

North Korea's foreign economic relations

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Abstract

Many debates about engagement with North Korea hinge on the precise nature of North Korea's foreign economic relations: whether trade and investment are on commercial or non-commercial terms; the extent of illicit activities, and the changing geographic patterns of North Korea's trade. This article provides an effort to reconstruct North Korea's foreign economic relations, subordinating our estimates to the discipline of the balance of payments accounting framework. Among the most salient findings for the debate about engagement and sanctions is that North Korea's trade and investment have continued to increase despite the onset of the nuclear crisis and a decline in illicit activities. This growth has occurred in part because of the growing weight of China and South Korea in trade, aid, and investment. We also find that economic relations between North and South Korea have a substantially greater non-commercial component than those occurring across the China–North Korea border.

Although the North Korean nuclear crisis would appear to be a classic high-security issue, many of the core analytic and policy questions surrounding the conflict have been economic in nature. The central debate in this regard has to

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do with the strategy of ‘engagement,’ which is but a subset of the larger question of the relationship between economic interdependence and peace (Gartzke *et al.*, 2001; Barbieri, 2002) and the understudied question of the utility of positive inducements in international relations (Kahler and Kastner, 2006).

The logic of engagement has at least two distinct strands, both of which have been manifest in the debate over North Korea. The more modest variant argues that positive economic inducements are more effective than sanctions or other threats and punishments in eliciting cooperative behavior. This may be the case because positive inducements signal cooperative intent (Sigal, 1998), because they influence internal decision-making processes in favor of ‘doves’ (Harrison, 2001; Moon, 2003), or because crises and subsequent reforms have made the North Korean leadership more amenable to such tradeoffs than in the past (Snyder, 1999; Cumings, 2003; Kang in Cha and Kang, 2003, pp. 103–114).

A more expansive liberal argument for engagement focuses on the longer-run transformation of the target state. Regardless of the intentions of the political leadership, the expansion of economic ties has the effect of creating or bolstering interests that are more amenable to cooperation. This argument has been made in most general form with respect to Northeast Asia in the work of Solingen (1998, 2007) and was the theoretical underpinning of the Sunshine policy (Moon, 2000).

The strategy of engagement is, of course, not without its detractors. Critics of engagement have long argued, as an empirical matter, that concessions to North Korea are not reciprocated (Downs, 1999), that effective negotiation with the country requires a combination of sticks as well as carrots (Cha in Cha and Kang, 2003, pp. 70–100), or that the leadership has no intention to make fundamental concessions (for a review, see Scobell, 2005). Yet there are also theoretical reasons to believe that increased economic interdependence can create perverse incentives. The literature on foreign aid has long noted the so-called Samaritan’s dilemma (for an analytic treatment, see Gibson *et al.*, 2005). The donor’s humanitarian impulse to give creates a straightforward moral hazard problem: knowing that the donor will continue to provide support, there is little reason to change behavior, including in ways that will reduce the need for support over the longer run. There is also evidence that aid flows may systematically contribute to degrading governance itself (Knack, 2001). Far from transforming North Korea, increased access to foreign resources may allow Pyongyang to remain intransigent in negotiations, for example, with respect to the monitoring of aid (Haggard and Noland, 2007a), and has the larger effect of directly sustaining the regime (Eberstadt, 2007, pp. 159–196).

With a few noteworthy exceptions (Eberstadt, 2007; Wallace, 2007), much of the debate about engagement has taken place in isolation from a detailed

empirical consideration of the changing nature of North Korea's external economic relations. The reasons for this are understandable; even international trade statistics are regarded by the North Korean regime as a state secret.¹ Yet, in the absence of an overall picture of North Korea's international trade, investment and aid ties, it is difficult if not impossible to have a meaningful debate on the crucial political economy issues that underlie recent policy debates. Claims about the effects of increased economic relations are conditional to some extent on the nature of those ties: who are the country's trading partners; whether trade and investment are on commercial or non-commercial terms; and even whether the transactions involve illicit activities.

This article constitutes just such an accounting exercise: it reports on our efforts to reconstruct North Korea's foreign economic relations from 1990 through 2005, and more recently where the data permit. It thus provides a baseline for reasoned debate about the logic of engagement.² Given that North Korea does not publish trade statistics, this exercise required extracting trade data from its trading partners (the so-called mirror statistics; see Eberstadt, 2007, pp. 61–98), separating out aid from commercial capital flows, providing estimates of illicit activities, which have played a substantial role in North Korea's external economic relations, and subordinating all of these estimates to the constraints of a standard balance of payments accounting framework.

We begin with our reconstruction of North Korea's balance of payments. Taking into account weapons trade as well as illicit transactions, in all likelihood the country has run current account deficits from 1990 to the present. Moreover, both North Korea's overall trade and its current account deficits continued to grow steadily during the first half of the 2000. One of our most striking findings is that observable capital inflows into North Korea are trending up, at least through 2005. The data underline an important point in the sanctions literature; that sanctions are not likely to be effective in the absence of coordination. Despite the onset of a highly charged political-military crisis and much closer scrutiny of North Korea's illicit activities, the regime has been able to secure levels of external resources that equal or exceed those available to it at any point since the collapse of the Soviet Union.

We then turn to a consideration of the direction of North Korea's trade, aid and investment relationships. During the 1990s, North Korea diversified its foreign economic relations, normalizing ties with most European countries and deepening its economic relations with South Korea following the

1 See Noland (2001) and Eberstadt (2007) on the problematic nature of statistics on the North Korean economy.

2 An appendix detailing sources and methods used to construct these estimates is available in Haggard and Noland (2007b).

inauguration of Kim Dae-jung in 1998. The direction of North Korea's trade has changed quite dramatically since 2000. Economic relations with Japan dropped sharply as a result of sanctions and trade with China, South Korea, and the Middle East – all countries showing greater sympathy toward engagement strategies – grew in relative importance.

A third set of findings directly address arguments about the longer-run effects of engagement: whether increasing economic interdependence will transform the political economy of the country or moderate its behavior. This should depend, in part, on the nature of those economic ties. One important finding concerns the illicit share of North Korea's trade. The balance of payments accounting framework provides important discipline on estimates of these activities, and suggests strongly that some of these estimates are almost certainly exaggerated. This finding also suggests, however, that increased scrutiny of North Korea's behavior – a direct correlate of sanctions broadly conceived – has probably encouraged the turn toward more commercial activities, including exporting and hosting foreign direct investment.

A final finding has to do the balance between commercial and non-commercial transactions. Multilateral assistance has clearly fallen in recent years, a result of both aid fatigue and a reaction to the missile and nuclear tests of 2006. When we focus on the nature of transactions between the DPRK and its two most important trading partners – South Korea and China – we find that South Korea's share of North Korea's commercial trade has remained surprisingly constant while China's growing economic influence becomes even more apparent. This stems from the fact that South Korean transactions have a large official transfer component while economic engagement with China is conducted increasingly on commercial terms.

We proceed in three steps. First, we report on our reconstruction of the North Korean balance of payments. Secondly, we turn to the modalities of exchange, separating out the commercial and non-commercial components of the balance of payments and discussing the implications of the statistical discrepancy embodied in the accounts: the observed deviation from the fact that the balance of payments accounting framework requires that in principle the capital and current accounts sum to zero. We then turn briefly to a consideration of the geography of North Korea's trade, before concluding with a discussion of the implications of our findings for debates on engagement and the prospects for wider economic cooperation in the region.

1 Constructing a balance of payments

We adopt the conventions embodied in the International Monetary Fund's *Balance of Payments Manual* (fifth edn., 1993). Transactions are divided between those entering in the current account and the capital account. The

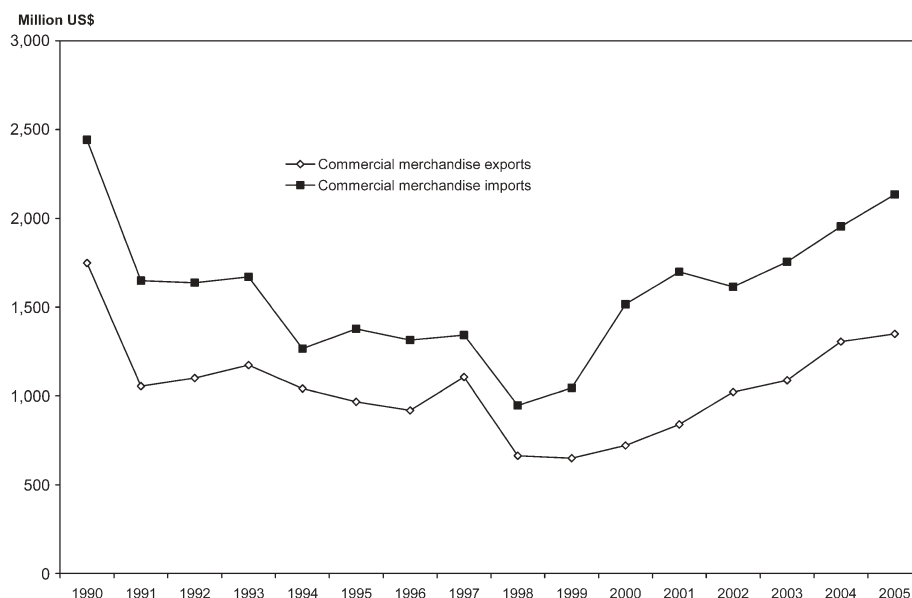


Figure 1 Observed commercial merchandise trade.

former encompasses trade in goods and services (which includes transportation, travel, and tourism), income flows, and current transfers (which includes most aid and worker remittances). The latter consists largely of financial flows including direct and portfolio investment, unrequited transfers including migrants' remittances, and changes in official reserves. Imbalances in the current and capital accounts together with changes in reserves should sum to zero, but given the high level of uncertainty surrounding our estimates the statistical discrepancy or 'errors and omissions' is, not surprisingly, quite large at times. We extend this format to include illicit activities such as counterfeiting which do not appear in conventional balance of payments accounting.

1.1 Current account transactions

North Korean commercial trade volumes began falling in 1991 with the dissolution of the Soviet Union and collapse of the Eastern Bloc, which had been North Korea's primary trade partners (Figure 1). But trade continued to decline thereafter, reaching a minimum at the end of the famine period 1998–1999 at 40 percent of 1990 values.³ From 2000, it began to revive, though as of 2005, both imports and exports remain below their 1990 values. Since the onset of the nuclear crisis in 2002, exports have continued to increase, but imports have grown even more, implying a widening merchandise trade deficit.

3 The timing of this trough corresponds to the Asian financial crisis and a slowdown in Japan, but domestic factors were more significant.

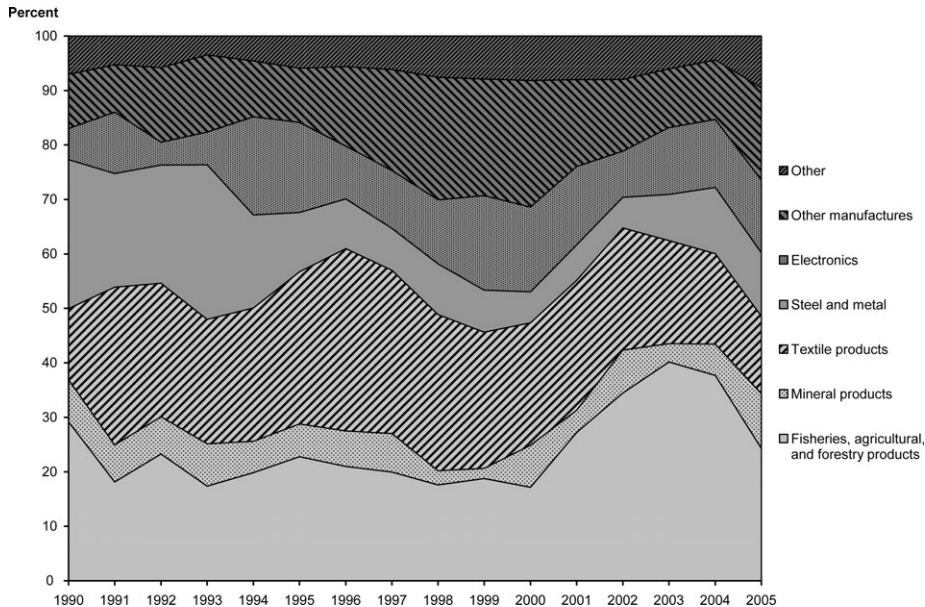


Figure 2 North Korea export composition, 1990–2005. Note: Sorted by SITC number/degree of processing.

The commodity composition of exports is illustrated in Figure 2. Although the data are highly aggregated, there has been some tendency for natural resource products including fish, wood, and minerals to increase in prominence over time. This shift reflects in part the collapse of the classic socialist sector and of the ‘friendship’ trade that had supported it through subsidized imports and a willingness of other socialist countries to accept North Korean products. This shift also reflects the efforts of work units and households to exploit products that are readily exportable without additional processing.

Weapons trade and illicit activities. In addition to the trade derived from mirror statistics reported in Figures 1 and 2, North Korea derives additional revenues from unobserved transactions, which include arms sales that are not technically illegal as well as drug trafficking and counterfeiting which are. It may appear obvious that arms sales and illicit activities are non-recorded activities and thus should be added to the balance of payments as exports, thus reducing the financing gap. But it is also possible that illicit trade is misreported in other commodity categories and therefore does not represent a dollar-for-dollar addition to North Korea’s net exports. Missiles, for example, could be misreported as fabricated metal products in the importer’s statistics. Public discussion of revenues from these controversial sources has a greater tendency to overstate their contribution (by assuming that they are entirely additional) than understate it (by excessively correcting for the likelihood that

they are partly captured elsewhere in the trade data). We return to the issue of 'additionality' when reconstructing the overall balance of payments.

In the 1980s, North Korea emerged as a significant player in the global arms market, exporting as much as \$500 million a year (20 percent or more of total merchandise exports) of conventional arms based on Soviet designs and including short-range ballistic missiles.⁴ Arms sales fell in the first half of the 1990s, but the economic difficulties of the mid-1990s created strong incentives to revive the business (Grimmett, 2006; Pinkston, 2008).

The two sources that venture estimates of total arms sales over time, the US State Department *World Military Expenditures and Arms Transfers* and the Stockholm International Peace Research Institute (SIPRI), show steadily declining sales over time (Haggard and Noland 2007b, Appendix Table 4). These sources suggest that the upper-end estimates that are sometimes reported – such as the statement by a US official that North Korea earned \$560 million from missile sales in 2001 – are probably exaggerated (Ward, 2002; Lintner, 2005). The declining sales of major weapons systems are no doubt partly offset by provision of technical assistance packages, the follow-on sale of parts, and fuel and diversification into other military sales, such as patrol boats and ammunition.⁵ However, the decline in the sale of large-scale systems would be followed, albeit with a lag, by a decline in the value of associated sales and services as well. Moreover, trade in dual-use technologies that might have any connection with either weapons of mass destruction (WMD) or missile manufacture is now formally subject to sanction under UN Security Council Resolutions 1695 and 1718 which followed the missile tests of July 2006 and the nuclear test of October 2006, respectively.

Although significant at one point in time, the importance of weapons sales as a source of foreign exchange has probably declined. Two caveats to this conclusion stem from strategic and demand side considerations. Although a number of North Korea's customers have been peeled away, the interest of a small number of states in acquiring weapons has no doubt grown; Iran and Syria head this list. And second, due to the increased price of oil in recent years, some of North Korea's historic customers are flush with cash; Iran, again, falls quite clearly in this category, as does Syria, and by extension, their proxy Hezbollah (Bechtol, 2007). As we will see in considering the geographic distribution of North Korea's trade, economic ties with the Middle East have

4 In addition to weapons, the North Koreans export a variety of military-related training, consulting, and praetorian guard services (Noland, 2000, Chapter 3).

5 Lintner (2005, Chapter 11) has detailed transactions of this sort as well as the role of North Korean companies acting as intermediaries in the purchase and sale of dual-use technologies to a number of Middle Eastern countries. An example of this phenomenon was the April 2007 revelation of a January 2007 deal to re-supply Ethiopia with parts for its Soviet-era equipment (Gordon and Mazzetti, 2007; Lee, 2007).

grown substantially. Nevertheless, from an overall balance of payments perspective, we suspect the role of arms sales in overall exports to have declined from their high point in the 1980s.

North Korea has long been involved in drug trafficking, initially exporting opiates and later synthetics such as methamphetamines, as well as providing courier services for other producers. These activities involved both North Korean diplomats as well as cooperation with international criminal organizations (Noland, 2000; Perl, 2007; Chesnut, 2007).⁶ Because drug sales involve extraordinary mark-ups as one moves down the distribution chain, estimates of the drug trade are easily inflated by applying street prices to upstream transactions.⁷ A former US government official has put annual drug revenues at \$100–200 million (Asher, 2006). In a succession of reports for the CRS, Perl (2005) has offered a more modest estimate of \$71 million a year (broken down into \$59 million from opiates and \$12 million from amphetamines).⁸ However, our calculations of estimated acreage under cultivation, likely output and wholesale prices, lead us to believe that this estimate should be treated as an upper bound.

Moreover, these numbers have probably fallen in the 2000s. The most systematic overview of public reports of drug seizures through 2006 shows a dramatic increase in seizures beginning in the mid-1990s, again corresponding with the desperation of the famine period, but a downward trend thereafter (Chesnut, 2007). North Korea was dropped entirely from the list of major drug producing or trafficking countries in the 2007 US State Department *International Narcotics Control Strategy Report* (INCSR), and the 2005 UN World Drug Report makes no mention whatsoever of North Korea in its detailed discussion of the international heroin and opium markets. The decline in seizures could reflect adoption of alternative means for bringing drugs into major export markets, including the use of Chinese triads, Russian Mafia, and Korean gangs as intermediaries (Asher, 2006; Nanto and Perl, 2007). However, declines in seizures also correspond with increased

6 Although drugs almost certainly dominate North Korea's smuggling activity, there is evidence – in the form of diplomatic expulsions – for trade in other sanctioned items, including the so-called 'conflict' diamonds from civil war zones in Africa, rhino horns, and ivory (Noland, 2000; Asher, 2005; Prahar, 2006). North Korea has been accused of committing insurance fraud as well (Nanto and Perl, 2007).

7 For example, in the same Congressional testimony, a US official reported both the purchase of 60 kg of amphetamines by Japanese crime syndicates for \$1 million (or \$17,000/kg) in 1998 and a Japanese seizure of 565 kg in 1999 with a street value of \$347 million (or \$615,000/kg) (Prahar, 2006)! Clearly, the former rather than the latter are closer to what we would consider export prices.

8 As with missiles, estimates of the value of the drug trade have sometimes veered into the fanciful, including the estimate from an American military official in 2003 that the North Koreans were earning between \$500 million and \$1 billion a year from trade in narcotics at a time when total exports for the whole country were only \$775 million (Solomon and Dean, 2003).

surveillance and interdiction of North Korea's activities.⁹ We believe that the \$70 million figure offered by the CRS should be treated as an upper bound estimate, with the more probable figure for 2005–2006 one quarter to half that.¹⁰

A second major form of illicit activity is counterfeiting. US government officials had long suspected North Korea to be the origin of the so-called 'supernotes,' very high-quality counterfeits of \$100 billions, which began to appear in 1989.¹¹ However, the issue gained more attention in 2005 with a series of criminal cases and Treasury enforcement actions against a Macau bank, Banco Delta Asia (BDA).¹²

Concern over the laundering of counterfeit notes was also behind the Treasury Department finding that BDA was a financial institution of 'primary money laundering concern,' an action that was to play a central role in the breakdown of the Six Party Talks in late 2005 and their ultimate revival in early 2007. Subsequent Treasury statements accused the bank of introducing counterfeit notes as well as large-scale money laundering and managing the financial transactions of firms engaged in WMD-related activities (Meyer and Demick, 2005; Hall, 2007).¹³

US government officials have estimated that \$50 million of notes have been seized since 1990 with the total amount of counterfeiting much larger than that, even in the hundreds of millions of dollars (Hall, 2007). According to Asher (2006), North Korea may earn as much as 40 percent of the face value of all notes counterfeited. If one simply allocated the \$50 million in seizures over the 16-year period, applied the 60 percent discount, and assumed that a dollar was seized for every one successfully passed it would imply revenues of

9 In 2006, Japanese police successfully broke up the ring that was responsible for seven high-profile seizures in that country in the late 1990s and early 2000s. In 2004, the Chinese Ministry of Public Security publicly stated its concern with North Korean drug smuggling and has also recently prosecuted a number of North Korean traffickers, albeit small-scale ones.

10 Moreover, both official and unofficial reports out of North Korea suggest that the regime itself has begun to show signs of concern over drug trafficking, either because of external pressure on the issue or more likely because of the penetration of drugs into domestic use (International Narcotics Control Board, 2005, p. 68).

11 Due to macroeconomic instability and the declining value of the North Korean won, the North Korean government may also print counterfeits to capture seignorage internally, and some of these notes may simply leak out through North Korea's cash-based external transactions.

12 As with drug smuggling, the sale of supernotes involves a complex distribution chain in which notes are sold wholesale to distributors at some discount to their face value. A 2005 US indictment documented the alleged distribution of \$28 million in notes in six European countries, whereas two US sting operations generated indictments involving \$6 million in counterfeit currency (Meyer and Demick, 2005; Perl, 2007; Chesnut, 2007).

13 Although it denied wrongdoing, the bank experienced a run on deposits. Under pressure not only from the US but from correspondent banks in Japan, Korea, and Europe, it severed connections with 50 North Korean individuals or businesses – many believed to be military or party related – and allowed Macau authorities to administer its operations.

only \$1.25 million per year. Seizures are only some fraction of the total stock of notes in circulation and this estimate would constitute a lower bound for currency counterfeiting revenues.

There are reasons to believe that income from counterfeiting is in retreat, however, and indeed may have been exaggerated from the start. The evidence of the Department of Treasury has been held secret. An Ernst and Young audit conducted for the Macao monetary authorities indicates that internal controls at BDA were weak, but questions US claims about counterfeiting. Fearing ensnarement in future money laundering cases, major banks have since shunned North Korea, impeding its ability to conduct even legitimate commercial transactions let alone laundering of counterfeit currency. According to Chesnut (2007), currency counterfeiting incidents dropped to zero in 2006.¹⁴

Counterfeiting has not been limited to currency, however; evidence also exists of North Korean involvement in counterfeiting of cigarettes and pharmaceuticals (Asher, 2006; Chesnut, 2007).¹⁵ The US tobacco industry estimates North Korean revenues from counterfeiting at \$80–160 million a year with a central estimate of perhaps \$100 million based on the prices of counterfeit cigarettes in Asian ports (Coalition of Tobacco Companies, 2005).

As this review shows, there is extraordinarily high variation in the valuation of North Korea's illicit sales. However, estimates frequently make reference to prior periods, or peak levels of the given activity, and few make any adjustments at all for whether foreign exchange earnings from the activity are truly additional to the balance of payments or hidden in other exports. Moreover, past estimates do not consider the likely effect of closer scrutiny of North Korea's economic activity that has occurred since the onset of the crisis in October 2002 and particularly since the US Treasury actions of 2005 and the introduction of formal sanctions in the wake of the missile and nuclear tests of 2006.

Services transactions, including tourism. Little data exist on licit services transactions. North Korean construction enterprises have been increasingly active internationally in recent years and the country earns some small amount of foreign exchange by charging for overflight rights. But the bulk of services

14 In 2006 bilateral meetings with the US, the North Korean delegation indicated that they were prepared to subscribe to international norms with respect to money-laundering, proposed the establishment of a joint US–North Korean task force on counterfeiting, and even asked the US to provide technical assistance in identifying counterfeit bills (Kwak, 2006, p. 15). Resolution of the BDA case was a major North Korean demand in talks held in Berlin prior to the Six-Party Talks in February 2007, and US willingness to discuss the issue through a separate channel was a key development.

15 The cigarette counterfeiting appears organized in cooperation with Chinese gangs which relocated to North Korea after their government cracked down on counterfeiting in the context of China's WTO accession and pressure from trade partners including the US.

revenues are likely to be derived from the Mount Kumgang tourism project undertaken as a joint venture with South Korea. Today, North Korea receives \$72 million annually in rent for Kumgang, plus an additional fee per visitor that has been generating between \$9 and \$14 million a year and additional benefits from hotel stays and sales of sundries; until the nuclear test, the project also received a direct government subsidy. These earnings have fallen as North Korean belligerency has soured potential tourists.

Current transfers. Workers' remittances are transfers made by workers temporarily abroad (the equivalent transfers by permanent migrants appear in the capital account). In the case of North Korea, workers' remittances have been generated in the Soviet Union/Russia, though in recent years North Korea has been replicating the model of organizing contract workers in a much wider array of countries, including Kuwait, Qatar, the United Arab Emirates, and China.¹⁶ A distinct form of unrequited transfer originates from the Korean community in Japan, and will be discussed in the context of the capital account.

North Korea's export of labor to Russia dates to the Soviet era, when prisoners were used in logging compounds that were run entirely by North Korean security forces. In 1995 the North Korean and Russian governments renewed the treaty that had lapsed in 1993 under which North Korea would supply 15,000–20,000 loggers to work off Soviet-era debts. A variety of other North Korean enterprises have subsequently entered the business of providing contract labor in logging and the construction sector, employing an additional 8,000–15,000 North Koreans (Zabrovskaya, 2006; Cho and Kim, 2007).¹⁷

In China, there are North Korean contract workers in the textile industry as well as a community of North Korean refugees that has been estimated as ranging from as few as 20,000 to as many as 400,000 people (Chang *et al.*, 2006). Many of the refugees are not employed, however, and those who are generally earn low wages; the amounts that they are transferring back to North Korea are small. There is also a resident ethnic Korean population in China that makes private transfers to North Korea and is a conduit for money

16 For example, the supply of North Korean labor for work in the Middle East was a provision of Orascom Construction's 2007 investment in a North Korean cement plant (Griggs and Fidler, 2007). Due to human rights concerns over the treatment of North Korean workers, the Czech Republic stopped issuing visas for this purpose in 2007.

17 The impact of these workers on North Korea's balance of payments is not straightforward. State-owned companies appear to select workers for three-year contracts, collect and retain all wage payments, and pass on only some share – perhaps as little as 10 percent – to the workers themselves. In some cases, payments to workers appear to be in-kind or in coupons rather than in cash. Other reports suggest that the contract labor is part of complex barter arrangements in which labor is used to pay for timber or oil; in this case, the wage payments would constitute the counterpart of a commercial import. Yet, in all of these cases, remittances constitute a potential windfall to the government because of its ability to capture the difference between what firms – effectively the government – are paid and the share of that payment actually reaching the workers.

originating in Korean communities outside China. This non-refugee channel is almost surely more important in financial terms than funds emanating from the refugees themselves.

Zabrovskaya (2006) provides figures on the location and occupational distribution of North Korean workers in Russia, estimates of their earnings, and repatriated savings. Constructing an annual estimate of these remittances is difficult because most of these jobs (e.g. logging, construction, and fishing) involve seasonal work. Annualizing her monthly data would yield estimated remittances of approximately \$10 million a year. Applying this figure to a roughly equal number of workers thought to be working under official contracts in Russia and elsewhere yields an estimate of \$20 million. Adjusting it for the seasonal nature of the work would yield a correspondingly lower figure. Without substantiation, Cho and Kim (2007) put revenues from all sources (i.e. including the Middle East and other countries) at \$30–40 million. Their figures imply that North Koreans involved primarily in construction, logging, and needlework are earning the state \$1,800–2,800 per worker per year, figures which would exceed the per capita income of the host country in some cases. These strike us as rather aggressive estimates, and we set the upper bound of worker remittances at \$30 million.

Official transfers: the aid nexus. Since the famine of the 1990s, North Korea has received nearly \$2.5 billion in aid from official and private sources, the overwhelming majority of which has taken the form of in-kind transfers of food and other humanitarian items (for a detailed discussion of aid flows, see Haggard and Noland, 2007a, pp. 126–164). Despite claims that humanitarian aid should not be linked to politics, aid has become much more erratic since the onset of the nuclear crisis, with bilateral assistance from China and South Korea playing a more prominent role. Assessing the magnitude of Chinese support poses the greatest challenge: it does not participate in multilateral initiatives such as the World Food Program, is not a member of the OECD's Development Assistance Committee, and does not publish figures on its bilateral aid programs. Chinese customs statistics do categorize some transactions as 'aid,' but these constitute a lower bound for the Chinese aid program: the figures appear to exclude major transactions in food and fuel that embody a grant or concessional element, although of unknown magnitude.

It is sometimes argued that China simply allows North Korea to accumulate arrears on its trade account. If this is indeed the case, then Chinese support could be as high a \$7 billion over the entire period if we take the bilateral current account deficit as the upper bound estimate. However, there is ample anecdotal evidence that most transactions occur on commercial terms and that the imbalance is financed in part by other financial flows from China. These include foreign direct investment (FDI) and remittances carried

through the growing border trade, as well as by net export earnings from third countries, including South Korea, which has a deficit on its current account with North Korea. We take the high-end estimate of Chinese aid as the total value of its exports of food and fuel to North Korea but emphasize that even this amount is almost certainly generous.

In addition to humanitarian and development assistance, North Korea has also been the recipient of transfers associated with the Korean Peninsula Energy Development Organization (KEDO).¹⁸ KEDO's remit was to construct two nuclear reactors to replace the nuclear facilities shut down under the 1994 Agreed Framework. KEDO also had the responsibility to supply oil to compensate for the loss of electricity generation capacity from the operating reactor closed under the agreement, until the new reactors came on line. Heavy fuel oil shipments were stopped in December 2002 following the onset of the nuclear crisis. Reactor construction slowed to a halt in 2003–2004 and KEDO itself was formally terminated in 2005.

According to the 2004 KEDO annual report, the organization spent nearly \$400 million on oil between 1995 and 2002 when deliveries were halted. The South Korean government, which had primary responsibility for overseeing construction, reports that 'non-commercial exports' associated with the project peaked at nearly \$59 million in 2002. North Korean workers reputedly received \$110 in monthly wages; \$1 million in annual wages would appear to be a generous estimate of what the North Koreans were receiving. If we add \$1 million in wages to the non-commercial exports associated with the project, it probably provides a reasonably accurate estimate of what North Korea received through this channel.

A final, and significant, source of current transfers to North Korea is from South Korea. These transactions are dominated by direct support, which has mostly taken the form of food aid and provision of fertilizer (Haggard and Noland, 2007a, pp. 140–149). Although this support is officially financed by 'loans,' there can be little doubt that they are in fact aid. However, the aid relationship also encompasses a number of large, highly visible and symbolically significant North–South 'cooperation projects' that occupy a grey area between commercial and non-commercial transactions. These projects have been closely tied to broader foreign policy initiatives; as a result, public-private risk-sharing and outright subsidies were features of them from the beginning.

18 More than \$4 billion was pledged to this effort, principally by the governments of South Korea and Japan. However, the lion's share of KEDO funds was both raised and spent outside of North Korea, for example for the design and procurement of reactor components. From a balance of payments perspective, we are interested solely in what was actually transferred to North Korea. This would appear to consist only of the heavy fuel oil and whatever funds were used for site construction, including payment for workers and shipped construction materials such as cement.

In connection with agreements reached in 1998 and the North-South summit of 2000, Hyundai had promised, and probably made, payments to North Korea of approximately \$800 million through 2005. Over time, however, the public component of these projects has actually increased either because of the financial burden they imposed on the private actors (mainly Hyundai Asan) or because the political risks seemed too substantial for firms – and smaller firms in particular – to invest on their own.

In addition to these highly visible large-scale projects, a large number of South Korean NGOs are involved in North Korea related projects such as ‘cultural tourism’ and ‘knowledge partnership’ projects have arisen through them. Anecdotally, these reconciliation projects are often alleged to have a significant transfer component (Park and Jung, 2007). It is unclear how much money flows into North Korea as a result of these endeavors, and some nominally private or NGO activity is in fact funded by the government. Nonetheless, NGO activity is not negligible.

Lastly, in July 2007, the governments of North and South Korea announced an agreement under which South Korea would supply inputs such as textiles to North Korea’s light industry in return for South Korean firms being granted concessions to the development North Korean mines, an initiative reaffirmed at the October North–South summit meeting of that year. Such deals resemble barter: in principle they should increase both exports and imports by an equivalent amount leaving the net balance unchanged. In reality, given the opacity of pricing and the scope for politicization, these arrangements may become another channel for implicit South Korean aid.

1.2 Capital account transactions

North Korea has been effectively excluded from international capital markets since defaulting on bank loans in the late 1970s. Its ability to borrow internationally is limited to a relatively low volume of short-term trade credits that the OECD put at \$188 million in 1994. Outside of the one-off payment for the 2000 summit, it has also received significant, though declining, unrequited private transfers labeled in the balance of payments as migrants’ remittances, primarily from ethnic Koreans in Japan. Inflows of FDI, mostly from China but from other sources as well, have become a more important component of the overall balance of payments picture. However, there is no consistent data on such flows and indeed the North Korean government appears intent on hiding their extent for fear that the enterprises might be targeted by sanctions.

Capital Transfers: Private Unrequited Transfers. Estimates dating from the early 1990s of remittances from Japan alone ranged from \$10 million a year to a high of \$2 billion (Eberstadt, 1996; Lind, 1997; Noland, 2000), but the

most credible estimates were in the range of \$16–41 million, and certainly less than \$100 million a year. Since then, a string of events has combined to reduce Japanese remittances, and quite dramatically by 2004–2006. The failure of financial institutions linked with the Chochongryun, the organization of Pyongyang-affiliated Korean residents, and closer scrutiny of the organization's support for the North Korean regime have resulted in a steady decline in remittances.¹⁹ Ministry of Finance reports \$29.5 million in transfers for fiscal 2002 (ending in March 2002); \$22.8 million for fiscal 2003; \$23.1 million for fiscal 2004; \$24.4 million for 2005; but only \$4 million for fiscal 2006.²⁰ Although there is no doubt some currency smuggling, the wherewithal for the Chochongryun to engage in large scale transfers is much diminished by the failure of linked financial institutions and closer scrutiny of all economic exchanges with North Korea.²¹

Investment: FDI. There is a growing body of evidence in the form of press reports that the regime has had at least some success in attracting FDI. The increase in FDI, in part, reflects policy changes taken in response to the growing external constraints we have highlighted in the previous sections and, in part, an adaptive response on the part of North Korean enterprises.

We have only one international series on foreign direct investment, provided by UNCTAD's annual *World Development Report*. Apart from a brief spike in the data associated with the push to expand the Rajin-Sonbong zone (Noland and Flake, 1997), they show that investment was low or negative for much of the period, as frustrated Chochongryun and Russian investors withdrew. Investment turned up sharply in 2003, however, led by investors from South Korea and China. The onset of the second nuclear crisis did not deter such investment, at least through 2005; the 2002–2005 period saw the most sustained inflows into the country since 1990.

19 A number of Chochongryun-associated financial institutions were closed or consolidated following several scandals during Japan's 1998 banking crisis. The dominant financial channel for remittances, the Ashikaga Ginko, canceled its correspondent relations with the Foreign Trade Bank of North Korea in 2002 and failed in the following year.

20 According to other reports, these need to be supplemented by a small share of funds that are still remitted through bank transfers, which account for approximately 10 percent of the total. The government estimated total remittances at ¥3.04 billion, or \$28 million, for the fiscal year ending March 2005 (*Nikkei Weekly*, 25 September 2006).

21 One channel for carrying cash is the Mangyongbong-92, a ferry that typically made 20–30 trips a year between Wonsan and Niigata. But, in December 2004, these visits were interrupted for over five months by a new Japanese law requiring pollution insurance, and the ship made only about 14 port calls in 2005. In the first half of 2006, it docked only three times in Japan before it was banned altogether. Other shipping was also subject to much closer scrutiny, and trade fell to the lowest level since 1988.

2 The modalities of North Korea's external economic transactions

North Korea's current account credits and debits are shown in Figure 3. In addition to our baseline or 'best guess' estimates, Figure 3 also displays high and low estimates formed by applying the extreme estimates in the reviewed literature. The band defined by the extreme estimates for credits is much larger than for debits: there is considerable uncertainty about the magnitude of a number of the underlying credit components including the 'additionality' of weapons sales, illicit activities, Chinese aid, and workers remittances. Although North Korea may conceal some weapons-related imports, the scope for illicit debits appears less. The time patterns of these aggregates largely track those of the reported merchandise trade figures in Figure 1: current account credits bottom out in the mid-1990s and then begin rising first as aid begins to ramp up, and then with the growth of merchandise exports at the end of the decade. Not until 2005 do the baseline magnitudes of both current account credits and debits exceed their values for 1990.

The balance of payments framework can be used to depict the shifting importance of differing modalities of exchange. Figure 4 displays estimated revenues derived from the export of weapons, drugs, and counterfeiting activities as a share of North Korea's licit commercial exports of goods, using the baseline estimate as the denominator. In Figure 4, it is shown that, in recent years, arms and illicit exports have been a gradually declining component of North Korean export revenue, standing at roughly 14 percent in 2005, though

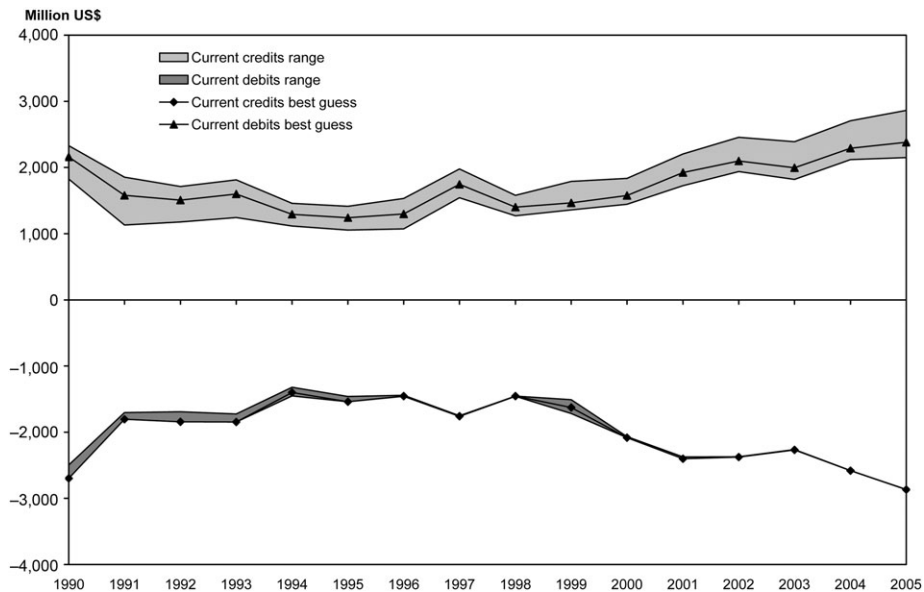


Figure 3 Total current account credits and debits.

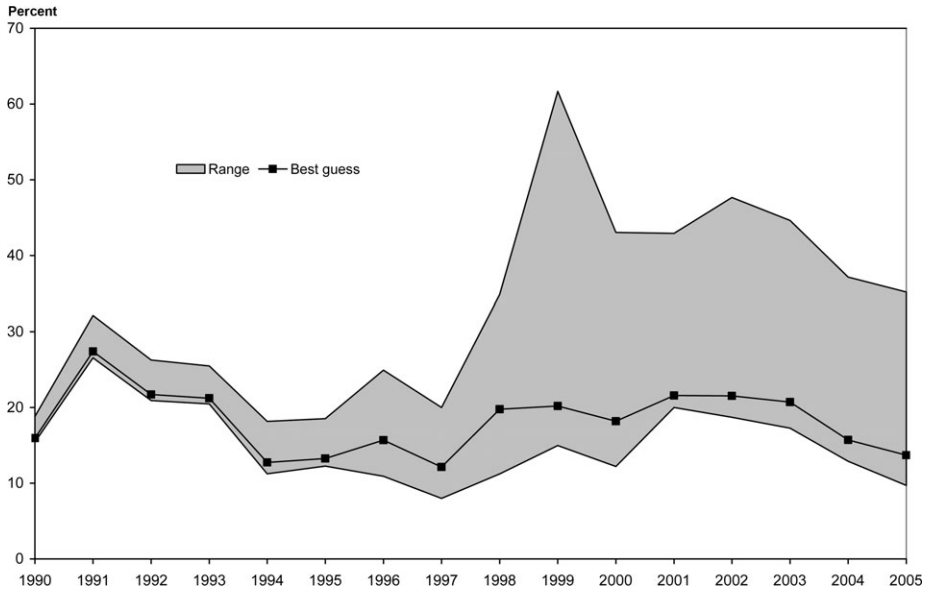


Figure 4 Arms and illicit exports as a share of commercial goods exports.

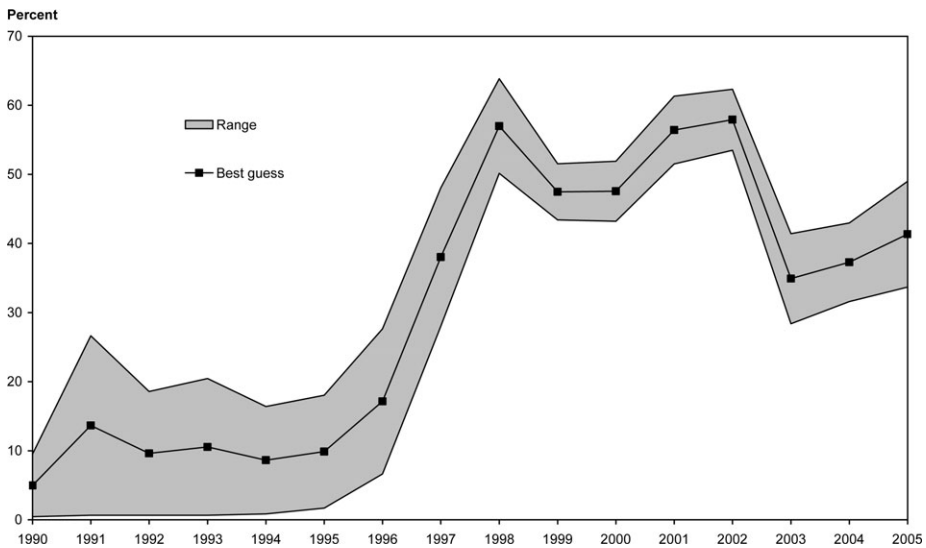


Figure 5 Official transfers (current and capital) as a share of commercial goods imports.

this statement is characterized by considerable and growing uncertainty because of our inclusion of generous upper bound estimates. Figure 5 documents the growing importance of official transfers during the famine period of the 1990s, with the baseline estimate reaching a peak value of more than half of commercial imports, followed by decline. However, it is noteworthy that despite the nuclear crisis, official transfers have risen again, equaling more than 40 percent of the country's commercial goods imports by 2005; as we will see, South Korean aid plays a crucial role in this upturn.

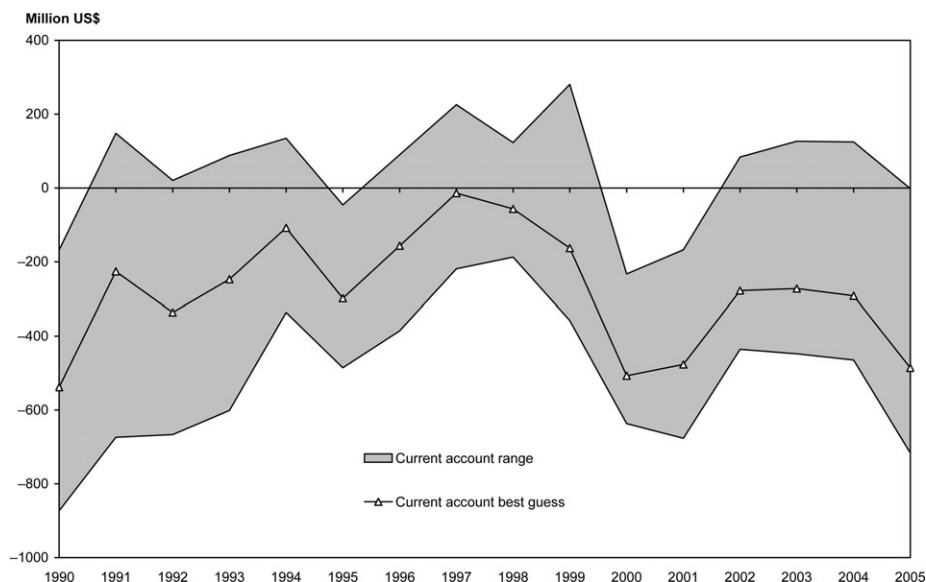


Figure 6 North Korean current account balance.

According to the baseline estimate, North Korea ran a current account deficit over the entire sample period (Figure 6). However, the divergence of the high and low estimates is such that in only 5 of the 16 years of the sample is the sign of the balance unambiguous. Keeping in mind that our confidence in the import data is more substantial, the 'high' estimate of the current account implies that North Korea ran a current account surplus and exported capital, possibly including reserve accumulation, during the worst of the famine and its immediate aftermath. This implausible result suggests an important finding: either the upper-bound estimates of various non-conventional revenues are jointly exaggerated or there are major expenditure items that are missing.

In theory, the current account and capital account (including changes in reserves) should sum to zero (Figure 7). In the North Korean case, at times this discrepancy has been large (1990 at the onset of its financial crisis and in 1997 at the peak of the famine). For the period 1990–2005, the absolute value of the discrepancy over licit merchandise exports averaged 15 percent, taking the value 1.8 percent in the terminal year of 2005. As points of comparison, the equivalent figures for South Korea, China, Japan, and the US range from 1.0 (South Korea) to 2.2 percent (China). The discrepancy has also taken both positive and negative values, the former implying that the country was consuming more resources than can be accounted for by the estimated transactions, i.e. the magnitude of its current account deficit exceeds capital inflows.

In most years, the baseline estimate of the statistical discrepancy takes a negative value, implying that North Korea has resources for which we cannot account. Assuming that these estimates are correct, there are a variety of

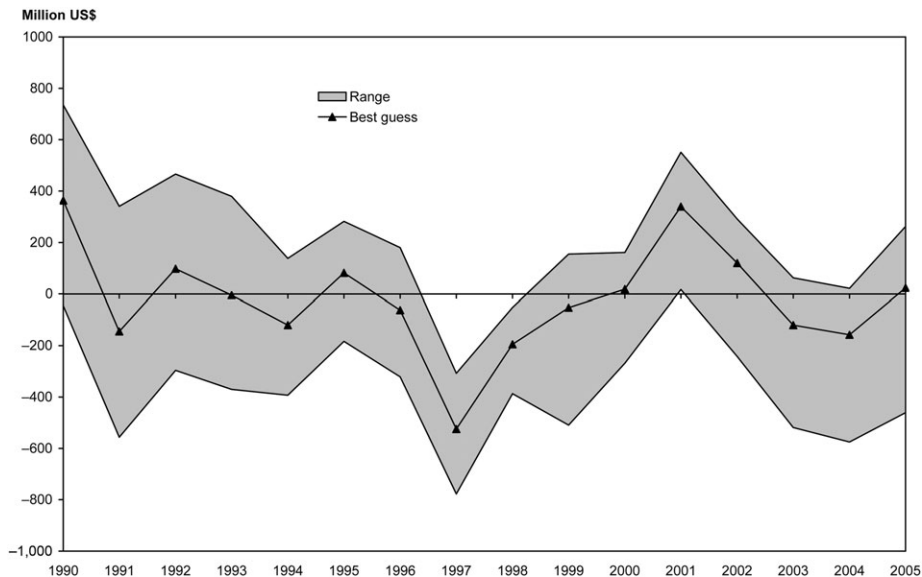


Figure 7 North Korea balance of payments statistical discrepancy.

possible explanations, none mutually exclusive. The first is that even our skeptical guesses about unconventional revenues may be generous, and that the earnings generated by these activities are even less than our best guesses. A second explanation would be that imports are undercounted. It is possible that North Korea is importing weapons systems that go unreported, or that other items – for example, luxury goods – are not accounted for in existing statistics. A third possibility is that the authorities have been accumulating official reserves. Although this is difficult to believe for the famine period, it is certainly possible that the regime saw the resumption of trade and investment in the early 2000 as an opportunity to rebuild foreign exchange holdings.

Finally, there could be unaccounted capital outflows. We have assumed that North Korea is not engaged in any substantial FDI of its own, but there is certainly some, such as the establishment of trading companies engaged in labor contracting or North Korean-themed restaurants. More significantly, it is possible that at least the top circles of the North Korean elite have accumulated foreign assets. The possibility of the proverbial Swiss bank account cannot be ruled out, although the controversy over a mere \$24 million in BDA suggests that such overseas investments are not likely to close the statistical discrepancy.

3 Shifting patterns of engagement

The analysis thus far has addressed aggregate trade and financial flows. Table 1 reports North Korea's partner composition of trade, excluding aid and

Table 1 Partner country share of North Korean commercial trade

Partner	2001	2002	2003	2004
Exports				
China	19.3	25.4	34.8	41.5
Korea	20.1	25.3	25.5	18.3
Japan	26.1	22.0	15.3	11.6
Thailand	2.8	4.2	4.5	6.4
Russia	0.5	0.3	0.2	0.5
European Union	10.4	7.5	5.7	4.3
MENA	4.1	4.0	4.6	7.6
Other countries	16.7	11.2	9.3	9.9
Imports				
China	28.4	23.3	28.1	32.3
Korea	3.7	4.3	6.6	4.2
Japan	14.5	7.9	5.0	4.2
Thailand	6.2	10.1	11.2	11.2
Russia	3.7	4.5	6.3	9.7
European Union	9.4	13.6	15.5	12.1
MENA	7.1	9.3	10.1	13.4
Other countries	27.0	26.9	17.2	12.9
Total trade				
China	25.4	24.1	30.7	36.0
Korea	9.2	12.4	13.8	9.8
Japan	18.4	13.4	9.0	7.1
Thailand	5.0	7.8	8.6	9.3
Russia	2.6	2.9	4.0	6.0
European Union	9.7	11.3	11.7	9.0
MENA	6.1	7.3	8.0	11.1
Other countries	23.6	20.9	14.2	11.7

Note: MENA, Middle East and Northern Africa.

non-commercial trade; because of the availability of South Korean data, we can only take this through 2004 on a comparable basis.²² The justification for separating commercial and non-commercial transactions has to do in part with the purported logic of engagement: that increasing commercial ties will

22 In the case of China, the most expansive definition of aid was used (downwardly biasing the Chinese figures). Trade with Middle Eastern countries reported in the IMF Direction of Trade Statistics and the UN COMTRADE database, but not reported in the KOTRA data, are included.

reinforce economic reforms. Among North Korea's three main Asian trading partners, China's role has increased, South Korea's role has stagnated, and Japan's role has fallen.²³

To get a more refined sense of the shifting role that South Korea and China are playing in North Korea's external economic relations, all economic interactions with the two countries – trade, aid, and investment – are expressed as a function of licit merchandise exports in Figure 8. These aggregates represent a way of characterizing the density of North Korea's interaction with its principal partners, and of the possible 'socializing effects' associated with engagement with the two countries. These numbers might also be taken as a possible proxy for political influence. North Korea's interaction with both countries has risen considerably over the sample period. The increase in this measure is most dramatic for South Korea, rising from zero in 1990 to a peak of 1.3 in 2000, driven, in part, by the one-off summit payment. After falling from this temporary peak, the series has converged back to its long-run upward trajectory. The indicator for China rises fairly steadily throughout the sample period, from 0.4 in 1990 to 1.3 in 2005, slightly exceeding that of South Korea in this terminal year of our sample period. This combined, gross measure of economic interaction helps explain South Korean concerns about China's 'economic colonization' of the northern part of the peninsula.

The picture changes, however, if we distinguish between transactions on commercial terms and those embodying a concessional or grant element. What is striking is the difference between the deepening integration between North and South Korea depicted in Figure 8, and the relative stagnation of South Korea's role in commercial trade (Table 1). This point is reinforced in Figure 9: the magnitude of Chinese transfers, while uncertain, appears to be fairly constant, and since 1999 is dwarfed by South Korea's transfers. These figures may miss some trade across the Chinese border that is in fact aid from third countries, for example, in the form of food purchases by NGOs in China. Nonetheless, the ironic message is that North Korea's deepening economic integration with China is largely market-based, whereas exchange with

23 Imports from Russia have also risen steadily over the period, although exports to Russia have not. One explanation for this trend is North Korea's clearing system, or the absence of one. Given the collapse of North Korea's internal payments system in the 1990s, the increasing scrutiny of North Korea's external financial transactions, and the aftermath of the BDA case, trade that is not conducted in dollars is probably balanced bilaterally. Imports are financed either through merchandise exports to the country in question or other earnings in that currency. In the case of Russia, North Korea purchased Russian imports with ruble-denominated earnings from contract labor (Zabrovskaya, 2006). Similarly, North Korea may have cut imports from Japan in part because restrictions on exports and remittances have limited its access to yen. Even before the missile and nuclear tests of 2006, Japan had drifted toward a de facto sanctions policy as well and both trade and remittances had fallen sharply (Hughes, 2006); these trends became even more pronounced in the second half of 2006 as Japan opted for a near-complete embargo following the onset of the nuclear crisis and in response to ongoing conflicts over abductees.

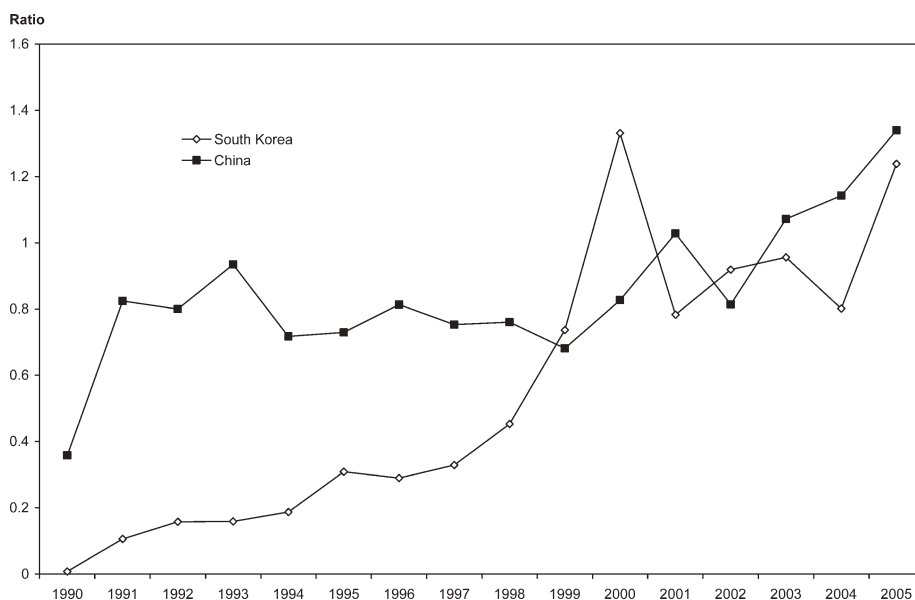


Figure 8 Ratio of balance of payments transactions to licit merchandise exports.

South Korea under the Kim and particularly Roh administrations had a growing official component. Under the government of newly-elected President Lee Myung-bak, the relative magnitudes of these non-commercial transactions could decrease as South Korean policy begins to emphasize ‘trade not aid’ in its dealings with the North Korea.²⁴ Whatever its perceived political utility in the short run, this particular profile raises serious questions about the transformative effects of South Korea’s engagement with the North.

4 Conclusion

The debate about engagement with North Korea requires a careful consideration of the full range of North Korea’s foreign economic relations. Although subject to substantial uncertainties, this article has provided an empirical foundation for that debate and also has pinpointed where those uncertainties lie through a consideration of the statistical discrepancy in the balance of payments. Several economic findings are worth underscoring. First, despite the onset of the nuclear crisis in 2002, North Korea’s trade grew steadily in the first half of the decade. Our best guess is that North Korea has run current

24 The humanitarian share may actually increase in the short-run if North Korean recalcitrance on the nuclear issue is met with a slowdown in all but humanitarian aid flows. Similarly, the cooperation projects involve sunk costs and will likely decline in importance – unless the nuclear issue is resolved. If this were to occur, ambitious infrastructure investment from the South could ‘lead’ private investment into the North, with non-commercial transactions also seeing an increase in share over the short run.

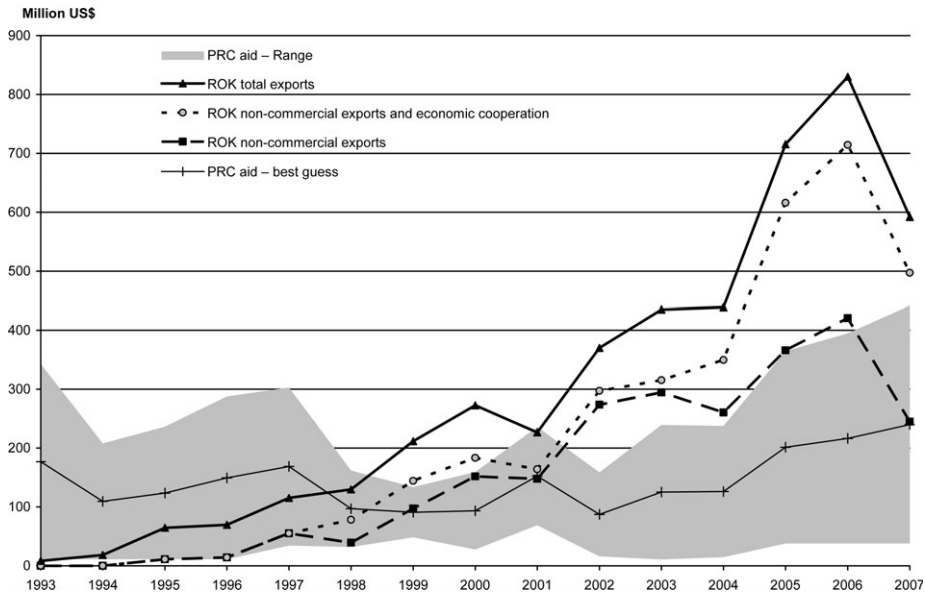


Figure 9 South Korean and Chinese official support.

account deficits (inclusive of revenues from illicit sources) throughout the sample period 1990–2005, and that those deficits widened in the first half of the 2000s.

The discrepancy between the estimated current and capital account balances in most years suggests that North Korea is generating more revenues than it is spending. One possible explanation is that public estimates of earnings from illicit sources may be too large, either singularly or jointly, or these activities may have been successfully impeded in recent years.

North Korea's deficits have to be financed, and observable transfers and capital inflows into North Korea are trending up, at least through 2005. These transfers and capital flows come mostly from two sources, China and South Korea. Two implications follow from North Korea's growing reliance on these two partners. First, while sanctions have no doubt hurt North Korea, they have also resulted in a re-orientation of the North Korean economy toward trading and investment partners who are more favorably disposed toward a strategy of engagement. Although evidence is preliminary, the missile and nuclear tests of 2006 appeared to have accelerated this trend. The UN Security Council Resolutions 1695 and 1718 focused fairly narrowly on trade in WMD-related activities, major weapons systems, and luxury goods. But the resolutions constituted a floor rather than a ceiling on what governments could do. Those inclined toward sanctions deployed them; those inclined toward engagement did so cautiously (China) or barely at all (South Korea). Calls for sanctions as a means of pressuring Pyongyang or even bringing

down the regime are simply not likely to work; indeed, they appear to have had the perverse effect (at least from the perspective of those favoring them) of linking North Korea more tightly to countries who are pro-engagement in their orientation and even less likely to deploy economic pressure.

This exercise also has important implications for debates about engagement (Cha and Kang, 2003). The logic of engagement has many foundations, including purely humanitarian arguments in which there is no anticipated quid pro quo. However, the debate has turned largely on two conceptions of the term. The first are arguments about what Keohane (1986) calls narrow reciprocity: whether the extension of economic benefits can be used as a diplomatic tool for achieving short-term objectives. Assessing this line of argument would require a careful consideration of the effects of both economic promises and constraints, which are by no means mutually exclusive; for example, the constraints on North Korea associated with the BDA affair were coupled with various economic promises were the nuclear issue to be resolved.

It is clear, however, that the election of Lee Myung-bak is likely to change the strategy of engagement on the part of the South Korean government in important ways. Although the new government has expressed a commitment to large-scale transfers to North Korea, these had already trended down sharply prior to the elections of 2007 as a result of the missile and nuclear tests. Under the new administration, apart from humanitarian aid, further transfers have been made conditional on progress on the nuclear issue. Rather than aid being extended *ex ante* to induce North Korean behavior, aid is more likely to be extended after the fact once certain North Korean actions have been taken. In this sense, the political change in South Korea appears to have resulted in a shift from diffuse to narrow reciprocity (Keohane, 1986).

Our findings have more direct implications for the broader conception of engagement: the idea that increased economic exchange is likely to induce economic reform and the pursuit of a more specific foreign policy, even with respect to nuclear weapons (see, particularly, Solingen, 2007). To date, arguments about the transformative effects of engagement on the North Korean economy are more likely to hold with respect to Chinese trade and investment with North Korea, which appears to occur on largely market-conforming terms, than they are with South Korea's, which contains a very substantial non-commercial component. At least through 2007, South Korea's economic ties continued to be characterized by a relatively high level of state involvement, either directly (in the relatively high share of aid and financial transfers in total bilateral transactions) or indirectly (through subsidies to, or guarantees on, nominally commercial transactions). The extensive involvement of the South Korean government in investment and trade relations with North Korea, and the very large role played by outright transfers in the relationship, raises serious questions about the argument that engagement will have the

socializing effects that proponents of engagement suggest. Two of the most prominent examples of South Korea's engagement, the Mt. Kumgang and Kaesong projects, are literally fenced off from the rest of the North Korean economy while an increasing share of the remainder of South Korea's transactions with the North takes the form of aid.

The debate about the appropriate balance between commercial and non-commercial relations between South and North is therefore also likely to be an ongoing issue for the South Korean administration that took office in February 2008. Some aid has a purely humanitarian motive, but other transfers such as investments in infrastructure are more likely to have positive effects in the context of broader reform efforts. A second strand of debate over engagement with the North is therefore likely to center on the extent to which aid should in fact be conditional not only on diplomatic progress with respect to the nuclear issue but on further economic opening and reform. This debate will not only inform South Korean policy, but the larger question of multilateral cooperation in Northeast Asia. Such cooperation is more likely to generate outside support, including from the international financial institutions, if coupled with economic reform and a concomitant expansion of North Korea's commercial ties with the rest of the world (Haggard and Noland, 2008).

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References

- Asher, D.L. (2006) 'The North Korean criminal state, its ties to organized crime and possibility of WMD proliferation', *Nautilus Institute Policy Forum Online 05-92A*, November 15; available at http://www.nautilus.org/for_a/security/0592Asher.html
- Barbieri, K. (2002) *The Liberal Illusion: Does Trade Promote Peace?* Ann Arbor: University of Michigan Press.
- Bechtol, B.E. (2007) *Red Rogue: The Persistent Challenge of North Korea*. Washington: Potomac Books.
- Chang, Y., Haggard, S. and Noland, M. (2006) 'North Korean Refugees in China: evidence from a survey', in S. Haggard and M. Noland (eds) *The North Korean Refugee Crisis: Human Rights and International Response*. Washington, DC: US Committee for Human Rights in North Korea.
- Cha, V.D. and Kang, D.C. (2003) *Nuclear North Korea: A Debate on Engagement*. New York: Columbia University Press.
- Chesnut, S. (2007) 'Illicit activity and proliferation: North Korean smuggling networks', *International Security*, 32 (1), 80–111.
- Cho, M.-C. and Kim, J.-Y. (2007) 'North Korea's current business abroad', *World Economy Update*. Seoul: KIEP, 23 July (in Korean).

- Coalition of Tobacco Companies Report (2005) 'Production of counterfeit cigarettes in the Democratic People's Republic of Korea (DPRK)', June 29.
- Cumings, B. (2003) *North Korea: Another Country*. New York: New Press.
- Downs, C. (1999) *Over the Line: Dealing with North Korea under the Armistice*. Washington, D.C.: American Enterprise Institute.
- Eberstadt, N. (1996) 'How much money goes from Japan to North Korea?' *Asian Survey* 36 (5), 523–542.
- Eberstadt, N. (2007) *The North Korean Economy: Between Crisis and Catastrophe*. Piscataway, NJ: Transaction Books.
- Gartzke, E., Li, Q. and Boehmer, C. (2001) 'Investing in the peace: economic interdependence and international conflict', *International Organization*, 55 (2), 391–438.
- Gibson, C., Andersson, K., Ostrom, E. and Shivakumar, S. (2005) *The Samaritan's Dilemma: The Political Economy of Development Aid*. Oxford University Press.
- Gordon, M.R. and Mazzetti, M. (2007) 'Ethiopia bought arms from North Korea with U.S. assent', *International Herald Tribune*, 8 April.
- Griggs, T. and Fidler, S. (2007) 'Orascom pays \$115 m for a stake I N Korea's Sangwon', *Financial Times*, 16 July, p. 18.
- Grimmet, R.F. (2006) *Conventional Arms Transfers to Developing Nations, 1998–2005*. Washington, D.C.: Congressional Research Service.
- Haggard, S. and Noland, M. (2007a) *Famine in North Korea: Markets, Aid, and Reform*. New York: Columbia University Press.
- Haggard, S. and Noland, M. (2007b) 'North Korea's external economic relations', *Working Paper 07–7*, Washington: Peterson Institute for International Economics.
- Haggard, S. and Noland, M. (2008) 'A security and peace mechanism for Northeast Asia: the economic dimension', Policy Brief 08–4. Washington: Peterson Institute for International Economics.
- Hall, K.G. (2007) 'Money laundering allegations by U.S. false, report says', McClatchy Newspapers, April 16; available at http://www.realcities.com/mld/kwashington/news/columnists/kevin_g_hall/
- Harrison, S. (2001) *Korean Endgame: A Strategy for Reunification and U.S. Disengagement*. Princeton: Princeton University Press.
- Hughes, C.W. (2006) 'The political economy of Japanese sanctions towards North Korea: domestic coalitions and international systemic pressures', *Pacific Affairs*, 79 (3), 455–481.
- International Narcotics Control Board. (2005) *Report of the International Narcotics Control Board*. Vienna: International Narcotics Control Board.
- Kahler, M. and Kastner, S. (2006) 'Engagement policies on the Korean Peninsula and across the Taiwan Strait', *Journal of Peace Research*, 43 (5), 523–541.
- Keohane, R. (1986) 'Reciprocity in international relations', *International Organization*, 40 (1), 1–27.
- Knack, S. (2001) 'Aid dependence and the quality of governance: cross-country empirical tests', *Southern Economic Journal*, 68 (2), 310–329.
- Kwak, T.H. (2006) 'Resolving the North Korean nuclear issue through the six-party process: a creative formula', *The Journal of East Asian Affairs*, 20 (1) (Spring/Summer), 1–26.

- Lee, D.-M. (2007) 'USA erred in allowing Ethiopia–DPRK arms deal: Pritchard', *Yonhap*, 9 April.
- Lind, J. (1995) 'Gambling with globalism: Japanese financial flows to North Korea and the sanctions policy option', *Pacific Review*, 10 (3), 391–406.
- Lintner, B. (2005) *Great Leader, Dear Leader: Demystifying North Korea under the Kim Regime*. Chiang Mai, Thailand: Silkworm Books.
- Meyer, J. and Demick, B. (2005) 'U.S. accuses North Korea of conspiracy to counterfeit', *Los Angeles Times*, December 18.
- Moon, C.-I. (2000) 'The Sunshine Policy and the Korean Summit: assessments and prospects', *East Asian Review*, 12 (4), 3–36.
- Moon, C.-I. (2003) 'The Bush Doctrine and the North Korean Nuclear Crisis', *Asian Perspective*, 27 (4), 9–45.
- Nanto, D.K. and Perl, R. (2007) 'North Korean crime-for-profit activities', *CRS Report for Congress*, Washington: Congressional Research Service (16 February).
- Noland, M. (2000) *Avoiding the Apocalypse: The Future of the Two Koreas*. Washington: Institute for International Economics.
- Noland, M. (2001) 'Between collapse and revival: a reinterpretation of the North Korean economy', available at <http://www.iie.com/publications/papers/paper.cfm?ResearchID=401>.
- Noland, M. and Flake, L.G. (1997) 'Opening attempt: North Korea and the Rajin-Sonbong free economic and trade zone', *Journal of Asian Business*, 13 (2) (Spring), 99–116.
- Park, J. and Jung, S.-H. (2007) 'Ten year's [sic] of knowledge partnership with North Korea', *KDI School Working Paper Series 07-01*. Seoul: Korea Development Institute Graduate School.
- Perl, R. (2005) Drug trafficking and North Korea: issues for U.S. Policy. *CRS Report for Congress*. Washington: Congressional Research Service (March 4).
- Perl, R. (2007) North Korean counterfeiting of U.S. currency. *CRS Report for Congress*. Washington: Congressional Research Service (22 March).
- Pinkston, D. (2008) *The North Korean Ballistic Missile Program*. Carlisle, PA: Strategic Studies Institute, U.S. Army War College.
- Prahar, P.A. (2006) North Korea: illicit activity funding the regime, statement before the subcommittee on Federal Financial Management, Government Information, and International Security Senate Homeland Security and Government Affairs Committee (April 25).
- Solomon, J. and Dean, J. (2003) 'Drug money: heroin busts point to source of funds for North Korea', *Wall Street Journal*, April 23, A1.
- Scobell, A. (2005) 'North Korea's nuclear intentions', in Lister, J.M. (ed.) *Challenges Posed by the DPRK for the Alliance and the Region*. Washington, DC: Korea Economic Institute.
- Sigal, L. (1998) *Disarming Strangers: Nuclear Diplomacy with North Korea*. Princeton: Princeton University Press.
- Snyder, S. (1999) *Negotiating on the Edge: North Korean Negotiating Behavior*. Washington, D.C.: United States Institute of Peace.

- Solingen, E. (1998) *Regional Orders at Century's Dawn*. Princeton: Princeton University Press.
- Solingen, E. (2007) *Nuclear Logics: Contrasting Paths in East Asia and the Middle East*. Princeton: Princeton University Press.
- Wallace, R.D. (2007) *Sustaining the Regime: North Korea's Quest for Financial Support*. Lanham, MD: University Press of America.
- Ward, A. (2002) 'US accuses North Korea of narcotics trade', *Financial Times*, December 4.
- Zabrovszkaya, L.V. (2006) 'Economic contacts between the DPRK and the Russian Far East: 1992–2005', *International Journal of Korean Unification Studies*, 15 (2), 95–111.