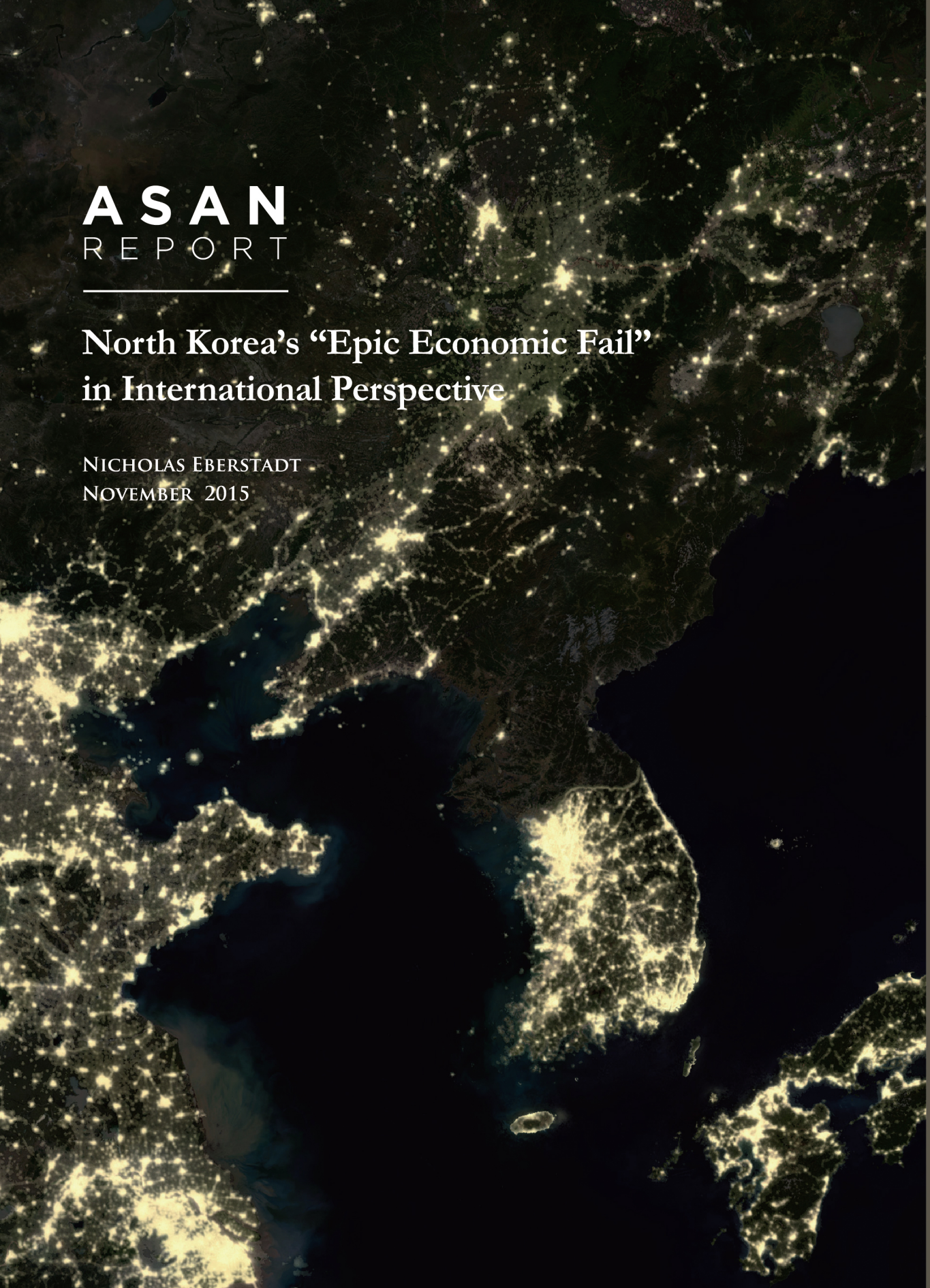

ASAN
REPORT

North Korea's "Epic Economic Fail" in International Perspective

Nicholas Eberstadt
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The Asan Institute for Policy Studies

About

The Asan Institute for Policy Studies is an independent, non-partisan think tank that undertakes policy-relevant research to foster domestic, regional, and international environments that promote peace and prosperity on the Korean Peninsula, East Asia, and the world-at-large.

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Abstract

This report previews new research attempting to place the DPRK's postwar development performance in an international perspective. North Korea is commonly regarded by students of international development as a "data-free zone." We demonstrate that sufficient data exist for an empirical comparison of North Korea's postwar patterns of development in relation to those in the rest of the world. In doing so, we try to cast light on the dimensions of, and the dynamics behind, the DPRK's spectacular economic decline since 1970.[1]

1) Utilizing "mirror statistics" on Pyongyang's international merchandise trade, we show that, by the criterion of world market share, North Korea's trade performance since 1960 is worse than either Argentina's or Haiti's—two countries notorious respectively for relative and absolute long term economic decline.

2) We further show that North Korea's prolonged economic decline appears to be readily explainable in terms of familiar conventionally described determinants of modern economic development. In quantitative terms, North Korea's exceptionally poor trade performance can be largely explained by its exceptionally inhospitable business climate.

3) We utilize "mirror statistics" on international merchandise trade not only to assess the DPRK's trade performance, but to proxy net aid and resource transfers from abroad over the decades since 1960.

4) We use the ratio of estimated net merchandise inflows to total estimated merchandise exports as a proxy for "aid dependence" or international economic dependence. By this metric, the DPRK appears more dependent on foreign economic support today than either the region of sub-Saharan Africa (SSA) or the collectivity of the world's most impoverished countries (i.e., the UN's designated 'least developed countries' or LDCs).

5) Foreign economic assistance looks to have played a critical role in making possible North Korea's epic economic fail. Ironically, a government with less outside money and resources would be constrained by economic reality and forced to be more pragmatic and less destructive in its policies, practices and business environment.

These findings have a number of important implications. They cast a special light on the role Pyongyang's official policies and practices had on the DPRK's long-term economic decline and on the apparent role of foreign economic assistance in helping finance this decline. Meaningful long-term economic progress should not be expected unless Pyongyang's authorities systematically improve their globally "worst in class" business climate. Furthermore, the apparent centrality of outside aid in perpetuating long-term economic failure in North Korea raises inescapable ethical questions for international purveyors of economic assistance (and even ostensibly humanitarian assistance) for the DPRK.

1. Earlier portions of this report have been presented at the Asan Institute-Asia Foundation Conference on Economic Transitions in Asia (Ulaan Baatar), at the Korea Economic Institute (Washington DC), the Korea Political Science Association (Seoul) and the Korea Society (New York City).

Introduction

Modern economic history is a tale not only of progress and successes, but unfortunately also of retrogression and failures. The best-known example of long-term economic failure in the modern era is perhaps Argentina, which managed to chart a path from the First World back to the Third World over the course of the Twentieth Century. Argentina's long-term development failure, however, is a story of *relative* decline: other places, including postwar Haiti and Zimbabwe experienced long-term *absolute* decline, not just relative.

The most arresting tale of economic failure from modern times, however, may be Democratic People's Republic of North Korea (also known as the DPRK, or North Korea). The signature episode that characterizes the DPRK's style of economic failure is the Great North Korean Famine of the 1990s. Many societies have suffered famines at some juncture—but North Korea's circumstances were arguably unique. So far as can be told, in all of human history North Korea is the only literate and urbanized society ever to have fallen into famine during peacetime. If one needs but a single fact with which to illustrate the modern North Korea's epic economic failure, this one will do it.

And yet there was a time when North Korea was a peer economic competitor of South Korea. In the estimate of intelligence circles in both the USA and the ROK, North Korean per capita output was higher than in South Korea in the 1950s, the 1960s, and on into the 1970s.[2] Although the DPRK economy was cloaked in

2. Korea Development Institute, *Economic Comparison between North And South Korea*, (Seoul: KDI, 1976); US Central Intelligence Agency, *Korea: The Economic Race between the North and the South,* (Washington, DC: National Foreign Assessment Center, January 1978), ER 78-10078.

official secrecy (then as now), an array of unclassified data seems to corroborate that judgment.[3]

As an important new vein of academic research reminds us, understanding the roots of national economic failure is scarcely less important than understanding the foundations of national economic achievement.[4] Understanding just how North Korean economic development went from ascent to stall, and then into a dreadful downward spiral, demands attention. Yet by and large, the worldwide development and policy research communities have neglected, or avoided, work on this most troubling modern case study in protracted economic decline.

Why should this be so? The most obvious answer is the North Korean government's statistical blackout policy, very successfully enforced for what is now fully a half century. Naturally, this lacuna discourages attempts to include North Korea in any examinations of patterns of international development.

In the following pages, we attempt to demonstrate that the data required to place North Korea's long-term economic performance in international perspective can actually be gathered, despite Pyongyang's vigilance.

This report brings to the table new research on the dimensions of economic failure in modern North Korea, offers a quantitative view of how nations develop in our modern world, and where North Korea's awful slide downward fits within this global tableau; offers admittedly approximate long term estimates of over-

3. Cf. Nicholas Eberstadt, *Policy and Economic Performance in Divided Korea during the Cold War Era: 1945-91* (Washington DC: American Enterprise Institute Press, 2010).
4. Daron Acemoglu and James Robinson, *Why Nations Fail: The Origins of Power, Prosperity, and Poverty* (New York: Crown Business, 2012).

all net resource transfers to the DPRK, including estimates of net transfers from the major state benefactors; and some indications about the interplay between concessionary resource transfers from abroad and the DPRK's domestic economic performance. It concludes with some observations about the implications of these findings.

Putting the North Korean Economy's Epic Fail into Numbers

It is a striking fact that international discussions of North Korea's economic performance these days remain essentially pre-quantitative. There are practically no readily available and well-established facts at hand about North Korean GDP or any of the other major economic indicators taken for granted for other countries in our information-rich age.[5]

The main problem is that the North Korean government has suppressed social and economic data other states routinely release, so as to deprive outsiders of an independent basis for taking a measure of North Korean performance—and has been doing this for over half a century. The remarkable fact is that the DPRK has never, since its founding in 1948, published a single statistical yearbook—very possibly a unique distinction among all states in the current world system.[6] Even when Pyongyang does divulge official statistical tidbits, the reliability of such releases cannot be taken as a given.[7]

The only meaningful quantitative aperture on North Korean macroeconomic performance available today comes from "mirror statistics" on the country's international merchandise trade—reports by its trading partners on their purchases

from and sales to the DPRK for various commodities. The composition, level and trend in a country's international trade provide indirect but powerful evidence about such things as productivity, living standards, and technological attainment.

"Mirror statistics" are far from perfect—even bilateral trade reports for Canada and the USA do not fully match up—and given North Korea's dubious proclivities and partners, the nontrivial portion of overall trade constituted by illicit commerce (weapons, drugs, counterfeit currency and other products) will perforce be omitted from these ledgers. Nevertheless, mirror statistics may still afford a reasonably good first approximation of DPRK trade performance, once

5. To be sure: some time series estimates of national output for DPRK can be found these days. Angus Maddison offers one of these in his heroic canvass of global economic growth from 1AD-2008. Another is produced annually by the ROK Bank of Korea: see, for example, ROK Bank of Korea, "Gross Domestic Product Estimates for North Korea in 2013", (Seoul: BOK, June 27, 2014), available electronically at http://www.bok.or.kr/contents/total/eng/boardView.action?menuNaviId=634&boardBean.brdid=14033&boardBean.menuid=634. The problem lies in the credibility or reliability of these calculations. Maddison regarded his own North Korea PPP GDP per capita numbers more as "place holders" to fill in cells on his global matrix than as definitive estimates of North Korean conditions. As for the BOK calculations: these remain essentially irreproducible, since the method underlying these annual computations has never been revealed to outsiders. BOK methods and results are viewed with a skeptical eye by most independent students of the North Korean economy. See for instance Nicholas Eberstadt, "Economic recovery in the DPRK: Status and prospects," in *The North Korean Economy: Between Crisis & Catastrophe*, (New Brunswick: Transaction Publishers, 2009) and Marcus Noland, "The Black Hole of North Korea," *Foreign Policy*, March 7, 2012, http://foreignpolicy.com/2012/03/07/the-black-hole-of-north-korea/.
6. It has allowed irregular release of *some* statistical data over the course of the past several generations, of course. For an overview see Nicholas Eberstadt, "Our Own Style of Statistics: Availability and Reliability of Official Quantitative Data" in *The North Korean Economy: Between Crisis & Catastrophe*, (New Brunswick: Transaction Publishers, 2009).
7. Ibid.

the proper adjustments are made.[8]

This section presents long-term estimates of North Korean trade performance drawn from three main sources: the UN Commodity Trade Database (COMTRADE), the Korea Trade-Investment Promotion Agency (KOTRA), and the ROK Ministry of Unification (MOU).[9] These reconstructed trade patterns can then be compared with patterns for the rest of the world compiled by the statisticians at the World Trade Organization (WTO).[10]

These reconstructions must be handled carefully, given their limitations—not the least of these being the necessarily problematic conversion of transactions priced in nonconvertible currencies from Soviet-type systems into US dollars at officially decreed exchange rates, and the omission of what may be the considerable share of DPRK commerce that is in illicit goods. As a first approximation of the DPRK's trade in legitimate civilian merchandise, though, this time series may be serviceable enough.

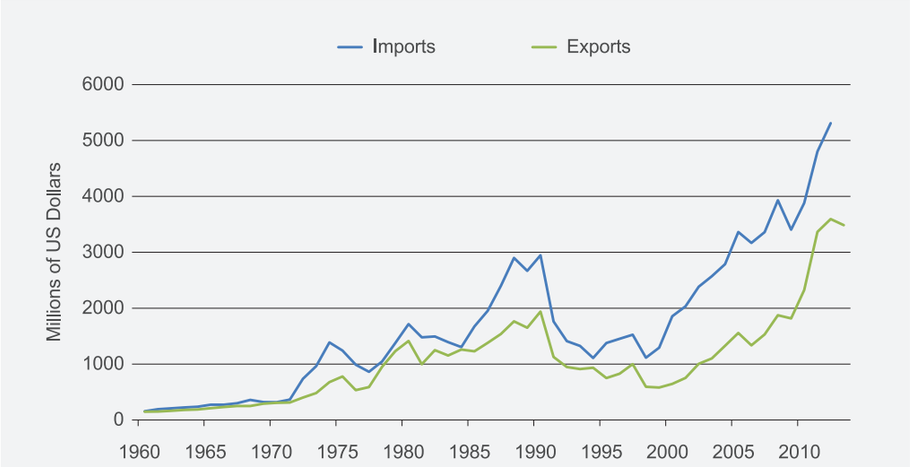
8. I refer here to what are called "FOB-CIF" adjustments. By convention, the IMF and other organizations that deal with "mirror statistics" divide reported purchases by a factor of 1.1 to estimate the actual revenues earned by the non-reporting partner, and multiply reported sales by a factor of 1.1 to approximate the actual cost of imports to the non-reporting partner. We have done the same here.
9. In the arcana of North Korean trade statistics it is important to know that the ROK does not report on its trade with the DPRK to COMTRADE, KOTRA, etc.—and refrains from doing so as a matter of principle, since it holds that inter-Korean commerce is *domestic* rather than foreign trade.
10. As an aside, the WTO's global trade statistics are very good indeed, and the WTO even produces estimates for North Korea. In my view these are better than any other such series generated by any other government or agency today. I use my own reconstruction in this paper because my series extends back to 1960, whereas the WTO series begins in 1980.

Figure 1 depicts North Korea's estimated merchandise trade from 1960 through 2013. [SEE FIGURE 1] As may be seen, North Korean imports and exports collapsed along with the collapse of the Soviet empire. It took North Korea a decade and a half to re-attain the export and import levels it achieved back in 1990.

In Figure 1, North Korean trade performance appears to have been in a steady upswing since the late 1990s. However, this impression is highly misleading, since the commerce in Figure 1 is denominated in *current* US dollars. For both technical and theoretical reasons, applying the proper adjustments to this series to correct for inflation is a trickier task than might at first be supposed. A reasonably good illustration of the real trade trends may be derived using the US producer price index (PPI), which is intended to track changing dollar-denominated price levels for US domestic commodities.[11]

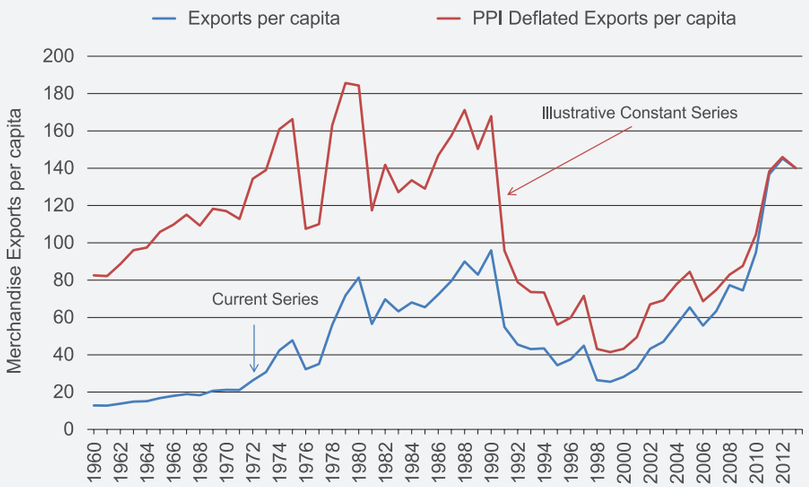
Figure 1. Adjusted North Korean Merchandise Trade, 1960-2013

(Unit: Current US $)



Source: Author's estimates, derived from KOTRA, UN COMTRADE Database, ROK Ministry of Unification.

Figure 2. Estimated Per Capita DPRK Merchandise Exports, 1960-2013: (Current USD vs. Illustrative PPI-Delated Constant 2013 Dollars)

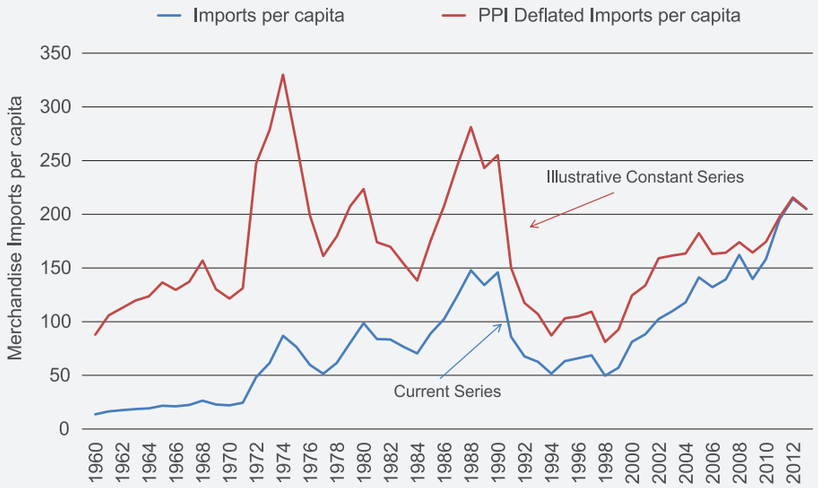


Source: Author's estimates, derived from KOTRA, UN COMTRADE Database, ROK Ministry of Unification, World Bank World Development Indicators PPI: Bureau of Labor Statistics, "Commodity Data, All Commodities (00)." Available at: http://www.bls.gov/ppi/#data.

11. Reasonably good, yes—perfect, no. But the methodological alternatives are not attractive, either. A currency weighted real price index might seem "cleaner" than the illustrative index utilized here—but such a method would beg the irresolvable theoretical question of exactly how to establish weights and trends for transactions in *valuta*-type currencies. By the same token, IMF international long-term commodity price deflators might seem to offer an elegant solution to the calculation of real per capita export and import trends for DPRK merchandise trade—but that would presuppose a complete and accurate accounting of the physical measures of DPRK merchandise trade underlying our "mirror statistics" and that is neither available today, nor likely to be available in the foreseeable future.

When we attempt to correct for inflation, and for population growth (using World Bank estimates), we see just how woeful North Korea's trade performance may truly have been over the past half century. [SEE FIGURES 2 AND 3] These adjustments show that North Korea's per capita exports have undergone boom-and-bust cycles for decades. We can see the crash in the mid-1970s (after the de facto default on Western debt), the crash in the early 1980s (when Pyongyang temporarily came into bad odor with its Soviet patrons), and the disastrous crash in the 1990s (as aid and subsidized trade from the Soviet bloc suddenly came to an end). We can also see how real per capita exports have recovered from the gruesome depths to which they plunged in the famine years of the 1990s.

Figure 3. Estimated Per Capita DPRK Merchandise Imports, 1960-2013: (Current USD vs. Illustrative PPI-Deflated Constant 2013 Dollars)

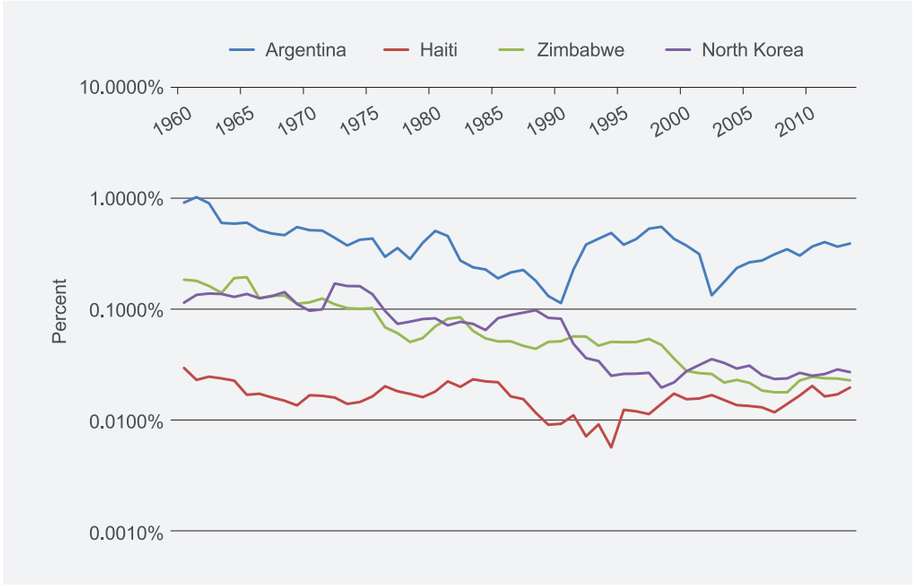


Source: Author's estimate, derived from KOTRA, UN COMTRADE Database, ROK Ministry of Unification, World Bank World Development Indicators PPI: Bureau of Labor Statistics, "Commodity Data, All Commodities (00)." Available at: http://www.bls.gov/ppi/#data.

But the strongest impression conveyed by these adjustments is of a stunning long-term decline in North Korea's capability to sell commercial goods abroad. Despite North Korea's recent trade recovery, the illustrative real level of per capita exports today (2013) looks to be no higher than in 1990, or than for much of the 1980s, or for that matter than in the mid-1970s, nearly four decades earlier.

North Korea's real per capita imports are, if anything, even more depressing. By these calculations, the level of illustrative real per capita imports today (2013) would be less than three-fourths of the level of the late 1980s—and barely three-fifths of the all-time historic peak year (1974) nearly forty years ago.

Figure 4. Estimated Share of World Merchandise Imports, 1960-2013
DPRK vs. Selected Other Economies

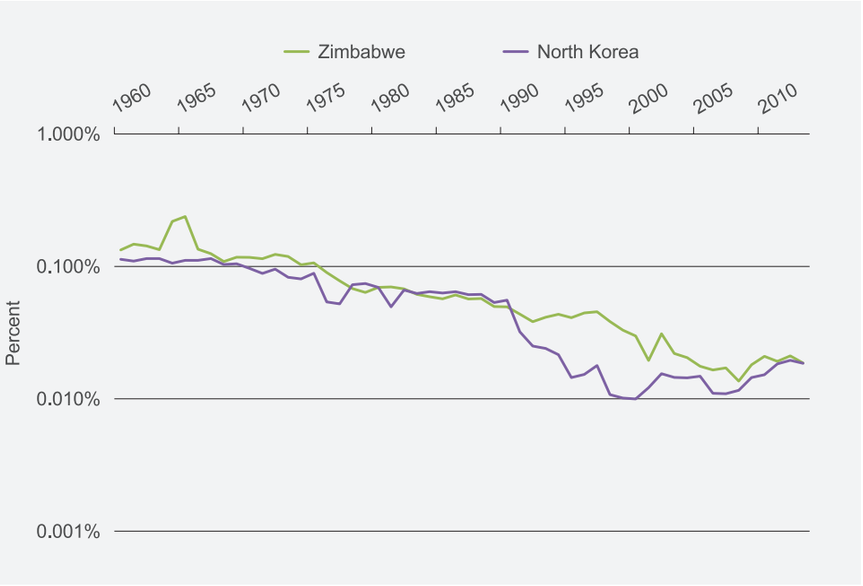


Source: World Trade Organization, Statistics Database, "Total merchandise trade." Data on North Korea is author's calculations. Available at: http://stat.wto.org/StatisticalProgram/WSDBViewData.aspx?Language=E;.

North Korea's trade performance looks more frightful still when one remembers real global trade has been almost steadily growing over the past fifty years. To go by WTO data for global trade for 1960-2013 and my own reconstructions of DPRK merchandise trade for 1960-2013, North Korea's estimated share of total world merchandise exports and imports has taken a nosedive since 1960. We can get a sense of the dimensions of North Korea's economic failure over this period by comparing its trade performance to that of Argentina, Zimbabwe, Haiti. [SEE FIGURE 4]

Between 1960 and 2013, Argentina's share of global merchandise imports "only"

Figure 5. Estimated Share of World Merchandise Exports, 1960-2013
DPRK vs. Zimbabwe



Source: World Trade Organization, Statistics Database, "Total merchandise trade." Data on North Korea is author's calculations. Available at: http://stat.wto.org/StatisticalProgram/WSDBViewData.aspx?Language=E;.

fell by about three-fifths, from 0.91 percent of total global imports to 0.39 percent. And Haiti "merely" lost a third of its market share for total world imports dropping from 0.03 percent in 1960 to 0.02 percent in 2013. By contrast, North Korea's share of global imports appears to have dived by fully three-fourths between 1960 and 2013, from 0.11 to 0.03 percent, a trade performance decline only exceeded by Zimbabwe.

As for export performance, North Korea and Zimbabwe carved out ominously similar trajectories of failure over 1960-2013. [SEE FIGURE 4 and 5] Over those decades, estimated merchandise exports for Zimbabwe slipped from 0.13 percent of the world total down to 0.019 percent, a slump of over six-sevenths. By our estimates, North Korea fell over those same years by five-sixths, from 0.11 to 0.019 percent.

It is important to note that North Korea's decline, like Zimbabwe's, was continuing, not centered on any particular geopolitical shock. In 1990—at the zenith of its Soviet era export earnings—North Korea accounted for less than half as much of the world export market as it did in 1960. In 1979—the highest level of illustrative real per capita export revenues in the regime's history—the DPRK's global market share in export revenues was already down by more than one-third as against 1960. North Korea's economic decline, by these indications, long preceded the Soviet collapse.

By WTO statistics for Zimbabwe and by my own estimates for the DPRK, overall export and import volumes in current USD in those two countries today (2013) are roughly similar. Even so, a closer look reveals that North Korea is markedly underperforming Zimbabwe.

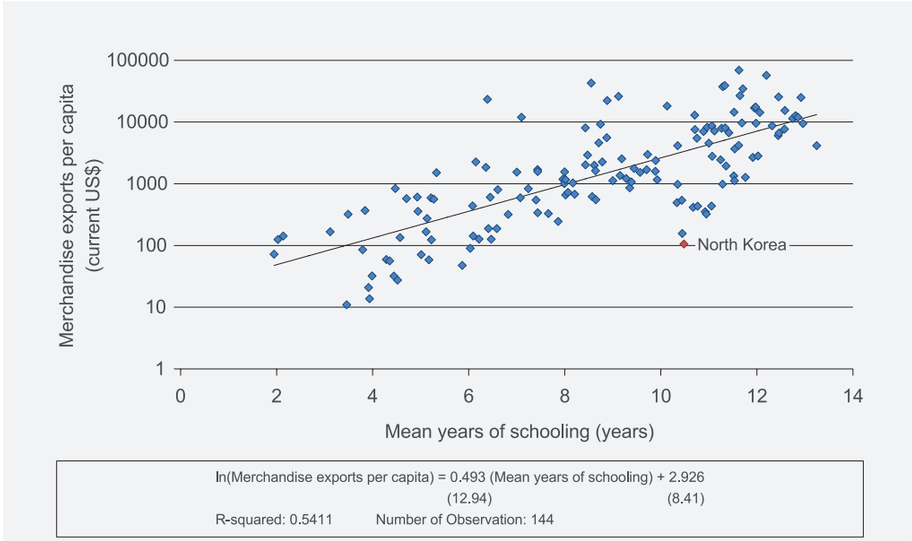
We can see this upon consideration of the human resource endowment of the

two countries. According to the Barro-Lee database on educational attainment, compiled by Robert J. Barro of Harvard University and Jong-Wha Lee of Korea University, Zimbabwe's working age adult (15-64) population in 2010 had roughly 7.9 mean years of schooling.[12] To go by the 2008 DPRK census, the adult population in North Korea would have had nearly three more mean years of schooling at that slightly earlier date. In 2010, by World Bank estimates, life expectancy in North Korea was more than a decade longer than in Zimbabwe (69 years at birth vs. 54 years). And in 2010, by the UN Population Division's assessment, North Korea was far more urbanized than Zimbabwe (60 percent vs. 33 percent). All of these advantages, other things being equal, should have weighed toward North Korea out-performing Zimbabwe in trade output. Making the performance gap even clearer is the fact that Zimbabwe's population is much smaller than North Korea's: if the World Bank's World Development Indicators are correct, Zimbabwe's 2010 population was about 13 million, while DPRK's was over 24 million. North Korea is ostensibly a healthier, more educated, more urbanized and more populous society, and yet it only barely manages to match Zimbabwe's estimated merchandise import and export volumes: a stunning sign of just how far "below its weight" the DPRK economy is punching.

We can make this point more precisely by comparing estimated per capita exports across the globe against estimated levels of adult education across the globe for the year 2010.[13] [SEE FIGURE 6] Not surprisingly, societies with higher levels of adult education (as measured here by estimated mean years of schooling, or MYS, for the 15-64 working age group) tend to export more: each addi-

12. Author's calculation derived from Robert Barro and Jong-Wha Lee, "A New Data Set of Educational Attainment in the World, 1950-2010," *Journal of Development Economics*, vol. 104, (April 2010): 184-198.
13. Note that these estimates are in current USD, vitiating any real price adjustment issues.

Figure 6. Estimated Merchandise Exports Per Capita vs. Educational Attainment (15-64): 2010



Note: North Korean data is for estimated 2008 educational attainment for 15-64 age group.
Source: Merchandise Exports, World Development Indicators. Available at: http://data.worldbank.org/data-catalog/world-development-indicators. Education: Author's calculations derived from Robert Barro and Jong-Wha Lee, "A New Data Set of Educational Attainment in the World, 1950-2010," *Journal of Development Economics*, vol 104, (April 2010): 184-198. Available at: http://www.barrolee.com/. North Korea education data: Author's calculations derived from Central Bureau of Statistics, *2008 DPRK National Census* (Pyongyang, DPRK: 2009). Available at: http://unstats.un.org/unsd/demographic/sources/census/2010_PHC/North_Korea/Final%20national%20census%20report.pdf.

tional year of schooling tracks with an increase in per capita exports of nearly 50 percent. To go by its 2008 census, however, North Korea is one of the world's most conspicuous outliers—an extreme underperformer in translating the value of education into export value. By this chart, a country with North Korea's estimated educational attainment would have been predicted to generate about *thirty* times as much per capita merchandise export revenue in 2010 as the DPRK

apparently did. By global patterns, a country with North Korea's estimated level of per capita export revenues should have a working age adult population on average that population should have *fewer than three years* of schooling, even less than such desolate spots as Sudan (with a working-age MYS 2010 of 3.5 years) or Burundi (also 3.5 years).

Thus, we see the paradox of contemporary North Korean development. Today the DPRK is a country which can produce and launch ballistic rockets and test atomic devices, yet it does not exceed the per capita trade output of Mali. In Figure 6, the DPRK is estimated to have a lower level of per capita merchandise exports, in 2010 than destitute Mali—yet North Korea's estimated working age adult MYS is five times as high as Mali's (10.5 years vs. 2.1 years).

The data adduced in this section provide an empirical basis for a powerful claim: namely, that by the joint criteria of retrogression and underperformance, there is probably no country in the world today that can match North Korea's dismal long-term economic record.

Global Patterns, and Determinants, of Economic Development: Bringing the DPRK Back In

But the question remains: how did the DPRK economy descend from being a serious competitor to South Korea to just a serious basket case?

Due to the extreme paucity of North Korean quantitative economic information, a number of storylines about the DPRK's economic troubles have taken on a sort of public life of their own—and cannot be properly falsified because they cannot

be properly tested. These would include the proposition that North Korea suffered from extraordinary exogenous shocks from exceptionally bad weather events; that it is a victim of the Soviet bloc's collapse; that its performance has been crippled by US-instigated international economic sanctions; and many more.

The point here is that North Korea's epic economic fail has not been subject to the same sort of disciplined empirical scrutiny that is routinely accorded to hypotheses about other modern economies because the data required for such efforts have been unavailable. Faced with a data vacuum preventing comparison with other countries, the notion of "DPRK exceptionalism" becomes all too easy to accept.

In this section we explicitly challenge that notion. We will try to show that sufficient quantitative data can be compiled to place North Korea within a regular global picture of worldwide economic development patterns. We can produce a plausible model for depicting patterns of postwar global economic development and the determinants of that development that includes North Korea in its statistical observations. Most important we can show with this model that North Korea is *not* a "special case." To the contrary: we can demonstrate that any other country in the world that stubbornly insisted upon such manifestly destructive economic policies as Pyongyang has imposed over the past generation could have expected to experience the same epic economic fail: weather problems, Soviet collapse, and US-led economic sanctions entirely notwithstanding.

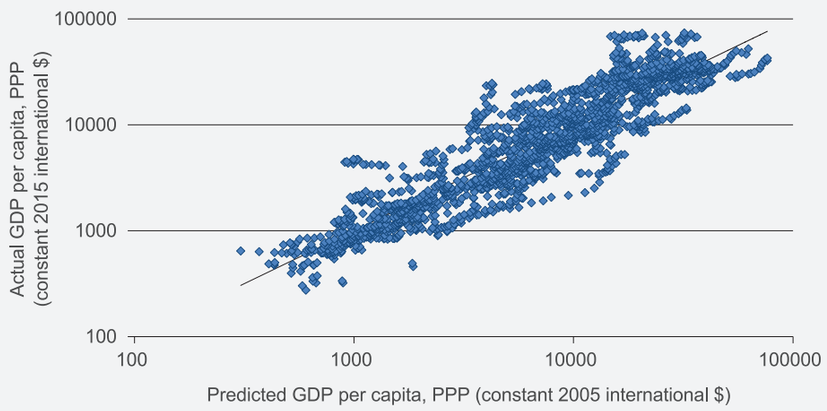
We today are beneficiaries of fully three generations of careful research quantifying worldwide patterns of economic growth and economic development. Detailing the broad patterns of "structural transformation" that characterize economies as they become more productive and prosperous, this work also demonstrated *inter alia* the critical importance of human resources and "human capital accumulation" to long-term productivity improvements; the key role of specialization, division of labor, and social complexity in enhancing wealth generation; and of the institutional/policy environment ("business climate") in unlocking the value of economic potential across all places and times.

For the most part, the quantitative work underscoring these findings has been based upon economic indices (national accounts data) that are patently lacking for the DPRK today. However, we can devise a simple but powerful model for predicting economic growth and development that relies upon data that are at hand for North Korea. With this, we can tell the tale of North Korea's economic failure in international perspective—and see just what accounts for the disaster, in terms that include the rest of humanity.

We should emphasize that we cannot vouchsafe the accuracy of any of the demographic estimates for the DPRK here. But utilizing these figures *as if they were accurate is* a first step to understanding North Korean economic performance in international perspective.

Here we will use four variables for predicting per capita economic output—1) health (life expectancy at birth for both sexes from the World Bank); 2) education (mean years of schooling for 15-64 working age population based on Barro-Lee estimates to which we add our own estimates on adult educational attainment derived from the 2008 DPRK census); 3) social complexity (as proxied by the United Nation's estimate for urbanization ratio) and 4) "business climate" (as mirrored by the Fraser Institute's Index of Economic Freedom, which runs from 1970-present but does not include the DPRK, or alternatively the Heritage Foundation/Wall Street Journal's eponymous Index of Economic Freedom, which only runs from 1995-present, but incorporates North Korea).

Figure 7. Predicting Global Per Capita GDP-PPP With Life Expectancy, Urbanization, Education, Index of Economic Freedom (Heritage/WSJ): 1995-2012

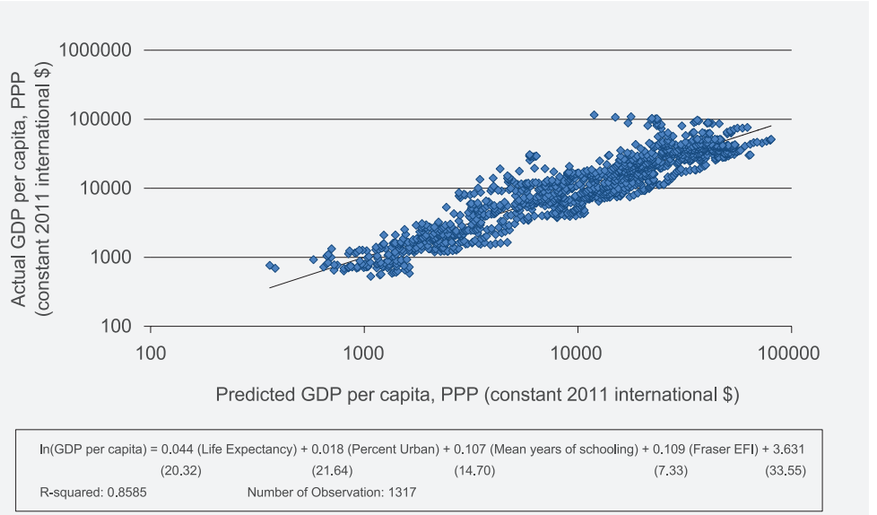


Source: GDP and Life Expectancy: World Bank, World Development Indicators. Available at: http://data.worldbank.org/data-catalog/world-development-indicators, accessed September 15, 2014. Urbanization: United Nations, Department of Economic and Social Affairs, Population Division (2014). *World Urbanization Prospects: The 2014 Revision.* Available at: http://esa.un.org/unpd/wup/CD-ROM/Default.aspx, accessed August 15, 2014. Education: Author's calculations derived from Robert Barro and Jong-Wha Lee, "A New Data Set of Educational Attainment in the World, 1950-2010," *Journal of Development Economics*, vol 104, (April 2010): 184-198. Available at: http://www.barrolee.com/, accessed August 15, 2014. North Korea education data: Author's calculations derived from Central Bureau of Statistics, *2008 DPRK National Census* (Pyongyang, DPRK: 2009). Available at: http://unstats.un.org/unsd/demographic/sources/census/2010_PHC/North_Korea/Final%20national%20census%20report.pdf. Economic Freedom Index: The Heritage Foundation, Wall Street Journal, *Index of Economic Freedom.* Available at: http://www.heritage.org/index/, accessed September 2014.

Our "panel data" for countries under consideration runs from 1970 to the present, encompassing a fairly large number of observations. Using these data, our simple model for world economic development turns out to be strikingly robust.

Broadly speaking, health, education, urbanization, and business climate permit us to predict 80% or sometimes more of the differences in per capita GDP not only between countries at any point in time, but within given countries over time, for the period since 1970. This is true, incidentally, irrespective of whether we

Figure 8. Predicting Global Per Capita GDP (PPP) With Life Expectancy, Urbanization, Education, and Index of Economic Freedom (Fraser Institute): 1970-2010
Lagged Variables (five year lag)



Source: GDP and Life Expectancy: World Bank, World Development Indicators. Available at: http://data.worldbank.org/data-catalog/world-development-indicators. Urbanization: United Nations, Department of Economic and Social Affairs, Population Division (2014). *World Urbanization Prospects: The 2014 Revision.* Available at: http://esa.un.org/unpd/wup/CD-ROM/Default.aspx, accessed August 15, 2014. Education: Author's calculations derived from Robert Barro and Jong-Wha Lee, "A New Data Set of Educational Attainment in the World, 1950-2010," *Journal of Development Economics*, vol 104, (April 2010): 184-198. Available at: http://www.barrolee.com/ Accessed August 15, 2014. North Korea data: Author's calculations derived from Central Bureau of Statistics, *2008 DPRK National Census* (Pyongyang, DPRK: 2009). Available at: http://unstats.un.org/unsd/demographic/sources/census/2010_PHC/North_Korea/Final%20national%20census%20report.pdf Economic Freedom Index: Fraser Institute, Economic Freedom Network. Available at: http://www.freetheworld.com/, accessed September 15, 2014.

use the Fraser Institute IEF or the Heritage/WSJ IEF.

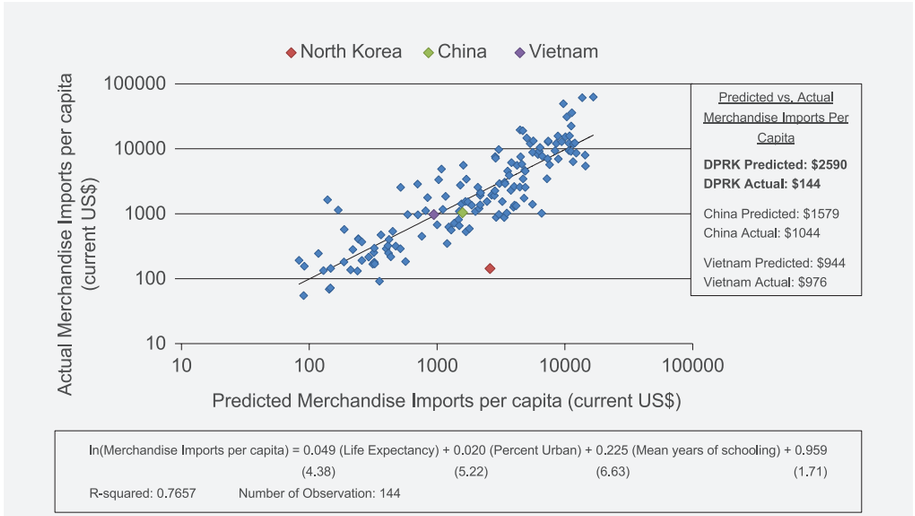
We all know that correlation is not causation. Those trained in statistical techniques know that it is exceedingly tricky to work with variables that are strongly correlated with one another, as these four certainly are. What is impressive in our findings is that health, education, urbanization, and business climate are almost as good at predicting per capita output five years into the future as they are in predicting it for the year in which the independent variables are assembled. [See FIGURES 7 AND 8] It is noteworthy, furthermore, that this seems to be true no matter what measure of per capita output we choose for our dependent variable: PPP-adjusted or not; World Bank generated or alternatively estimated by the late great economic historian Angus Maddison. The relationships uncovered here, it seems, are both powerful and deep.

Without getting too far afield econometrically: each additional year of life expectancy tracks with a 4-5 percent increase in per capita output, all other things being equal. An extra year of schooling for the adult population tracks with about a 10 percent increase in per capita output, all else equal. Raise the urbanization ratio by one percentage point, even after holding health and education constant, and per capita output predictably rises by 2 percent. And reported improvements in the business climate (remember this reading is inescapably subjective) have truly major predicted effects in and of their own. What holds for the relationship between these independent variables and per capita output also turns out to be much the same with respect to merchandise and service export and import performance, although the given coefficients naturally differ somewhat.

In Figure 6, we saw how horribly North Korea underperformed in 2010 with regard to per capita merchandise imports for a country with that reported level of educational attainment. When we try predicting per capita imports on the basis

of a fuller set of human resource variables—not just education, but life expectancy and urbanization as well—the picture for North Korea is only marginally less dismal: North Korea is importing only one-twentieth of what we would expect for a country with such a human resources profile. Note this is not the case for Asia's two other major socialist economies, China and Vietnam—their respec-

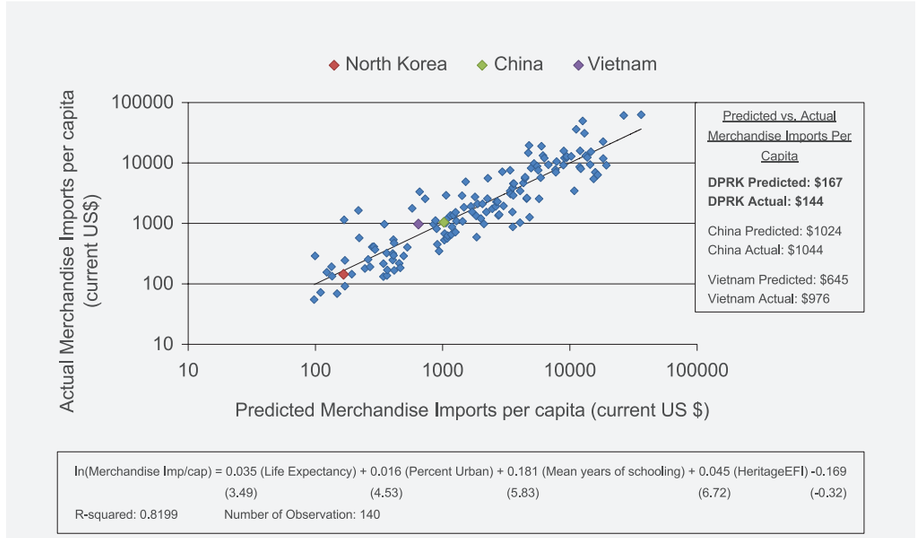
Figure 9. Predicting Global Per Capita Merchandise Imports with Life Expectancy, Urbanization, Education: 2010 Data



Note: North Korean data is for estimated 2008 educational attainment for 15-64 age group.
Source: Merchandise Imports and Life Expectancy: World Development Indicators, http://data.worldbank.org/data-catalog/world-development-indicators. Accessed September 15, 2014. Urbanization: United Nations, Department of Economic and Social Affairs, Population Division (2014). *World Urbanization Prospects: The 2014 Revision.* Available at: http://esa.un.org/unpd/wup/CD-ROM/Default.aspx, accessed August 15, 2014. Education: Author's calculations derived from Robert Barro and Jong-Wha Lee, "A New Data Set of Educational Attainment in the World, 1950-2010," Journal of Development Economics, vol 104, (April 2010): 184-198. Available at: http://www.barrolee.com/ Accessed August 15, 2014. North Korea education data: Author's calculations derived from Central Bureau of Statistics, 2008 DPRK National Census (Pyongyang, DPRK: 2009). Available at: http://unstats.un.org/unsd/demographic/sources/census/2010_PHC/North_Korea/Final%20national%20census%20report.pdf.

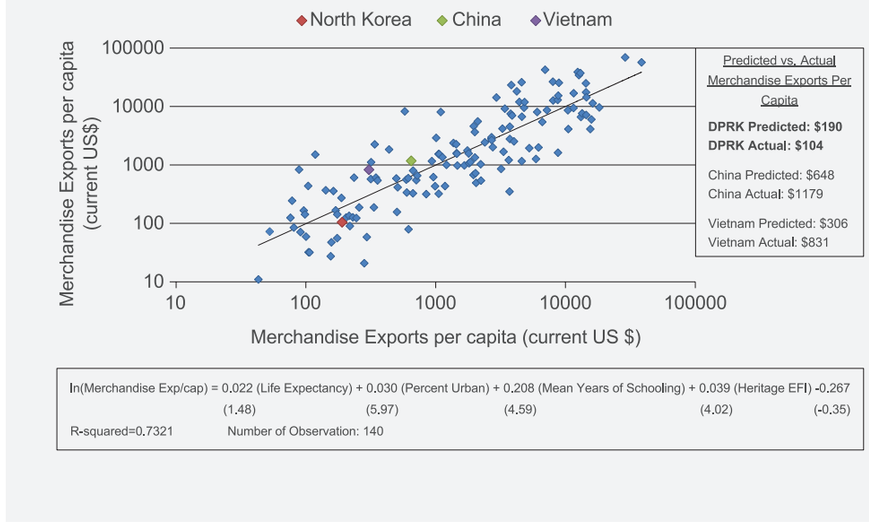
tive import levels more or less match up with what we would expect for any country elsewhere in the world with China's and Vietnam's respective reported human resource endowments. [SEE FIGURE 9]

Figure 10. Predicting Global Per Capita Merchandise Imports with Life Expectancy, Urbanization, Education, and Heritage/WSJ Index of Economic Freedom: 2010 Data



Note: North Korean data is for estimated 2008 educational attainment for 15-64 age group.
Source: Merchandise Imports and Life Expectancy: World Development Indicators, http://data.worldbank.org/data-catalog/world-development-indicators. Urbanization: United Nations, Department of Economic and Social Affairs, Population Division (2014). *World Urbanization Prospects: The 2014 Revision*. Available at: http://esa.un.org/unpd/wup/CD-ROM/Default.aspx, accessed August 15, 2014. Education: Author's calculations derived from Robert Barro and Jong-Wha Lee, "A New Data Set of Educational Attainment in the World, 1950-2010," *Journal of Development Economics*, vol 104, (April 2010): 184-198. Available at: http://www.barrolee.com/ Accessed August 15, 2014. North Korea education data: Author's calculations derived from Central Bureau of Statistics, *2008 DPRK National Census* (Pyongyang, DPRK: 2009). Available at: http://unstats.un.org/unsd/demographic/sources/census/2010_PHC/North_Korea/Final%20national%20census%20report.pdf. Economic Freedom Index: The Heritage Foundation, Wall Street Journal, *Index of Economic Freedom*. Available at: http://www.heritage.org/index/, accessed September 2014.

Figure 11. Predicting Global Per Capita Merchandise Exports With Life Expectancy, Urbanization, Education, and Heritage/WSJ Index of Economic Freedom: 2010 Data

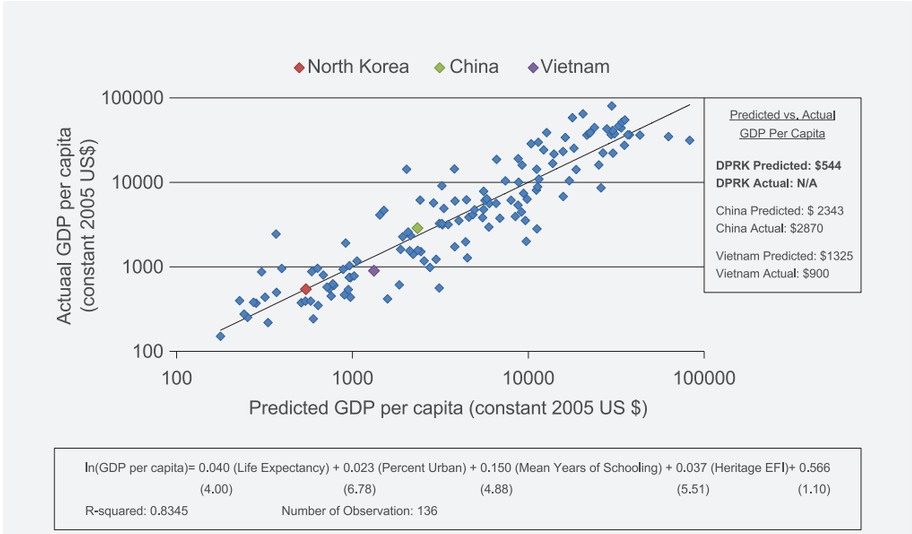


Note: North Korean data is for estimated 2008 educational attainment for 15-64 age group.
Source: Merchandise Exports and Life Expectancy: World Development Indicators, http://data.worldbank.org/data-catalog/world-development-indicators. Urbanization: United Nations, Department of Economic and Social Affairs, Population Division (2014). *World Urbanization Prospects: The 2014 Revision*, Available at: http://esa.un.org/unpd/wup/CD-ROM/Default.aspx, accessed August 15, 2014. Education: Author's calculations derived from Robert Barro and Jong-Wha Lee, "A New Data Set of Educational Attainment in the World, 1950-2010," *Journal of Development Economics*, vol 104, (April 2010): 184-198. Available at: http://www.barrolee.com/ Accessed August 15, 2014. North Korea education data: Author's calculations derived from Central Bureau of Statistics, *2008 DPRK National Census* (Pyongyang, DPRK: 2009). Available at: http://unstats.un.org/unsd/demographic/sources/census/2010_PHC/North_Korea/Final%20national%20census%20report.pdf. Economic Freedom Index: The Heritage Foundation, Wall Street Journal, *Index of Economic Freedom*. Available at: http://www.heritage.org/index/, accessed September 2014.

However, when business climate is introduced, North Korea no longer looks like an outlier at all. [SEE FIGURE 10] Instead, North Korea is importing almost exactly as much per capita as would be predicted. Furthermore, once business climate

is taken into account, North Korea's predicted level of per capita imports is only a small fraction of Vietnam's or China's: less than a third and less than a fifth, respectively.

Figure 12. Predicting Global Per Capita GDP with Life Expectancy, Urbanization, Education, and Heritage/WSJ Index of Economic Freedom: 2010 Data



Note: North Korean data is for estimated 2008 educational attainment for 15-64 age group.
Source: Merchandise Exports and Life Expectancy: World Development Indicators, http://data.worldbank.org/data-catalog/world-development-indicators. Urbanization: United Nations, Department of Economic and Social Affairs, Population Division (2014). *World Urbanization Prospects: The 2014 Revision*. Available at: http://esa.un.org/unpd/wup/CD-ROM/Default.aspx, accessed August 15, 2014. Education: Author's calculations derived from Robert Barro and Jong-Wha Lee, "A New Data Set of Educational Attainment in the World, 1950-2010," *Journal of Development Economics*, vol 104, (April 2010): 184-198. Available at: http://www.barrolee.com/ Accessed August 15, 2014. North Korea education data: Author's calculations derived from Central Bureau of Statistics, *2008 DPRK National Census* (Pyongyang, DPRK: 2009). Available at: http://unstats.un.org/unsd/demographic/sources/census/2010_PHC/North_Korea/Final%20national%20census%20report.pdf Economic Freedom Index: The Heritage Foundation, Wall Street Journal, *Index of Economic Freedom*. Available at: http://www.heritage.org/index/, accessed September 2014.

The same holds true for per capita exports. [SEE FIGURES 11] Once again, North Korea's human resource profile on its own would predict a level of per capita merchandise exports fully twenty times higher than what we believe North Korea actually achieved in 2010. Once again, the discrepancy vanishes when business climate is taken into account. Once again, with business climate as part of the picture, North Korea's predicted level of per capita performance is only a tiny fraction of what we would expect for Vietnam or China.

We do not have reliable data on North Korea's GDP per capita in 2010 (or any other year). Nevertheless, it is informative to see what our model *would* predict—and to compare our model's predictions for Vietnam and China with the figures reported for those economies. [SEE FIGURE 12]

Interestingly enough, North Korea's predicted level of GDP per capita for 2010 would be higher than either Vietnam or China on the basis of human resources alone. But when we factor in business climate, the predicted level of GDP per capita for DPRK collapses—dropping by nearly 90 percent. With business climate included in the picture, North Korea's 2010 predicted level of GDP per capita is less than half as high as Vietnam's, and barely one-fourth of China's.

We can decompose the differences in DPRK/China and DPRK/Vietnam performance by subsidiary components to see why North Korea's economic performance in 2010 is predicted to be so much worse than these two other Asian socialist economies. [SEE TABLE 1] All in all, North Korea appears to have an edge in human resources (education and urbanization levels) over China and Vietnam. All else being equal, this would lead us to predict higher levels of economic productivity for North Korea than for Vietnam or China. But everything else is not equal: North Korea's miserable rating for business climate trumps everything else. The business climate effect is so adverse that it more than eliminates North Korea's

seeming advantages in various aspects of the human resource profile and consigns the DPRK economy to the penury.

Table 1. Decomposing Differences in Predicted Economic Performance by Variables: DPRK vs. China and Vietnam, 2010

	China vs. DPRK			Vietnam vs. DPRK		
	GDP/cap (constant 2005 $)	MerchExp/ cap (current $)	MerchImp/ cap (current $)	GDP/cap (constant 2005 $)	MerchExp/ cap (current $)	MerchImp/ cap (current $)
LE	293	48	115	223	34	79
EDU	-465	-196	-251	-426	-165	-208
URB	-313	-123	-94	-604	-217	-164
IEF	**2,285**	**728**	**1,225**	**1,588**	**463**	**771**
Total	1,800	457	995	782	116	479

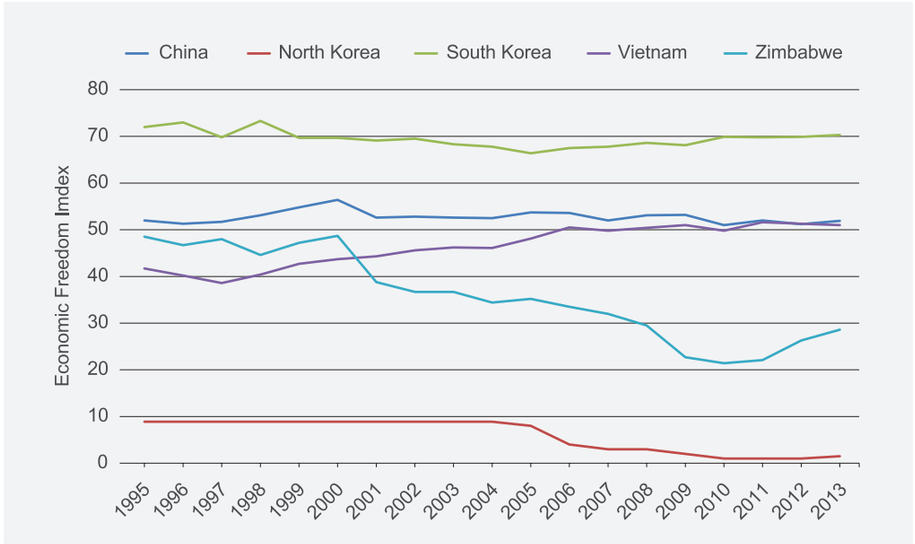
Note: Positive value means predicted advantage for China or Vietnam; negative value means predicted advantage for DPRK. North Korean data is for estimated 2008 educational attainment for 15-64 age group.

Source: Merchandise Exports and Life Expectancy: World Development Indicators, http://data.worldbank.org/data-catalog/world-development-indicators. Urbanization: United Nations, Department of Economic and Social Affairs, Population Division (2014). *World Urbanization Prospects: The 2014 Revision*. Available at: http://esa.un.org/unpd/wup/CD-ROM/Default.aspx, accessed August 15, 2014. Education: Author's calculations derived from Robert Barro and Jong-Wha Lee, "A New Data Set of Educational Attainment in the World, 1950-2010," *Journal of Development Economics*, vol 104, (April 2010): 184-198. Available at: http://www.barrolee.com/ Accessed August 15, 2014. North Korea education data: Author's calculations derived from Central Bureau of Statistics, *2008 DPRK National Census* (Pyongyang, DPRK: 2009). Available at: http://unstats.un.org/unsd/demographic/sources/census/2010_PHC/North_Korea/Final%20national%20census%20report.pdf Economic Freedom Index: The Heritage Foundation, Wall Street Journal, *Index of Economic Freedom*. Available at: http://www.heritage.org/index/, accessed September 2014.

The models here show the crushing burden on North Korean economic performance due to North Korea's "worst in class" business climate. [SEE FIGURE 13] By the Heritage Foundation/Wall Street Journal rating system ranging from 0 to

100, the DPRK earned just 1 point in 2010. Neither China, nor Vietnam score top marks on the Heritage/WSJ index. In 2010, China's rating was barely over 50, while Vietnam's was just under 50. But the nearly 50-point difference that separates contemporary DPRK from both China and Vietnam in this business climate ranking is a world of difference indeed.

Figure 13. Heritage/WSJ-Index of Economic Freedom: Select Countries, 1995-2013



Source: The Heritage Foundation, Wall Street Journal, *Index of Economic Freedom*, available at http://www.heritage.org/index/.

Unfortunately, the Heritage/WSJ index only begins in the mid-1990s—and the Fraser Institute index, which starts in 1970, does not include DPRK. Nonetheless, we can draw meaningful inferences about business climate in the DPRK from the 1970s to the present by comparing our estimates of the country's actual trade performance with the predicted trade performance based on human resource profiles alone. [SEE TABLE 2]

Table 2. Actual Results as Percent of Predicted Values from Global Regressions Predicting Performance on the Basis of Life Expectancy, Urbanization, and Schooling: 1970-2010

GDP per capita (constant 2005 $)

Year	China	DPRK	Vietnam
1970	17.3%	N/A	N/A
1980	20.9%	N/A	N/A
1990	31.2%	N/A	25.4%
2000	43.2%	N/A	31.0%
2010	62.5%	N/A	36.7%

Merchandise Exports per capita (current $)

Year	China	DPRK	Vietnam
1970	10.2%	**14.0%**	N/A
1980	14.5%	**7.9%**	4.9%
1990	35.2%	**7.9%**	38.5%
2000	53.0%	**3.5%**	88.2%
2010	124.2%	**5.0%**	196.6%

Merchandise Imports per capita (current $)

Year	China	DPRK	Vietnam
1970	5.6%	**13.1%**	N/A
1980	8.5%	**7.5%**	10.1%
1990	16.9%	**10.1%**	23.1%
2000	29.2%	**6.8%**	50.7%
2010	66.1%	**5.6%**	103.4%

Source: Merchandise Exports and Life Expectancy: World Development Indicators, http://data.worldbank.org/data-catalog/world-development-indicators. Accessed September 15, 2014. Urbanization: United Nations, Department of Economic and Social Affairs, Population Division (2014). *World Urbanization Prospects: The 2014 Revision.* Available at: http://esa.un.org/unpd/wup/CD-ROM/Default.aspx, accessed August 15, 2014. Education: Author's calculations derived from Robert Barro and Jong-Wha Lee, "A New Data Set of Educational Attainment in the World, 1950-2010," *Journal of Development Economics*, vol 104, (April 2010): 184-198. Available at: http://www.barrolee.com/ Accessed August 15, 2014. North Korea education data: Author's calculations derived from Central Bureau of Statistics, *2008 DPRK National Census* (Pyongyang, DPRK: 2009). Available at: http://unstats.un.org/unsd/demographic/sources/census/2010_PHC/North_Korea/Final%20national%20census%20report.pdf.

Back in 1970, North Korea appears to have been doing a better job than China in converting the value of local human resources into trade performance. True, North Korea was only earning about a seventh as much in merchandise export revenues as would be predicted for a country with its level of health, education, and urbanization—but this would have been considerably better than China's 10 percent. These calculations suggest that the business climate prevailing over North Korea in the mid-Kim Il Sung era was less economically stultifying than the corresponding climates in Maoist China during the Cultural Revolution, to say nothing of Vietnam at the height of the war with the USA—on its face, hardly an outlandish assessment.

But over time the economic utilization of human resources appears to have improved dramatically in both China and Vietnam in Table 2—just as would be expected with the unfolding of their respective "reform socialist" economic policies. North Korea's trajectory, on the other hand, is in the opposite direction. To go by our numbers, North Korea's 2010 levels of merchandise imports and exports might have been roughly three times higher than what was actually attained if its business climate then had been as propitious as it was 40 years earlier. This is not to imply that North Korea's business climate in 1970 was especially propitious—rather, it is to underscore the positively disastrous changes in policies, practices, and institutional arrangements that were to follow.

North Korea's sharp relative, and perhaps also absolute, economic decline can be seen as the entirely predictable consequence of the extraordinary long-term degradation of the institutions, policies, and official practices that facilitate the translation of human potential into economic value. Our findings suggest that North Korea's business climate in 1990, right before the Soviet collapse, was worse than in 1970—and worse again in 2010 than it had been in 1990. Any other economy that underwent such a disastrous decline in the quality of its policies and

institutions would have been expected to trace out a similar trajectory of economic failure. In this regard, we may suggest there is nothing "exceptional" about North Korea's dire economic story at all. North Korea most assuredly is not a "special case" with regard to economic development. To the contrary: it would seem that the DPRK's economy has been subject to breathtakingly bad state policies and governmental practices, and has responded accordingly.

Foreign Aid, Economic Assistance, and Net Resource Transfers from Abroad: Estimating the Flows to the DPRK, 1960-2013

Thus far we have offered quantitative indications of the dimensions of economic failure in modern North Korea, and of the determinants behind that failure. The next step is to provide estimates of foreign aid, economic assistance, and, more broadly speaking, net resource transfers to the DPRK from abroad for the period under consideration.[14] After that, assessments can be offered for the interplay between economic assistance and economic development in contemporary North Korea in the postwar era.

14. Foreign aid is the value of the goods, services and foreign currency donated to DPRK by foreign states, plus the concessionary value of loans and credits officially extended. Economic assistance includes all items in the foreign aid account, plus the net transfer value of ostensibly commercial loans and projects facilitated by official government authorities. Net resource transfers also include the activities of the private sector, including not only merchandise and service trade but also the flow of loans, portfolio investment, and direct private investments. As may be seen, these conceptual categories form concentric circles—but each is more encompassing than the previous one.

It is devilishly difficult to establish the actual gross and net aid flows accruing to North Korea over the postwar era, much less the scale of overall net resource transfers from abroad.

Perhaps the easiest of the major aid flows to track are those from the United

Table 3. US Economic Assistance to North Korea, 1995-2010

(Unit: Current US $)

Calendar or Fiscal Year (FY)	Food Aid (per FY)		KEDO Assistance (per calendar yr; $ million)	6-Party Talks-Related Assistance (per FY; $ million)		Medical Supplies & Other (per FY; $ million)	Total ($ million)
	Metric Tons	Commodity Value ($ million)		Fuel Oil	Nuclear Disablement		
1995	0.00	0.00	9.50	-	-	0.20	9.70
1996	19,500	8.30	22.00	-	-	0.00	30.30
1997	177,000	52.40	25.00	-	-	5.00	82.40
1998	200,000	72.90	50.00	-	-	0.00	122.90
1999	695,194	222.10	65.10	-	-	0.00	287.20
2000	265,000	74.30	64.40	-	-	0.00	138.70
2001	350,000	58.07	74.90	-	-	0.00	132.97
2002	207,000	50.40	90.50	-	-	0.00	140.90
2003	40,200	25.48	2.30	-	-	0.00	27.78
2004	110,000	36.30	0.00	-	-	0.10	36.40
2005	25,000	5.70	-	-	-	-	5.70
2006	0.00	0.00	-	-	-	0.00	0.00
2007	0.00	0.00	-	25.00	20.00	0.10	45.10
2008	148,270	93.70	-	106.00	-	0.00	199.70
2009	21,000	7.10	-	15.00	-	4.00	26.10
2010	-	-	-	-	-	-	0.00
Total	**2,258,164**	**706.75**	**403.70**	**146.00**	**20.00**	**9.40**	**1,285.85**

Source: Mark Manyin and Mary Beth Nikitin, "Foreign Assistance to North Korea," CRS Report R40095, 12 March 2010.

States. By the reckoning of the Congressional Research Service (CRS), which details the scope of US aid to the DPRK, Washington spent just over $1.3 billion on various types of aid for North Korea for 1995-2010. [SEE TABLE 3] (However, one could argue that the official accounting in Table 3 is still incomplete: it gives no indication of the aid and assistance Washington helped raise for North Korea *from other governments*.)

America's billion-plus dollars in taxpayer-financed official assistance for North Korea is not a trivial sum. Yet it pales next to the support offered to North Korea over the years by the DPRK's three biggest backers: in ascending order, South Korea, USSR/Russia, and China.

According to official ROK documentation, South Korea provided about $3.8 billion (in current US dollars) in humanitarian and foreign aid to the DPRK between 1991 and 2008. [SEE TABLE 4] Over that same period, according to the ROK Ministry of Unification, Seoul also spent an additional $1.1 billion (current US dollars) on projects pertaining to inter-Korean relations, for a total of nearly $5 billion (current US dollars). [SEE TABLE 5] Unfortunately these estimates are problematic in a number of respects. For one thing, ROK food aid to North Korea is typically valued not at world market prices but at inflated domestic ROK prices. For another, a considerable measure of the "aid" in economic projects is in reality subsidies paid directly to South Korean companies willing to risk commerce with the North. Not least important, certain political payments to Pyongyang are omitted from these tallies altogether: this would include the notorious and surreptitious transfer that secured Pyongyang's participation in the 2000 Inter-Korean Summit.[15] Because Seoul maintains that its economic relations with the

15. The exact amount of that particular payoff, which was later exposed in the South Korean press, and judged illegal by South Korean courts, is still a matter of dispute.

North are domestic rather than foreign in nature, Seoul does not oblige itself to report these to the Development Assistance Committee (DAC) of the OECD, of which South Korea is a member. Thus North Korean economic assistance from the South is not subject to the scrutiny and accounting demanded by the DAC for all the rest of South Korea's economic assistance programs.

Table 4. Officially Reported South Korean Aid to North Korea: 1991-2008

(Unit: Current US $ in millions)

Year	Total Assistance (our calcs)	Total Humanitarian	Food Aid	Fertilizer	Assistance through NGOs	Road & Rail	Mt. Kumgang Tours	Aid to ROK Business	Kaesong Industrial Complex	Family Reunions	Other
1991	0.00	-	-	-	-	-	-	-	-	-	-
1992	0.71	-	-	-	-	-	-	-	-	0.71	-
1995	236.60	-	236.60	-	-	-	-	-	-	-	-
1996	12.89	-	3.76	-	3.07	-	-	-	-	-	6.06
1997	20.05	-	-	-	20.05	-	-	-	-	-	-
1998	14.29	-	-	-	14.26	-	-	-	-	0.01	0.02
1999	28.88	-	-	28.53	-	-	-	-	-	0.35	-
2000	180.99	163.10	76.69	83.42	2.99	12.89	-	0.44	-	2.75	1.81
2001	196.86	90.29	14.68	49.47	26.14	69.60	34.86	0.83	-	1.20	0.08
2002	278.71	175.37	84.63	66.60	24.14	53.50	26.71	2.20	-	20.56	0.37
2003	370.84	256.93	159.21	70.13	27.59	94.09	5.03	10.66	-	3.47	0.66
2004	340.35	196.31	98.25	84.46	13.60	96.55	6.20	27.78	6.00	3.68	3.83
2005	636.38	357.26	193.79	123.44	40.03	193.17	0.01	28.62	25.65	16.67	15.00
2006	483.83	226.65	10.65	125.66	90.34	93.06	1.28	50.16	80.75	15.91	16.02
2007	770.31	395.71	157.34	103.49	134.88	68.33	0.50	60.95	82.89	30.80	131.13
2008	209.56	54.11	3.91	0.00	50.20	14.38	1.52	9.79	52.22	19.00	58.54
Total	**3,784.29**	**2,221.99**	**1,039.51**	**735.19**	**447.29**	**695.57**	**76.11**	**191.45**	**247.50**	**115.12**	**236.55**

Source: As appearing in Dick K. Nanto and Emma Chanlett-Avery, "North Korea: Economic Leverage and Policy Analysis," CRS Report RL32493, 22 January 2010.

Table 5. Officially Reported South Korean Economic and other Assistance to the DPRK

(Unit: US $ in millions)

Year	Road and Rail	Mt. Kumgang Tours	Aid to ROK Business	Kaesong Industrial Complex	Family Reunions	Other
1991	-	-	-	-	-	-
1992	-	-	-	-	0.71	-
1995	-	-	-	-	-	-
1996	-	-	-	-	-	6.06
1997	-	-	-	-	-	-
1998	-	-	-	-	0.01	0.02
1999	-	-	-	-	0.35	-
2000	12.89	-	0.44	-	2.75	1.81
2001	69.60	34.86	0.83	-	1.20	0.08
2002	53.50	26.71	2.20	-	20.56	0.37
2003	94.09	5.03	10.66	-	3.47	0.66
2004	96.55	6.20	27.78	6.00	3.68	3.83
2005	193.17	0.01	28.62	25.65	16.67	15.00
2006	93.06	1.28	50.16	80.75	15.91	16.02
2007	68.33	0.50	60.95	82.89	30.80	131.13
2008	14.38	1.52	9.79	52.22	19.00	58.54
Total	695.57	76.11	191.45	247.50	115.12	236.55

Source: As appearing in Dick K. Nanto and Emma Chanlett-Avery, "North Korea: Economic Leverage and Policy Analysis," CRS Report RL32493, 22 January 2010.

As for assistance from Beijing and Moscow: it is essentially impossible to make sense of their respective records on economic assistance to the DPRK on the basis of their official reports and statements, which are selective, misleading, and highly incomplete. For both Moscow and Beijing, publicly announced aid commitments constitute only a small fraction of the true overall resource flows to DPRK these governments presided over.

How then to estimate net resource flows into North Korea? "Mirror statistics" offer one possible approach, albeit a highly approximate one. We can look to North Korea's estimated merchandise balance of trade deficit for a very general sense of overall net resource flows into North Korea. Then we can take the balance of trade deficits Pyongyang has incurred with specific important patron government as a first approximation of their respective economic transfers to North Korea.

North Korea's global balance of trade deficit cannot be used as a precise approximation of net global resource transfers into the DPRK because there are important unobserved transactions not reported in these international trade ledgers. On the one hand there is the whole realm of illicit commerce, in which North Korea may possibly be a net revenue earner. On the other hand, when the World Food Program sends emergency relief grain to North Korea at no cost to Pyongyang, this net resource transfer is not captured in international trade accounts and thereby tends to understate total net inflows to the DPRK. Apart from these hardly trivial difficulties there is a basic conceptual complication concerning the distinction between trade and finance, and our tools only permit us to follow financial flows to the degree that they are translated into merchandise purchases. All in all, these problems add to the uncertainties of accepting North Korea's global balance of trade deficit as a rough first cut on net resource transfers from abroad: the true total could be considerably higher, or potentially lower.

But the situation is less fuzzy when we consider the net balance of trade deficit North Korea almost always runs with Beijing and Moscow, and at times has run with Seoul. In the real existing DPRK, it is not unreasonable to assume that any annual surfeit of goods sent to North Korea by any of these two governments is tantamount to a debt that will never be repaid. Any promissory paper the DPRK provided to cover its balance of trade deficit with any of its major patron pow-

ers would have no real expected value. For this reason, we may be on fairly firm ground treating any annual trade deficit with North Korea by any of the governments in question as a de facto permanent transfer of resources to North Korea.[16]

A first take of what mirror statistics on North Korean trade reveal about net resource transfers from abroad can be seen in Tables 6 through 9. By our estimates, North Korea's merchandise earnings since 1960 in current dollars have amounted to about $57 billion, while its merchandise purchases totaled an estimated cumulative $94 billion. [SEE TABLE 6] The unexplained gap amounted to a cumulative $37 billion in current USD. If we try to control for price changes by illustratively deflating with the US PPI, we end up with roughly the same relationship between imports and exports.

Table 6. Estimated North Korean Merchandise Trade by Decade

(Unit: Current US $ in millions)

	Balance of Trade Deficit	Exports	Imports
1960s	481.0	2,058.0	2,539.0
1970s	3,025.9	6,254.7	9,280.6
1980s	5,344.8	13,629.9	18,974.7
1990s	5,710.7	9,601.2	15,311.9
2000s	15,920.4	12,938.7	28,859.2
2010s	6,328.9	12,771.5	19,100.4
Total	36,811.8	57,253.9	94,065.7

(Unit: 2013 US $ in millions)

	Balance of Trade Deficit	Exports	Imports
1960s	2,981.3	12,716.3	15,697.6
1970s	11,580.9	22,412.4	33,993.3
1980s	10,498.7	27,204.8	37,703.6
1990s	9,548.8	16,171.7	25,720.5
2000s	20,962.6	16,755.0	37,717.6
2010s	6,513.9	13,068.3	19,582.2
Total	62,086.2	108,328.5	170,414.7

Source: Author's estimates, derived from KOTRA, UN COMTRADE Database, ROK Ministry of Unification PPI: Bureau of Labor Statistics, "Commodity Data, All Commodities (00)" available at http://www.bls.gov/ppi/#data.

In other words, there is no visible means of compensatory exchange for roughly forty percent of all the goods that the DPRK imported since 1960. In constant 2013 PPI-adjusted illustrative dollars, the cumulative unexplained gap between imports and exports for North Korea for the years 1960-2013 comes to about $62 billion.

How then was this imposing cumulative balance of trade deficit financed? We can decompose North Korea's estimated balance of trade deficit by year and by major source countries to help answer this question. [SEE TABLES 7 AND 8]

When we examine North Korea's merchandise trade balance by year and major source, several important trends stand out. First: the estimated trade balance is perennially in deficit. Second: the components of the net estimated merchandise inflow change dramatically by decade: a fact which we hold to reflect the realities of Pyongyang's assiduous aid-seeking diplomacy. Third: the modern North Korean economy's desperate dependence upon continuous net inflows of concessional resources is underscored by the correspondence between changes in the estimated volume of these inflows and subsequent developments in the DPRK real economy. In 1994, North Korea's estimated balance of trade deficit fell to

16. Since finance from Beijing and Moscow tended to be very closely tied to purchases of Chinese and Soviet goods, the trade/finance distinction is largely vitiated here. Though not entirely. Consider the hypothetical case where China and DPRK agree to a joint venture in revitalizing a gold mine, with China providing capital equipment and North Korea paying its share in kind, through gold ore shipments to China once the mine is restored to operation. Viewed through the aperture of mirror statistics, this arrangement would initially register as an increase in net commodity transfers, and later as a decrease in net transfers—even if the actual official level of Beijing's economic support for DPRK were unchanging all the while. To date this hypothetical has largely been moot, however, given what appear to be rarity of any genuinely commercial international enterprises taking place within North Korea.

Table 7. North Korean Merchandise Balance of Trade by Country, 1960-2013

(Unit: Current US $ in millions)

Year	World Balance of Trade	China	Russia	South Korea	All Other
1960	9.5	25.9	-31.2	-	14.8
1961	42.9	21.9	5.6	-	15.4
1962	44.8	39.3	0.5	-	5.0
1963	44.4	37.3	2.2	-	4.9
1964	49.9	40.1	10.4	-	-0.6
1965	61.1	31.1	10.5	-	19.5
1966	42.0	45.8	1.8	-	-5.6
1967	47.8	27.6	13.4	-	6.8
1968	109.1	32.2	68.4	-	8.5
1969	29.5	11.0	-5.3	-	23.8
1970	11.6	17.7	-0.1	-	-6.0
1971	51.0	38.0	-0.2	-	13.2
1972	336.7	72.9	178.8	-	85.0
1973	481.9	131.3	151.3	-	199.3
1974	710.5	134.6	85.3	-	490.6
1975	465.2	132.5	71.5	-	261.2
1976	454.7	143.0	108.6	-	203.1
1977	273.6	115.9	23.6	-	134.1
1978	95.9	50.8	-11.8	-	56.9
1979	144.8	48.7	3.4	-	92.7
1980	300.3	135.7	48.8	-	115.8
1981	481.0	121.6	78.1	-	281.3
1982	245.7	33.2	-17.1	-	229.6
1983	240.5	69.6	-47.2	-	218.1
1984	44.8	7.4	17.3	-	20.1
1985	444.0	18.4	410.4	-	15.2
1986	572.8	22.5	558.7	-	-8.4
1987	862.1	98.0	745.1	-	19.0
1988	1,134.7	171.7	1,027.1	-	-64.1
1989	1,018.9	238.6	747.4	-16.9	49.8
1990	1,006.5	270.3	733.4	-9.9	12.7
1991	634.1	485.5	114.5	-90.0	124.1
1992	462.9	439.6	190.5	-136.4	-30.8
1993	414.4	381.3	114.2	-152.7	71.6
1994	174.6	287.9	15.8	-140.2	11.1
1995	627.9	477.3	63.2	-131.7	219.1
1996	624.9	484.6	13.1	-89.1	216.4
1997	527.8	477.5	65.3	-48.7	33.7
1998	521.9	339.2	54.7	58.8	69.3
1999	715.8	323.7	47.5	122.4	222.2
2000	1,210.4	462.1	35.3	161.5	551.5
2001	1,282.6	478.9	52.8	89.3	661.6
2002	1,379.2	267.7	65.6	369.8	676.1
2003	1,470.0	331.0	119.1	400.9	618.9
2004	1,461.0	374.0	221.0	367.6	498.4
2005	1,806.5	735.4	242.7	510.5	317.9
2006	1,833.3	929.7	191.2	440.3	272.0
2007	1,830.5	1,001.0	83.3	440.8	305.3
2008	2,056.9	1,544.0	93.9	129.5	289.4
2009	1,590.1	1,356.0	38.9	-29.6	224.9
2010	1,556.3	1,419.0	35.5	5.7	96.1
2011	1,437.3	1,231.0	95.9	49.1	61.3
2012	1,716.3	1,578.0	54.2	10.3	73.7
2013	1,619.1	1,656.0	105.3	14.1	-156.3
Cumulative	36,811.8	19,444.9	7,102.1	2,325.5	7,939.2

Source: Author's estimates, derived from KOTRA, UN COMTRADE Database, ROK Ministry of Unification.

Table 8. Estimated North Korean Merchandise Balance of Trade Deficit by Country, 1960-2013

(Unit: PPI-Adjusted Illustrative 2013 US $ in millions)

Year	World Balance of Trade	China	Russia	South Korea	All Other
1960	61.0	166.2	-200.2	-	95.0
1961	276.1	141.0	36.0	-	99.1
1962	287.5	252.2	3.2	-	32.1
1963	285.8	240.1	14.2	-	31.5
1964	321.2	258.1	66.9	-	-3.9
1965	384.8	195.8	66.1	-	122.8
1966	256.5	279.8	11.0	-	-34.2
1967	291.1	168.1	81.6	-	41.4
1968	648.9	191.5	406.8	-	50.6
1969	168.5	62.8	-30.3	-	136.0
1970	63.9	97.6	-0.6	-	-33.1
1971	272.3	202.9	-1.1	-	70.5
1972	1,720.7	372.6	913.8	-	434.4
1973	2,178.2	593.5	683.9	-	900.8
1974	2,701.2	511.7	324.3	-	1,865.2
1975	1,620.2	461.5	249.0	-	909.7
1976	1,513.7	476.0	361.5	-	676.1
1977	857.5	363.2	74.0	-	420.3
1978	279.1	147.8	-34.3	-	165.6
1979	374.2	125.9	8.8	-	239.6
1980	680.2	307.4	110.5	-	262.3
1981	998.3	252.4	162.1	-	583.8
1982	499.8	67.5	-34.8	-	467.0
1983	482.9	139.7	-94.8	-	437.9
1984	87.8	14.5	33.9	-	39.3
1985	875.1	36.3	808.9	-	30.0
1986	1,162.8	45.7	1,134.1	-	-17.0
1987	1,705.8	193.9	1,474.3	-	37.6
1988	2,159.0	326.7	1,954.3	-	-122.0
1989	1,847.1	432.5	1,354.9	-30.6	90.3
1990	1,760.4	472.7	1,282.7	-17.2	22.2
1991	1,107.1	847.6	199.9	-157.1	216.7
1992	803.3	762.9	330.6	-236.8	-53.5
1993	708.9	652.3	195.4	-261.2	122.5
1994	295.0	486.4	26.7	-236.8	18.8
1995	1,024.1	778.5	103.1	-214.8	357.4
1996	995.4	771.9	20.8	-142.0	344.7
1997	841.3	761.2	104.1	-77.7	53.7
1998	853.3	554.6	89.4	96.1	113.2
1999	1,160.0	524.6	76.9	198.4	360.1
2000	1,855.2	708.2	54.0	247.6	845.4
2001	1,944.0	725.8	80.0	135.3	1,002.8
2002	2,139.7	416.0	101.7	573.8	1,048.2
2003	2,165.1	487.5	175.4	590.5	911.6
2004	2,025.7	481.1	306.4	509.7	728.5
2005	2,334.5	950.3	313.7	659.7	410.8
2006	2,264.0	1,148.4	236.2	543.7	335.7
2007	2,157.1	1,179.0	98.2	519.5	360.4
2008	2,206.6	1,656.3	100.7	139.0	310.6
2009	1,870.7	1,595.1	45.7	-34.8	264.7
2010	1,713.8	1,561.9	39.1	6.3	106.5
2011	1,454.5	1,246.2	97.1	49.7	61.6
2012	1,726.4	1,587.2	54.5	10.4	74.3
2013	1,619.1	1,656.0	105.3	14.1	-156.3
Cumulative	62,086.2	29,136.7	14,175.8	2,884.7	15,889.1

Source: Author's estimates, derived from KOTRA, UN COMTRADE Database, ROK Ministry of Unification. PPI: Bureau of Labor Statistics, "Commodity Data, All Commodities (00)."Available at http://www.bls.gov/ppi/#data.

its lowest level of the past quarter century. As we know, North Korea plunged into mass famine almost immediately after this deceleration in implicit net resource inflows. The correspondence between this apparent slowdown of net transfers from abroad and the eruption of mass starvation suggests that the state of the DPRK economy in the post-Cold War era is sufficiently precarious that North Korea's "worst in class" performance requires substantial net resource inflows to remain afloat and sharp reductions of these inflows can be positively catastrophic.

By our reckoning, China was North Korea's biggest backer over the 1960-2013 period, tolerating a cumulative balance of trade deficit in real terms that would by our calculations approach $30 billion in illustrative constant 2013 dollars. Moscow's balance of trade support over those years amounted to just under half that—a cumulative illustrative real total of about $14 billion.[17]

Taken together, Moscow and Beijing account for about 70% of North Korea's overall estimated balance of trade deficit over the past half century, regardless of whether we use current unadjusted dollars or our illustrative constant dollars.

While resource transfers from Beijing and Moscow appear to be very much the main story in North Korean overall resource inflows from the outside world, we see big changes in the balance between those two main inflows over time. It is useful to examine these on a decade by decade basis. [SEE TABLE 9] In the 1960s—a time that may now be regarded as a golden era for DPRK economic performance—implicit transfers from Moscow and Beijing were much smaller in illustrative real terms than in subsequent decades.[18] In the 1970s, North Korea appears to have secured more outside resources from both Moscow and China than it did in the 1960s. Yet Moscow and Beijing together accounted for only

17. South Korea is a very distant third, with a cumulative total of less than $3 billion—but for reasons already alluded to, this calculation is an underestimate of total ROK support, and is not entirely comparable to the numbers for China and USSR/Russia.

Table 9. North Korean Merchandise Trade Deficit by Country and Decade

(Unit: Current US $ in millions)

	World	China	Russia	South Korea	All Other
1960s	481.0	312.2	76.3	-	92.5
1970s	3,025.9	885.4	610.4	-	1,530.1
1980s	5,344.8	916.7	3,568.6	-16.9	876.4
1990s	5,710.7	3,966.9	1,412.1	-617.6	949.3
2000s	15,920.4	7,479.7	1,143.8	2,880.8	4,416.1
2010s	6,328.9	5,884.0	290.9	79.2	74.8
Total	36,811.8	19,444.9	7,102.1	2,325.5	7,939.2

(Unit: 2013 US $ in millions)

	World	China	Russia	South Korea	All Other
1960s	2,981.3	1,955.5	455.4	-	570.4
1970s	11,580.9	3,352.6	2,579.3	-	5649.0
1980s	10,498.7	1,816.6	6,903.4	-30.6	1809.3
1990s	9,548.8	6,612.7	2,429.6	-1,049.2	1555.7
2000s	20,962.6	9,347.8	1,512.1	3,884.0	6218.6
2010s	6,513.9	6,051.4	296.0	80.5	86.1
Total	62,086.2	29,136.7	14,175.8	2,884.7	15889.1

Source: Author's estimates, derived from KOTRA, UN COMTRADE Database, ROK Ministry of Unification PPI: Bureau of Labor Statistics, "Commodity Data, All Commodities (00)." Available at http://www.bls.gov/ppi/#data.

18. Beijing looks to have been the DPRK's major backer during these years. This may seem curious, as we can recall the Sino-DPRK border tensions, the Red Guard denunciations of Kim Il Sung, and all the rest of the unpleasantness in China-North Korean relations during those same years.

about half of North Korea's total trade imbalance—a lower share than before or ever since. That was a time when North Korean aid seeking stratagems were truly coming into their own. During the 1980s, Chinese implicit aid for Pyongyang appears to have dropped sharply, but this cutback was more than compensated for by a huge upswing in implicit aid from Moscow. Most of this Soviet aid flowed to North Korea in the late 1980s. In the post-Cold War era, economic support from Moscow collapsed—but as seen in Table 9, it did not entirely disappear. With the rise of Vladimir Putin, Moscow seems to have tolerated higher trade deficits with North Korea than it did under Boris Yeltsin. But since 2000, the main game in official economic support for North Korea would appear to be China's net transfer of resources to the DPRK. Interestingly enough, the magnitude of those flows appears to have swung upward after 2003—we are tempted to say more or less right after the start of the Six Party Talks. That conjuncture may be coincidental, but Chinese implicit aid has run above one billion dollars a year since 2006. And to go by balance of trade data, China is currently (2010-13) North Korea's only economic backer of any importance.

Aid, Resource Transfers, and North Korean Economic Dependence in International Perspective

Based on our estimates of net resource transfers to the DPRK in Tables 6-9, we can now attempt to place the scale of North Korea's postwar "aid dependence" into some sort of quantitative perspective. We do this by comparing our proxy measure of "aid dependence" for the DPRK with corresponding calculations for some of the modern world's most impoverished regions and/or international country classifications.

For the rest of the world, a direct measure of "aid dependence" is available by comparing the net inflow of ODA and other types of foreign aid in a given year to the reported merchandise exports that same year. Such numbers can be used to calculate a serviceable "aid to trade ratio"—an index that speaks directly and meaningfully to a country's international economic self-sufficiency. For the DPRK, no reliable data on annual net flows of ODA and other economic aid are available. Instead, we must rely upon estimated balance of trade deficits as a proxy for economic assistance. This proxy for global external aid is admittedly far from perfect from a conceptual standpoint. On the other hand, North Korea's notorious insouciance about repaying foreign debts and its conspicuous inattention to respecting the integrity of direct foreign investments may suggest that the Pyongyang government regards *all* international economic transfers as economic aid, regardless of its provenance—in which case the global balance of trade deficit might not be such a bad measure of "aid dependence" after all.

In the postwar era, the poorest and most aid-dependent collectivities of societies have been the sub-Saharan region on the one hand and the UN-defined category of "Least Developed Countries" (LDCs). We will compare the degree of international economic support dependence (as proxied by the estimated ratio of merchandise balance of trade deficit to merchandise exports) for these two big groupings of countries with that of the DPRK from the 1960s onward. [SEE TABLE 10]

By the metrics in Table 10, sub-Saharan Africa's international economic support dependence rose appreciably between the 1960s and the 1980s, and reached an apogee of sorts in the 1990s, when annual balance of trade deficits equaled almost a quarter of the region's annual merchandise exports. Since the 1990s the region's overall foreign economic dependence by this metric appears to have dropped sharply, with the ratio of merchandise balance of trade deficits to merchandise exports near postwar lows at the start of our current decade.

Table 10. Some Measures of "Aid Dependence":
DPRK vs. Sub-Saharan Africa and UN "Least Developed Countries" since 1960

	SSA (Developing Only): Aid/Merch Exp	LDCs: Aid/Merch Exp	DPRK 1: (Chi+Rus Trd Bal/Merch Exp)	DPRK 2: (Total TrdBal/ Merch Exp)
1960s	13.2%	19.8%	**18.9%**	**23.4%**
1970s	10.8%	43.1%	**23.9%**	**48.4%**
1980s	18.3%	74.3%	**32.9%**	**39.2%**
1990s	23.2%	68.3%	**56.0%**	**59.5%**
2000s	16.0%	31.6%	**66.6%**	**123.0%**
2010s	11.2%	21.7%	**47.5%**	**50.7%**

Note: For SSA and LDCs "Aid" is Net official development aid and official aid received.

Source: Net ODA and Merchandise Exports: World Development Indicators, http://data.worldbank.org/data-catalog/world-development-indicators. Accessed October 1, 2014. Data on North Korea is author's calculations estimates derived from KOTRA, UN COMTRADE Database, ROK Ministry of Unification.

For the LDC grouping, our proxy ratio for aid to trade rose from about 20 percent in the 1960s to a peak of nearly 75 percent in the 1980s, and is today back down to a little over 20 percent. By this metric, the LLDCs appear to be more economically self-reliant today than at any time since the 1960s; for its part, sub-Saharan Africa appears to be more self-reliant than at any point since the 1970s.

By our proxy measure for foreign economic dependence, the DPRK certainly seems to qualify for membership in the league of the world's most aid-dependent nations. If we rely upon the ratio of estimated trade deficit with Beijing and Moscow to estimated total merchandise exports as our proxy *simplicatur* for "aid dependence", then it would appear North Korea has been *consistently* more aid-dependent than sub-Saharan Africa as a whole—from the 1960s to the present day. By this measure, North Korea's "aid dependence" on Sino-Soviet/RF economic assistance alone would have placed the DPRK in roughly the same ballpark as the LDCs in the 1960s. In the 1970s and 1980s, aid dependence would have appeared greater for the least developed countries than for the DPRK.

What is striking, however, is that our measures indicate that foreign economic dependence is down in the LDCs since the 1980—while by contrast it is sharply up in the DPRK since then. Indeed, since the year 2000, North Korea's level of dependence upon *just the Sino-Russian component* of its overall international merchandise trade deficit, in relation to estimated merchandise export revenues, appears to be dramatically higher than the average for LDCs.

Even given the tentative nature of our metrics for DPRK "aid dependence", we can safely offer two important empirical conclusions from the figures presented in Table 10. First: by such data as can be assembled for the comparison, the degree of dependence on international economic support today looks to be decidedly more acute in the DPRK than for the sub-Saharan region as a whole, or even for the global collectivity of "least developed countries." Second: whereas such dependence appears to have peaked for the LDCs in the 1980s and for the sub-Saharan region in the 1990s, it appears to have been higher since the year 2000 for the DPRK than ever before. Even though our own proxy measure of aid dependence suggests a major drop for DPRK between 2000/09 and 2010/13, the most recent estimates for our proxy measure of economic dependence for the DPRK places it well over twice as high today as in the 1960s.

In other words, in the DPRK case, we see a positively pathological tangle binding four big tendencies together: 1) long-term economic failure, 2) deteriorating institutional/policy environment, 3) continuing net resource transfers from abroad, and 4) increasing dependence on foreign economic support.

Official Economic Assistance Recipient Governments' Policies, and Economic Growth[19]

The obvious question that jumps out at this point is: why haven't these massive transfers of official economic resources resulted in at least some obvious measure of economic development in the DPRK in recent decades? Why has the DPRK instead distinguished itself as possibly the least successful economic experiment in the contemporary world, given all the international economic resources it has absorbed? To address this question, we need to begin by addressing what we know more broadly about the record of postwar developmental aid in hastening material advance in recipient societies.

Western governments and the taxpayers behind them have directly (through their own bilateral aid organizations) or indirectly (through multilateral organizations and international financial institutes) transferred the inflation-adjusted equivalent of over $2 trillion to recipient states over the past half century.[20] Curiously, there is no consensus in the economics literature on the macroeconomic impact of development assistance on economic growth in recipient societies. Some studies identify strong positive benefits from development assistance, while others do not detect any appreciable impact on growth.[21]

19. The following section draws upon: Nicholas Eberstadt, "Western Aid: The Missing Link for North Korea's Economic Revival?," *American Enterprise Institute Working Paper Series on Development Policy* No. 6 (April 2011).
20. William Easterly and Tobias Pfuetze, "Where Does the Money Go? Best and Worst Practices in Foreign Aid," *Brookings Global Economy and Development Working Paper* No. 21 (June 2008).
21. For a review of this non-consensus, see Carol Adelman and Nicholas Eberstadt, "Foreign Aid: What Works and What Doesn't," *AEI Development Policy Outlook*, October 2008, available electronically at http://www.aei.org/outlook/28842.

However, that paradox seems to be resolved by disaggregation of recipient states according to the criteria of "policy and institutional environment" (or perhaps to put it another way, "business climate"). Over the past decade and a half, a series of path-breaking studies by economists under the aegis of the World Bank have convincingly demonstrated that the growth effects of aid depend critically on the quality of institutions and policies in the countries to which these aid transfers flow.[22]

Figure 14 summarizes the findings of this research. [SEE FIGURE 14] In general, a more auspicious policy environment tends to elicit more economic growth from aid than a less favorable policy environment. But two more specific findings here are worth emphasizing in particular. First: aid can actually have a *negative* impact on growth when recipient states have poor institutional and policy environments. Second, and no less important: the negative impact of aid in economies with poor policies is actually *greater* when the volume of aid is *larger*.

But exactly how can economic assistance from abroad—which, recall, constitutes a state-to-state transfer of tangible net wealth—result in the counter-intuitive outcome of *depressing* growth, and even *reducing* wealth, in the beneficiary country? A corpus of research, some of it extending back many decades, has laid out a number of mechanisms by which aid transfers could have a negative rather than a positive effect on economic performance. Three of these many adverse economic potentialities of aid are especially worth noting here.

22. See for example David Dollar and Lant Pritchett, *Assessing Aid: What Works, What Doesn't, And Why*, (New York: Oxford University Press, 1998); Craig Burnside and David Dollar, "Aid, Policies and Growth," *American Economic Review*, vol. 90, no. 4 (September 2000), pp. 847–868; and Craig Burnside and David Dollar, "Aid, Policies and Growth: Revisiting The Evidence," *World Bank Policy Research Working Paper* No. 3251 (March 2004).

The first is the systemic, "built-in," risk for aid to result in what economist call "Dutch disease." This refers to the deleterious impact of a windfall on the beneficiary country's exchange rates and export industries, reducing international competitiveness of manufacturing and possibly other sectors by making purchases of goods and services from abroad more attractive and sales of goods and services abroad less attractive than would have been the case without that aid due to terms-of-trade shifts.[23] However, while "Dutch disease" can easily slow a country's pace of economic growth (and may have undesirable consequences on composition of domestic output or income distribution as well), it would be extremely unusual for the disease by itself to cause negative growth, much less a reduction in aggregate national wealth.

The second risk, less common but more severe when it occurs, relates to the far-reaching structural distortions evident in the economies of some highly aid-dependent low-income countries. The characteristic symptoms of these distortions have sometimes been described as "industrialization without prosperity" and "investment without growth."[24] In the economies afflicted by these distortions, living standards and consumption are always lower than would otherwise be expected for a country at such a level of output, and long-term economic stagnation or even retrogression can also be registered. In such economies aid can be observed exerting a perverse influence on political economy. By providing planning authorities in recipient states with significant and continuing supplies of free resources, ODA in these circumstances enables *dirigiste* schemes for inefficient or even irrational projects and economic policies. In extreme cases, "enormous and steady flows of concessional external finance [have permitted] Third World governments to pursue "development" policies…so positively destructive that they could not have been sustained without outside support."[25]

23. Rajan R G, Subramanian A, "Aid, Dutch Disease, and Manufacturing Growth," *Journal of Development Economics*, 94 (2011): 106–18.
24. Cf Nicholas Eberstadt, *Foreign Aid and American Purpose*, (Washington DC: American Enterprise Institute Press, 1988).

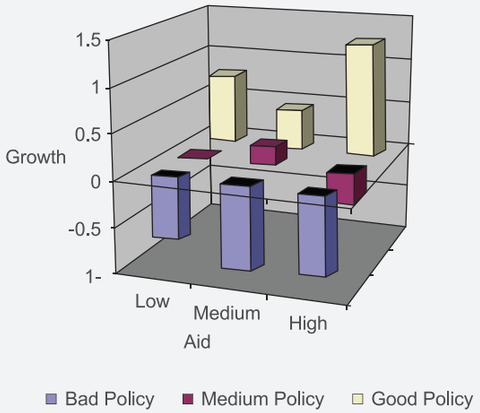
The third, and perhaps potentially most devastating, long-term economic risk attendant to aid transfers may derive from political economy effects as well, in association with the concept of "resource curse." This concept refers *inter alia* to the degradation of political, economic, and civil institutions that can be fomented by claim and disposition of essentially unearned windfalls.[26] In a number of postwar societies, major discoveries of oil, energy or mineral wealth have been followed by upswings in corruption and rent-seeking, increased political conflict, degradation of democratic institutions, and also slow or negative economic growth. Some research now suggests that aid resources can in principle elicit similar "curse effects" to those of natural resources.[27]

Perhaps no student of the phenomenon of development assistance, however, was ever as elegant—and prophetic—as the great economist P.T. Bauer, who alerted the profession to the unintended economic consequences of aid two generations ago. Read with the DPRK in mind, Lord Bauer's words from 1981 have an eerie immediacy:

25. Nicholas Eberstadt, "Prepared Statement on Development Assistance And Economic Freedom" in "Economic Freedom and U.S. Development Aid Programs", *Hearings before the Committee on Foreign Relations, United States Senate*, September 19, 1996, p. 11, available electronically at http://babel.hathitrust.org/cgi/pt?id=pst.000026229706;view=1up;seq=15.
26. CF Cullen S. Hendrix and Marcus Noland, *Confronting The Curse: The Economics and Geopolitics of Natural Resource Governance*, (Washington DC: Peterson Institute for International Economics, 2014).
27. Djankov S, Montalvo J, Reynal-Querol M., "The Curse of Aid," *Journal of Economic Growth* 13: 169-94.

"Aid increases the money, patronage and power of the recipient governments. It intensifies the politicization of life in the Third World. This result promotes conflict, especially in the multi-racial societies of most Third World countries, and diverts energy and attention from productive activity to the political arena. These gifts have enabled governments to pursue policies which retard growth and exacerbate poverty, such as suppressing of productive groups, including minorities, restriction on the inflow of capital, enterprise and skills; and numerous policies which discourage food production."[28]

Figure 14. Economic Growth, Foreign Aid and Recipient Country Policy: Some World Bank Estimates



Source: Craig Burnside & David Dollar, "Aid, Policies and Growth: Revisiting the Evidence." *World Bank Policy Research Working Paper* No. 3251 (March 2004).

28. P.T. Bauer and B.S. Yamey. "Against Foreign Aid", *Sunday Telegraph* (London), February 19, 1981; abridged version available electronically at http://www.libertarian.co.uk/lapubs/econn/econn023.pdf.

This research would seem to provide the final missing piece for the puzzle of aid and economic performance in North Korea today. We can now suggest that North Korea's horrific economic performance was not only a consequence of the disastrous practices, policies and priorities stubbornly pursued by the regime's rulers for decades, but was facilitated by tremendous inflows of aid and resources from abroad, which permitted the Pyongyang regime to continue with policies so patently destructive that they would have been forced to cease, or at least to moderate, in the absence of foreign subsidies to help keep them going. This report has provided the empirical evidence to permit us to link these features of modern North Korea's political economy together.

The nightmare scenario for Western aid donors has always been the possibility that foreign assistance, through cascading mishaps, might leave a recipient society poorer or worse off than if no aid had been proffered in the first place. Although the overwhelming majority of the economic transfers and foreign aid it has received has been non-Western, the North Korean regime has perhaps gone farther than any other modern state in turning this hypothetical nightmare into reality.

Concluding Comments and Observations

In the preceding pages we have attempted to quantify the dimensions of North Korea's "epic economic fail"; to identify key determinants of the DPRK's long-term economic decline; and to estimate the magnitude and explain the role of resource transfers from abroad in this pathological dynamic. We have done so in a manner that relies overwhelmingly upon pre-existing and readily available international socio-economic data, and that thus permits us to view North Korean per-

formance in a postwar international perspective.

There are a number of obvious questions raised by this study that we have *not* pursued here. We have not, for example, discussed the particulars of the DPRK's institutional and policy environment that lie behind the country's "worst in class" international rankings for business climate. These have been discussed in detail elsewhere, not least in my own work.[29] Further, we have not devoted time or attention to the specific aid-seeking stratagems the DPRK regime has deployed against various governments at various times. This too is fairly familiar territory, and has been dealt with extensively elsewhere, including in my own studies.[30] Our findings raise a number of important questions for further research. They also have a number of important and pressing, immediate implications. We may conclude by mentioning just two of those below.

The first concerns the requirements for reversing long-term economic decline in North Korea, and resuming sustained economic development. A small library of Western studies on this topic has been written over the past generation, some of these works going into considerable detail and offering very specific proposals, both great and small. In light of our findings in this study, we believe it is not necessary to delve into minutiae to appreciate the task at hand for authorities in North Korea. Our report underscores one simple fact about North Korea's economic prospects: now and for the immediate future, everything turns upon

29. Nicholas Eberstadt, *The North Korean Economy: Between Crisis & Catastrophe*, (New Brunswick: Transaction Publishers, 2009); Nicholas Eberstadt, *Policy and Economic Performance in Divided Korea during the Cold War Era: 1945-91* (Washington DC: American Enterprise Institute Press, 2010).
30. Nicholas Eberstadt, *The North Korean Economy: Between Crisis & Catastrophe* (New Brunswick: Transaction Publishers, 2009); Nicholas Eberstadt, *The End of North Korea* (Washington DC: American Enterprise Institute Press, 1999).

establishing a more auspicious business climate. There are many different aspects to accomplishing this—but all of them turn upon the intentions, behavior and resolve of the North Korean government. Regardless of everything else that may be entailed, improving North Korea's business climate is, first and last, the responsibility of North Korea's own presiding authorities. It cannot be attained without them—or by outsiders hoping to act in their stead.

Second, and scarcely less significant for a Western readership, is the fateful role that aid and economic transfers have played in facilitating the economic degradation of modern North Korea. For open societies with accountable governments, unlike Communist regimes and autocratic dictatorships, there is a moral component to this perverse dynamic that cannot be ignored by any would-be donors of aid or concessional resources. The stark and unavoidable truth is that all North Korea's international donors are in effect collaborators in the real existing political economy of the DPRK. The terrible question of what to do about the pity that is modern North Korea—the question of how outside governments can have a positive influence on this case study in economic failure—remains unanswered. And knowing what we do about North Korea today, it is a question that should haunt us all.

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