orientation among North Korean exporters, improved anthracite coal quality, and/or surging demand in Northeastern Chinese markets.

Figure 13: Average Monthly DPRK Electricity Export Prices Compared to Overall PRC Electricity Import Prices (January 1995 – March 2006)



Whereas DPRK coal export prices have converged with average aggregate PRC coal import prices, North Korean electricity exports have continued to be sold at a nearly 50% discount. Besides "friendship pricing" by North Korean electricity exporters, the consistent difference displayed in Figure 13 may also be due to fixed prices from joint Sino-DPRK hydropower development projects and/or the intermittency or low quality of North Korean electricity exports.

Figure 11, Figure 12, and Figure 13 examine the level and trajectory of North Korean export prices compared to Chinese import prices for the same commodity. On the other side of bilateral energy trade, Figure 14 through Figure 17 examine PRC export prices of commodities for which North Korea is a net importer. In turning to the Chinese export side of bilateral energy trade, the initial question is whether North Korean "friendship prices," insofar as they were rooted in government beneficence, have been reciprocated by Chinese exporters.

Figure 14: Average Monthly DPRK Crude Oil Import Prices (from PRC) & Overall PRC Crude Export Prices (January 1995 – March 2006)

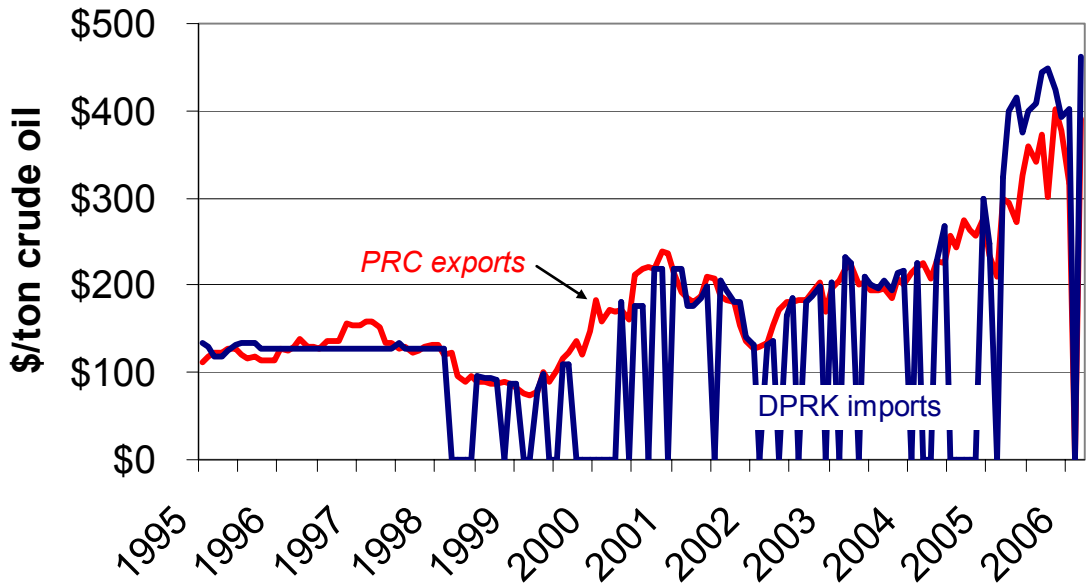
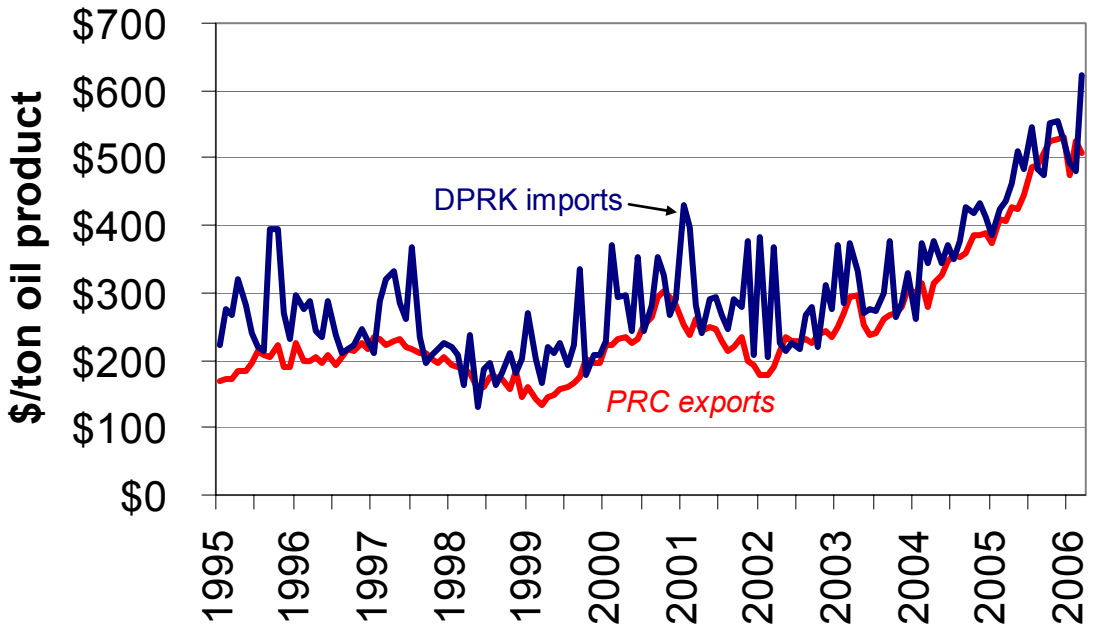


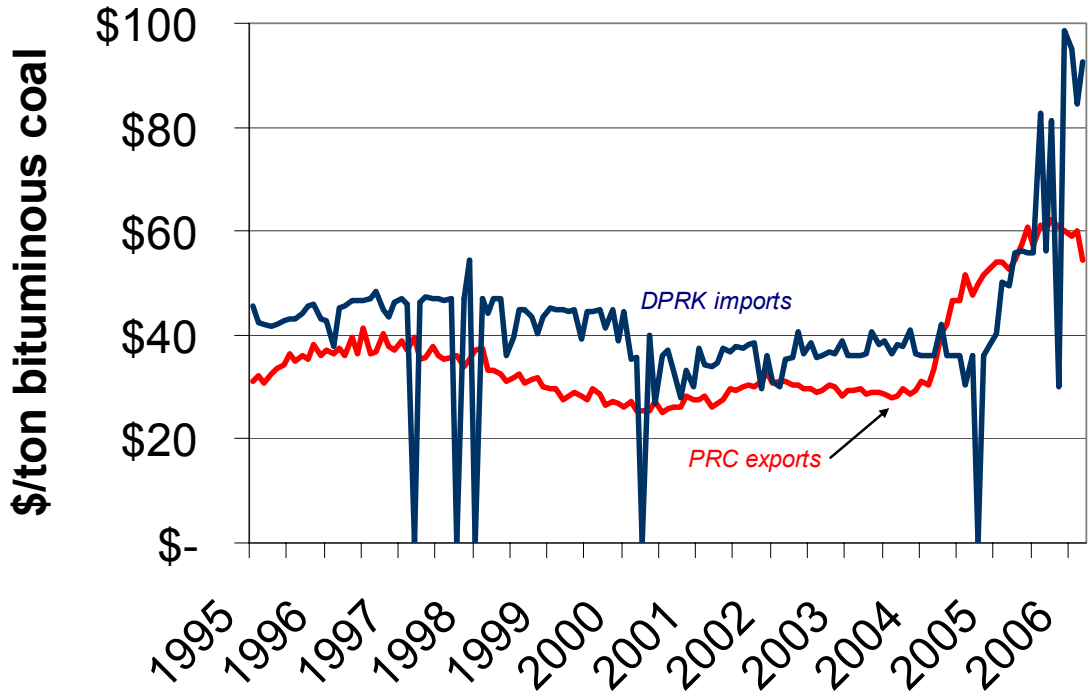
Figure 14 compares aggregate average monthly PRC crude oil export prices with prices paid by DPRK importers. Until February 1998, North Korea paid a fixed price of $126.70 per ton of Chinese crude oil. Once prices were freed, DPRK import prices generally equaled or exceeded aggregate average PRC crude oil export prices.

Figure 15: Average Monthly DPRK Oil Product Import Prices (from PRC) & Overall PRC Oil Product Export Prices (January 1995 – March 2006)



North Korean crude oil import prices generally traced average Chinese export prices. However, DPRK import prices for oil product have consistently exceeded average monthly Chinese product export prices. Between January 1995 and March 2006, North Korean importers paid on average $299 per ton of Chinese oil product, while Chinese exporters charged on average $254 per ton of oil product to all international buyers including North Korea. The DPRK has consistently paid premium prices for Chinese oil product exports over the past ten years. The consistent price differential may reflect intentionally discriminatory pricing by Chinese exporters, or it may be rooted in geography, transport costs, quality differentials, and/or political constraints on North Korea's ability to import crude oil from other sources.

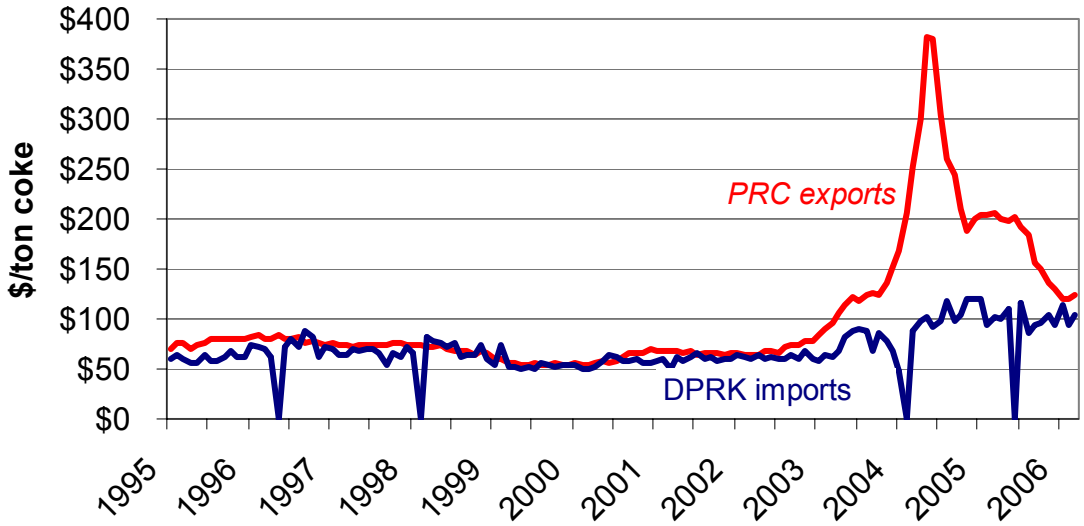
Figure 16: Average Monthly DPRK Bituminous Coal Import Prices (from PRC) & Overall PRC Bituminous Export Prices (January 1995 – March 2006)



As mentioned above, North Korea's bilateral coal imports are composed almost entirely of bituminous coal. In 2005, 97% of DPRK coal imports from the PRC were bituminous coal. The data in Figure 16 tell the same asymmetrical pricing story as PRC-DPRK oil products trade. The aggregate average price of Chinese bituminous coal exports to all countries including the DPRK was $36 per ton. North Korean importers, though, paid a premium price of $43 per ton over the same period.

Among energy and fuels for which North Korea is a net importer of Chinese commodities, coke trade is anomalous insofar as the DPRK paid discounted prices for imported Chinese coke. Figure 17 illustrates the average monthly coke prices for aggregate Chinese exports and North Korean imports.

Figure 17: Average Monthly Coke Import Prices (from the PRC) & Overall PRC Export Prices (January 1995 – March 2006)



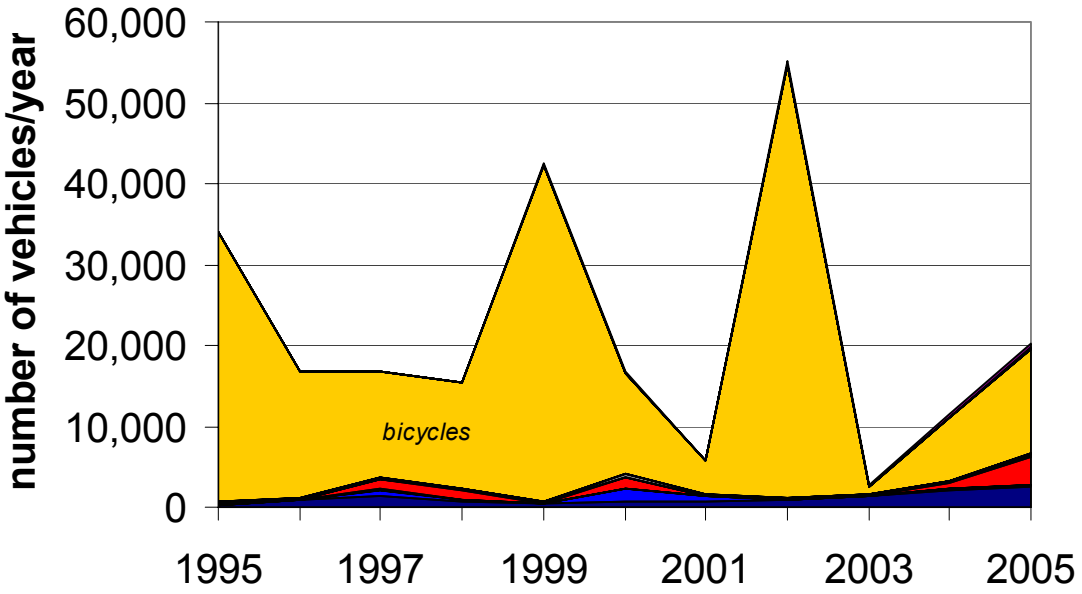
Aside from politically-determined pricing, there are several factors that may help to explain the divergence of North Korean prices from overall Chinese prices for the same commodity. Geography, transport costs, demand, and quality factors have been reviewed above. Another possible explanation is the degree of centralized political control of local exporters and importers. Low DPRK export prices may reflect Pyongyang's insulation from market prices and/or a lag in transmitting market price information to exporting entities. Likewise, premium PRC export prices may reflect the ability of locally-autonomous producers to exploit North Korean ignorance and economic isolation. With the small (trade volume) exception of the coke anomaly, differential Sino-North Korean energy pricing illustrates the DPRK's lack of economic leverage with its closest ally.

4. Energy Implications of Infrastructure and Other Commodities Trade

As illustrated in Figure 2, North Korea is a net importer of food and energy-intensive/related commodities. A brief $50 million food surplus was achieved in 2004; however, Nicholas Eberstadt argues that DPRK food exports have more to do with "caloric arbitrage" than agricultural surplus, per se (Eberstadt, 1998).

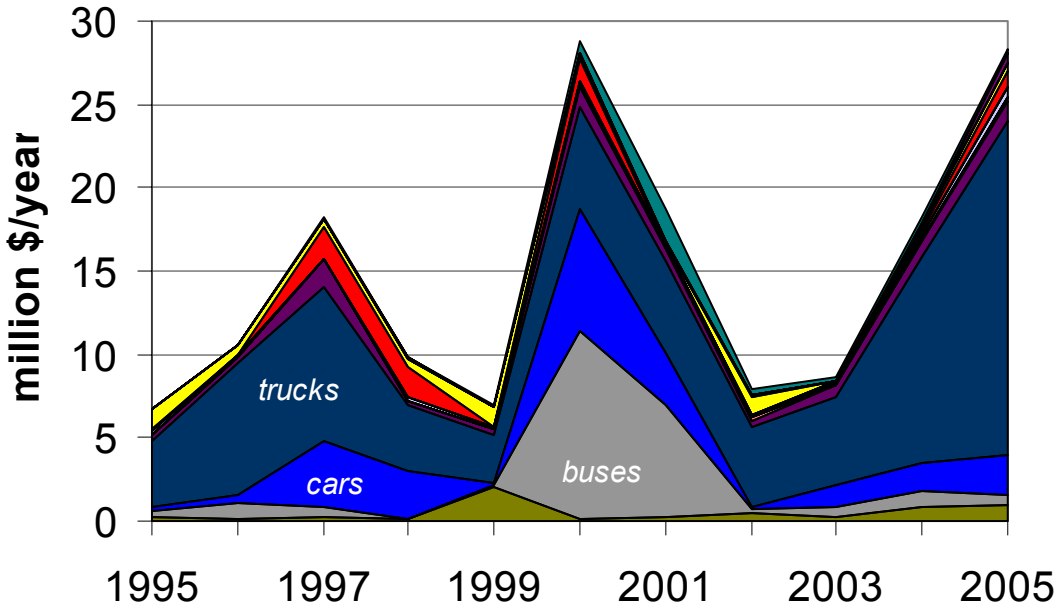
Transportation infrastructure is closely related to energy and fuels trade, both for manufacturing inputs and liquid transport fuels. Bilateral trade of transport infrastructure provides a window on domestic economic development and the degree of energy dependence.

Figure 18: Annual Volume of DPRK Transport Vehicle Imports from the PRC (1995-2005)



In 2005 North Korea spent $500,000 on 13,000 bicycles for an average price of $36 per bicycle. Figure 18 and Figure 19 show that the DPRK's transport sector has not grown consistently over the past ten years. Imports of Chinese bicycles have dominated the unit volume of transport imports and trucks have served as the largest vehicle category by value.

Figure 19: Annual Value of DPRK Transportation Equipment Imports from the PRC (1995-2005)

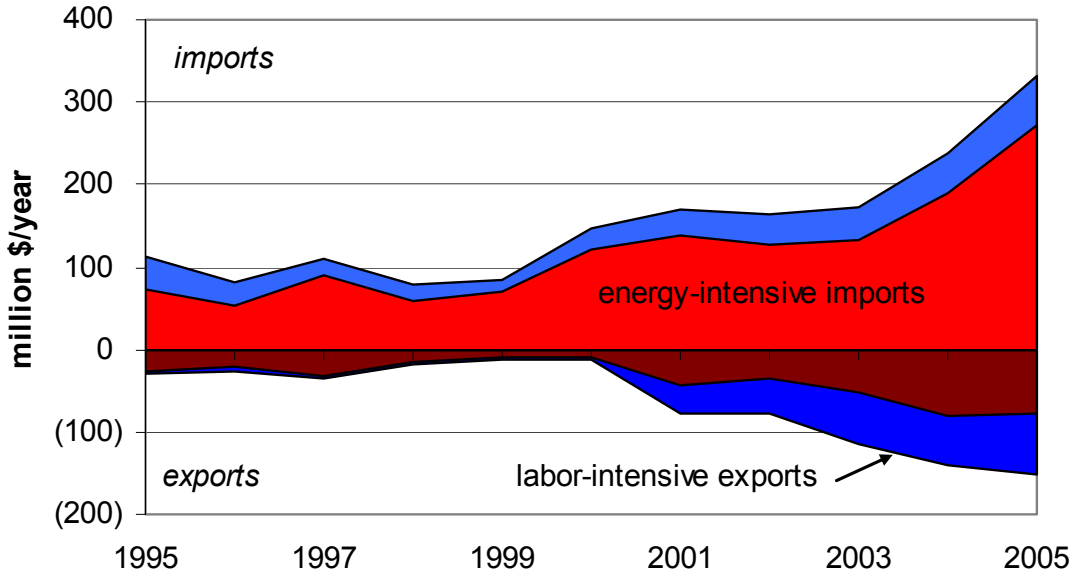


In 2005, North Korea imported $20 million worth of trucks, $2 million of cars, and $1 million of tractors (green area of Figure 19). North Korea's transport equipment exports have been negligible for the past ten years. Combined with the major petroleum product trade data in Figure 7, these data suggest that North Korea's road transport sector has not grown significantly since 1995. Anecdotal reports of North Korean withholding of Chinese rail cars further suggest the deterioration of domestic industrial manufacturing capacity (Li, 2006).

5. Major Trends and Implications for the DPRK Energy Sector

Over the past ten years, North Korean merchandise imports from China have become more energy-intensive, while exports have become more labor-intensive. Figure 20 shows that the proportion of energy-intensive imports rose from 66% to 82% over the past ten years. Over the same period, the proportion of labor-intensive North Korean exports increased from 14% to 48%.

Figure 20: Energy and Labor-Intensiveness of Annual DPRK-PRC Trade by Value (1995-2005)[7]

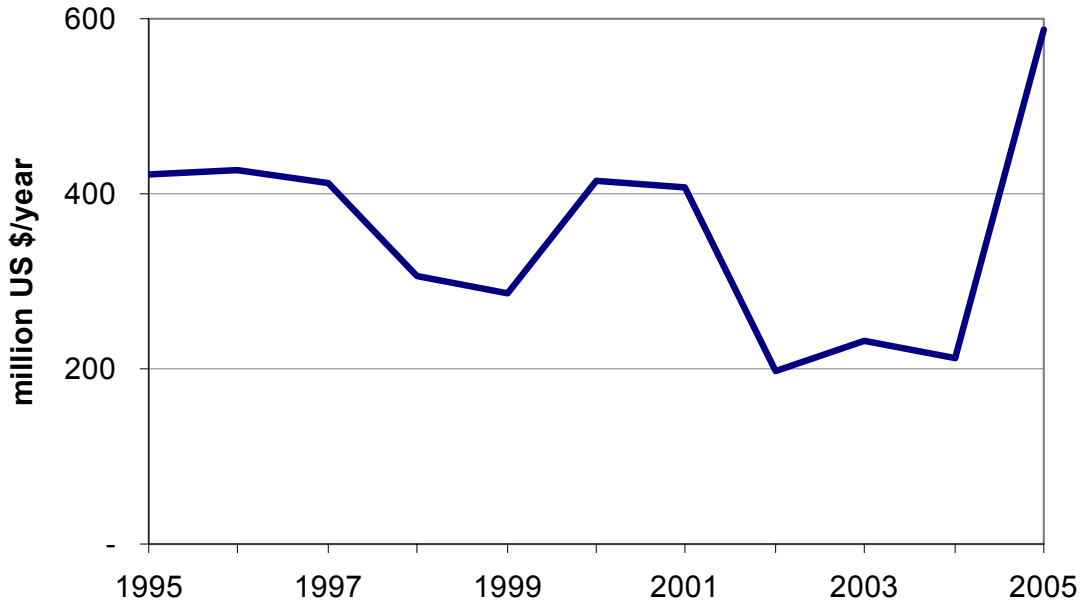


The consistent shift of DPRK trade towards energy-intensive imports and labor-intensive exports suggests a possible deterioration of North Korean non-military industry. It is not clear whether increasingly asymmetrical energy-embodied trade is hollowing out manufacturing sector or domestic dilapidation is stimulating increased trade. Regardless of the direction or existence of a causal relationship, North Korea appears to be increasingly dependent on Chinese energy and fuels (human and machine-fuel), for economic survival.

[7] Data in Figure 20 do not cover all PRC-DPRK trade. The *energy-intensive* category is comprised of iron & steel products, railway equipment, ship & boats, machinery, electrical machinery, iron & steel, vehicles, fertilizers, paper, aluminum, glass, cement, and aircrafts. The *labor-intensive* category is comprised of food waste, animal feed, edible fruit and nuts, preserved food, spices, coffee, and tea, dairy, eggs, honey, tobacco, manmade staple fibers, knit apparel, furniture and bedding, textiles, footwear, woven fabrics, silk, and art & antiques.

The most concise, and perhaps most salient metric of Sino-DPRK trade is the amount of North Korea's annual trade deficit. Figure 21 shows the recent growth of North Korea's bilateral deficit to a ten-year high of $588 million in 2005. Insofar as North Korean trade deficits are a "proxy for political strength," Pyongyang may be thriving on the expanding bilateral trade relationship (Eberstadt, 2006).

Figure 21: DPRK-PRC Aggregate Annual Trade Deficit (1995-2005)



The data caveats listed in Section 2 notwithstanding, Chinese customs data tell a coherent story about bilateral trade and domestic characteristics of North Korea's economy and energy system. There are four basic points in this story: net energy and fuels flows have changed with the DPRK's emergence as a coal and electricity exporter; the DPRK is selling low and buying high in energy trade with China; imports are becoming more energy-intensive and exports more labor-intensive; and aggregate bilateral trade deficits are large and growing. Chinese customs data suggest that North Korea is trading the regime's political present for the country's energy and economic future.

References

Eberstadt, N. (1998) "North Korea's Interlocked Economic Crises", *Asian Survey* 38:3 (203-230).

Eberstadt, N. (2004) "The Persistence of North Korea", *Policy Review* 127 (23-48); http://www.policyreview.org/oct04/eberstadt.html.

Eberstadt, N. (2006) "Nuclear Shakedown", *Wall Street Journal*. (Eastern Edition; New York, NY: July 6, 2006, p.A14.)

Li, D. (2006) *DPRK's Reform and Sino-DPRK Economic Cooperation* (San Francisco: Nautilus Institute; http://www.nautilus.org/fora/security/0670Li.html)

Nanto, D.K. & Chanlett-Avery, E. (2005) *The North Korean Economy: Background and Policy Analysis* (Washington, DC: Congressional Research Service Report for Congress RL32493).