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Free Markets and National Defense: U.S. Import Dependence on China

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Abstract: *Americans buy a huge quantity of goods—ranging from audio-video equipment to clothing—made, or at least assembled, in China. The vast amounts involved raise the possibility of U.S. dependence on China. Heritage Foundation Asia economist Derek Scissors looked at the numbers and found that Chinese imports to the U.S. are concentrated in areas with little or no strategic value. This does not mean that dependence on China, or on other economic partners, is impossible. Dr. Scissors presents six principles to identify or rule out dependence and to guide policy in limiting or mitigating any future dependence. If the job is done right, Americans can enjoy free trade* and *national security.*

Systematic scrutiny of the huge volume of U.S. imports from the People's Republic of China (PRC) reveals no meaningful American dependence on China. For a large number of goods, China is indeed America's leading foreign supplier. When put in the context of total U.S.-based consumption, however, that weight lightens. More striking, imports from the PRC are concentrated in areas with little or no strategic value. To guard against future dependence, and to protect against uncertainty caused by inadequate data, there are reasonable steps that can be taken to fully protect America's defense capabilities.

Commitment to the free market and a strong national defense are almost always complementary. The ability to freely import materials, products, skills, and technology cuts costs and improves the quality of

Talking Points

- Despite the large volume of imports from China, the data show no dependence that threatens U.S. national security.
- When imports are compared to U.S.-based production, Chinese imports appear to be heavily concentrated in non-strategic areas.
- Inadequacies in existing U.S. government data mean that areas of import vulnerability may be missed. A prominent example is rare-earth minerals. These data flaws must be addressed.
- Where import dependence does exist, alternative supplies should be cultivated. If these are not available, stockpiling may be.
- If neither alternative supplies nor stockpiling is sufficient, only then should intervention in the economy for national security reasons be. Emphasis should be placed on preparing the way for crisis production, rather than starting production itself.

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defense. But the complementary relationship between free markets and strong defense is not so clear when considering American rivals, such as China.

A rival cannot be relied upon to keep markets open during a crisis, leaving the U.S. vulnerable to import shutdown, whether of finished products or materials and components in those products. Yet guarding against such an eventuality through protectionism is costly to the economy, among other things reducing purchasing power in defense spending. The ideal policy would achieve the benefits of open exchange with a rival while preparing for the possibility of import interruption.

Constructing such a policy is challenging. Globalization renders many traditional bilateral economic actions ineffective. The components and materials valuable to today's military and economy are difficult to track. These complications partly explain inadequacy in American government guidelines. In attempting to identify critical imports, the U.S. Department of Defense applies four standards: (1) scope of use, (2) manufacturing time, (3) production capability, and (4) a technology standard that is not meaningful.[1]

This paper offers more concrete criteria; they are made concrete by focusing on the huge volume of America's imports from China.

Parameters

In examining American vulnerability to Chinese import interruption, this paper offers guidelines that apply in principle to many aspects of the relationship between international economics and national security. Much more work must be done to present a full picture of the national security implications of open markets.

The conditions for import vulnerability are: (1) net imports of a particular asset (e.g., goods) are a substantial portion of American consumption, and (2) these imports can be reasonably deemed at risk, either for stemming from an unreliable source or due to vulnerability in supply lines.

The first condition can be quantified for any definition of "substantial," thus revealing items regarding which the U.S. is potentially vulnerable. It is the second condition that determines whether the vulnerability is potentially damaging to national security.

In particular, exchange with a U.S. partner could be blocked by a third party. This involves military or diplomatic scenarios beyond this study. Alternately, a rival could simply choose to halt bilateral exchange with the U.S. In light of its economic size and competing strategic goals, the consequences of such a choice by the PRC is especially salient.

Eliminating all possible vulnerability is not only impractical, it is self-defeating, as America's defense capability benefits from economic partnerships. That the U.S. and China are modern, globalized economies makes it a major challenge to protect American national security while ensuring open economic exchange. Sino–American commerce includes not only goods, but services, capital, people, and information.

Services imports from the PRC were less than $9 billion in 2009 and content appears almost trivial.[2] In general, American imports of services are relatively small. The supposed dependence of the U.S. on Chinese financing of the federal deficit has been exaggerated. While the deficit itself harms the American economy, the inflow of Chinese capital is fairly minor,[3] and crisis provisions would be easily managed. At this point, periodic monitoring is sufficient and has been recently approved by the Senate.[4] Chinese non-bond investment is equivalent to less than 0.2 percent of American gross domestic

1. Defense Acquisition University, "Defense Acquisition Guidebook," February 19, 2010, at *http://www.ndia.org/Advocacy/LegislativeandFederalIssuesUpdate/Documents/March2010/Defense_Acqauisition_Guidebook_3-10.pdf* (September 2, 2010).
2. U.S. Department of Commerce, Bureau of Economic Analysis, "Table 12. U.S. International Transactions, by Area–China," June 17, 2010, at *http://www.bea.gov/international/bp_web/simple.cfm?anon=71&table_id=10&area_id=35* (September 2, 2010).
3. Derek Scissors, "10 China Myths for a New Decade," Heritage Foundation *Backgrounder* No. 2366, January 28, 2010, at *http://www.heritage.org/Research/Reports/2010/01/10-China-Myths-for-the-New-Decade*.
4. "Senate Seeks Regular Reports on Debt Risks," Reuters, June 9, 2010, at *http://www.news90.com/politics/senate-seeks-regular-reports-on-debt-risks/3977* (September 2, 2010).

product (GDP) and is concentrated in financial assets that have no bearing on national security.[5]

Movement of people and information—embodying both research and technology—is potentially vital. Is the U.S. able to design and build needed products if foreign nationals or technology are not available, specifically Chinese nationals and technology? While not an immediate concern, the American education system's future capacity to train sufficient scientists and engineers has been called into doubt.[6] Foreign cooperation in providing personnel, research, or technology may eventually be vital to U.S. defense. Rectifying U.S. weaknesses in personnel, especially, could require as long as two decades and inadequacies must be identified and remedies initiated far in advance.

This paper is restricted to imports of goods, though the principles outlined below apply in large part to two-way exchanges of services, capital, people, and information as well.

Policy Principles

Retention of the advantages of open economic relationships and protection against import interruption can be achieved through a set of policy principles. For some types of economic exchanges, data are sharply limited. For goods imported from China, though, data are comparatively useful and valuable work can be done at the aggregate level. It is possible to start with essentially all transactions and try to identify the full range of goods whose availability might be jeopardized in a crisis.

Principle #1: Identify key foreign suppliers.

If there is no key foreign supplier, overall import vulnerability is less likely and less risky. Action by a third party to halt U.S. exchange with a trading partner becomes less plausible and bilateral interruptions are not as threatening.

The six-digit North American Industry Classification System (NAICS) is publicly available and offers 454 meaningful categories for bilateral trade data from soybeans to second-hand merchandise.[7] The NAICS permits determination of the shares of foreign suppliers for each of these categories. An import share of one-third can be used to represent a "substantial" portion of imports from one national source, in this case China. The one-third level is arbitrary but the analysis can easily be repeated at one-fourth, one-half, or any other level.

In 2009, the U.S. was a net importer and China held at least a one-third share of those imports for 91 NAICS categories (or one-fifth of the total number of categories). The hefty figure reflects the size and breadth of bilateral trade and the value of examining vulnerability to import interruption. These 91 categories accounted for almost three-fourths of total imports from China. It is highly unlikely that any dangerous American dependence on Chinese goods is missed by considering only these categories.

The 91 categories can be broken into the following five groups. By number of categories, clothing and textiles is largest, by value electronics is largest.

Clothing and textiles. For example, "men's and boy's neckwear" accounts for 29 categories and $50 billion in imports.

Electronics. For example, "audio and video equipment" accounts for 11 categories and $99 billion in imports.

5. Derek Scissors, "China Global Investment Tracker: 2010," Heritage Foundation *White Paper*, July 7, 2010, at *http://www.heritage.org/research/reports/2010/02/china%20global%20investment%20tracker%202010*.
6. William A. Wulf, "The Importance of Foreign-Born Scientists and Engineers to the Security of the United States," testimony before the Subcommittee on Immigration, Border Security, and Claims, Committee on the Judiciary, U.S. House of Representatives, September 15, 2005, a*thttp://www7.nationalacademies.org/ocga/testimony/Importance_of_Foreign_Scientists_and_Engineers_to_US.asp* (September 2, 2010), and "National Defense Education and Innovation Initiative: Meeting America's Economic and Security Challenges in the 21st Century," Association of American Universities, January 2006, at *http://www.aau.edu/reports/NDEII.pdf* (September 2, 2010).
7. U.S. Census Bureau, "International Trade Statistics: NAICS, *U.S.*," at *http://censtats.census.gov/naic3_6/naics3_6.shtml* (September 2, 2010). (Throughout the paper, the need for better economic data is plain. This includes more detailed category breakdowns but also data that is released in a timely fashion and can be cited freely.)

Home and office. For example, "plumbing fixtures" accounts for 27 categories and $34 billion in imports.

Materials. For example, "miscellaneous wood products" accounts for 14 categories and $15 billion in imports.

Miscellaneous. For example, "games and toys" accounts for 10 categories and $30 billion in imports.

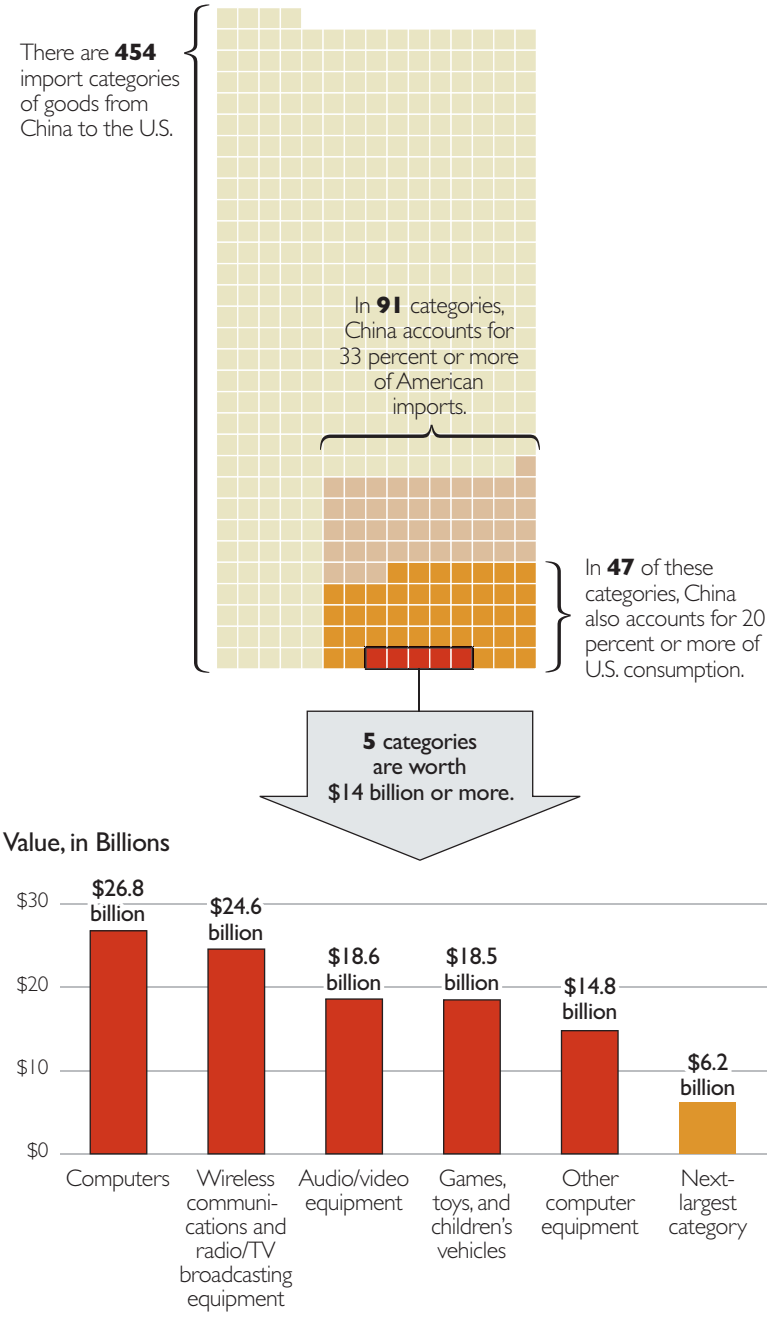
Principle #2: Determine if imports from one supplier are substantial in consumption.

If there is no single large foreign supplier, it will be difficult for an enemy to turn American vulnerability to its advantage. But even if a hefty portion of American imports can be halted by one country, this will not matter if most domestic use is met by domestic production. It is necessary to compare import volumes to internal output, along the lines of the Defense Department's "production capability" guideline.

Unfortunately, available trade and production data are not fully comparable—the categories used are similar but not the same. One basic task, therefore, is to create a statistical system that permits direct and exact calculation of how important imports are for American consumption.

For the moment, the Bureau of Economic Analysis "Input–Output tables" have their own categories for industrial production of goods, from oilseed farming to rubber and plastic hoses, as well as a guide on to how these relate, roughly, to NAICS data. Estimates can therefore be generated of the share of imports from China in total U.S. consumption of any particular good.[8] These estimates are definitely not precise and some incorrect

Sharpening the Focus on U.S.–China Trade



Sources: U.S. Census Bureau, "U.S. International Trade Statistics," at *http://censtats.census.gov/naic3_6/naics3_6.shtml* (July 30, 2010); and Bureau of Economic Analysis, "Gross Domestic Product (GDP) by Industry Data, 1998 to 2009," at *http://www.bea.gov/industry/xls/GDPbyInd_GO_NAICS_1998-2008.xls* (July 30, 2010).

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inclusions and exclusions are almost certain. However, the tentative results are striking.

For the sake of caution concerning national security, and to try to compensate for the mismatch in the data, a relatively low share is used to represent "substantial." The 91 categories in which China has at least a 33 percent import share are screened for Chinese goods accounting for at least 20 percent of American consumption.

Clothing and textiles. Retains 26 of 29 categories.

Electronics. Retains four of 11 categories.

Home and office. Retains 15 of 27 categories.

Materials. No materials imports meet the 20 percent dependence criteria.

Miscellaneous. Retains two of 10 categories.

The number of import categories now falls to 47, versus the total of 454. More important, there is a clear pattern in what is eliminated: the groupings with more categories are more important when U.S. production is considered. China's size makes it a major supplier of a great many goods, but trade with the U.S. is nonetheless concentrated. The 33 percent share of imports and the 20 percent share of total American consumption should reveal even modest dependence. Using the number of categories, almost 90 percent of the American economy is not vulnerable to Chinese import interruption at all.

Principle #3: Evaluate any areas of dependence for national security implications.

A full assessment of the role of a good, or any asset, in defense production can be subtle or obvious, but complicated either way. On the surface, it appears as if the electronics group is a likely point of import vulnerability to the PRC. For clothing and textiles, home and office, and the miscellaneous group, an import interruption would appear to be only a matter of inconvenience.

Electronics does immediately stand out. At a weighty $83 billion, the four remaining electronics categories alone account for 27 percent of American imports from the PRC. In addition to the money, the categories—computers, computer equipment, broadcasting and wireless communications equipment, and audio-video equipment—include a flock of potential dual-use goods in the era of high-technology combat.

Electronics at the Core

NAICS Code	Description	China's Share of U.S. Imports	China's Share of U.S. Demand	Import Volume
334111	Computers	70.6%	31%	$26.8 billion
334119	Other computer equipment	61.2%	39%	$14.8 billion
334220	Wireless, TV, and radio equipment	37.9%	24%	$24.6 billion
334310	Audio/video equipment	44.0%	38%	$18.6 billion

Sources: U.S. Census Bureau, "U.S. International Trade Statistics," at *http://censtats.census.gov/naic3_6/naics3_6.shtml* (July 30, 2010); and Bureau of Economic Analysis, "Gross Domestic Product (GDP) by Industry Data, 1998 to 2009," at *http://www.bea.gov/industry/xls/GDPbyInd_GO_NAICS_1998-2008.xls* (July 30, 2010).

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While dollar value is a good representation of long-term economic benefit, it is not necessarily a good representation of vulnerability. Apparent American import dependence on China is overstated for some goods, particularly electronics. It is now well understood that the PRC is, for the moment at least, primarily an assembly point for these and some other items in the global supply chain. Components needed for advanced electronics, such as those that would be used by the military, are crafted in the U.S. or by allies such as South

8. U.S. Department of Commerce, Bureau of Economic Analysis, "Gross Domestic Product (GDP) by Industry Data, 1998 to 2009," at *http://www.bea.gov/industry/xls/GDPbyInd_GO_NAICS_1998-2008.xls* (September 2, 2010). For a single country, the ratio used is: gross country imports / (domestic production + total gross imports). Exports are included in domestic production.

Korea.[9] Of course, this observation does not establish American assembly or manufacturing capacity. Nor does it rule out sharp security threats from the global supply chain for advanced equipment. It does indicate that U.S. production does not depend on China for advanced components.

Beyond electronics, the other groups appear almost trivial. Clothing and textiles include such categories as luggage and house slippers. Home and office includes "household cooking appliances" and "brooms, brushes, and mops." The miscellaneous category now consists of "games and toys" and "sporting and athletic goods." It would therefore seem to be the end of the line for any possible American economic vulnerability to the PRC.

But it almost goes without saying that apparent import dependence on the PRC is also understated for some goods. First, the importance of items in military production is not always apparent, due to the integrated nature of equipment production. Primary products and unfinished goods from China are used by third countries, which then ship finished goods to the U.S. In this way, dependence on Chinese production may be missed.

Second, some finished goods have subtle value. For instance, "power-driven hand tools" from the home and office group have no clearly vital use, but severe shortage may conceivably slow the manufacture of equipment which is then used for the military. Sixty percent of power-driven hand-tool imports are Chinese and roughly 40 percent of Americans' use of power-driven hand tools is met by Chinese imports.

Third, flaws in available data mean that important items can be obscured in larger categories. This could occur because the trade data are not specific enough to monitor what have become important materials or components, or due to the mismatch between trade and production data. In either case, goods where American defense needs are vulnerable to import interruption may be buried within larger categories.

One high-profile example is rare earth minerals. The trade data reveal mild vulnerability to interruption of Chinese imports in the "ground or treated mineral or earth" category, which itself understates the situation. The simple dollar amounts are negligible. The production data seem to indicate no vulnerability at all.

Yet rare earths are crucial for the production of core defense equipment, China is the leading global producer, it is trying to restrict its exports, and supply security is being investigated by the Defense Department.[10] Rare earths should plainly not be dismissed as easily as aggregate trade data indicate. There are other known examples, such as within micro-electronics, and the flawed data may be obscuring further areas of vulnerability.

It is worth emphasizing that this is not a problem limited to the PRC. Though China is largely an assembly point for electronics, it may be that the U.S. depends on foreign suppliers outside China for advanced components.[11] The extent of American reliance on other partners can be determined in the same manner as reliance on Chinese goods. America's top trade partners other than China are Canada, Mexico, Japan, and Germany. The main components of our imports from Canada, Japan, and Germany are autos, as well as energy and other commodities from Canada.

Mexico exports energy and autos to the U.S., as well as a mix of advanced electronics—computers, audio-video equipment, and so on. Most likely, Mexico serves the same assembly role as China. This

9. Robert Koopman, Zhi Wang, and Shang-Jin Wei, "How Much of Chinese Exports is Really Made in China? Assessing Domestic Value-Added When Processing Trade is Pervasive," National Bureau of Economic Research *Working Paper* No. 14109, June 2008, at *http://www.nber.org/papers/w14109* (September 3, 2010).
10. John T. Bennett, "Bill Calls for Establishment of First U.S. Rare Earth Minerals Stockpile," *Defense News*, March 18, 2010, at *http://www.defensenews.com/story.php?i=4545073* (September 7, 2010), and Cahal Milmo, "Concern as China Clamps Down on Rare Earth Exports," *The Independent*, January 2, 2010, at *http://www.independent.co.uk/news/world/asia/concern-as-china-clamps-down-on-rare-earth-exports-1855387.html* (September 7, 2010).
11. U.S. Department of Defense, "Defense Science Board Task Force on High Performance Microchip Supply," February 2005, at *http://www.acq.osd.mil/dsb/reports/ADA435563.pdf* (September 7, 2010).

indicates the U.S. is even more import-dependent in these areas than suggested by the China data. But imports from Mexico are not subject to anything like the risk for trade with China, for political, security, and geostrategic reasons. In fact, Mexico is a valuable alternate supplier should there be a Chinese import shutdown.[12]

Applying the first two principles demonstrates conclusively that the huge Sino–American trade relationship does not translate into American dependence. But that analysis is not complete. The Department of Commerce and allied agencies should provide more specific and fully compatible trade and production statistics. It would be valuable if these statistics were also freely available in a frequent and timely fashion to avoid belated discovery of potential vulnerability, as has recently occurred with rare earths.

Similarly, Defense Department procurement should be examined not only for finished goods and raw materials, but for intermediate goods and production equipment that may be largely imported from the PRC. This would involve other federal government arms and, critically, private-sector suppliers. The identification of points of vulnerability in procurement can be guided by the principles outlined in this paper, but the search itself must be broadened.

Principle #4: Identify and cultivate alternate supplies.

There are no cases where the U.S. is meaningfully dependent on China, despite vast goods imports. Nonetheless, there are almost surely instances where action to mitigate dependence should be considered—obscured goods from China, such as rare earths, oil from other partners, future technology imports, and so on. If an unreliable foreign supplier meets substantial American consumption of a strategic item, the next question is whether there are alternatives, either from the U.S. or from reliable foreign sources.

The first challenge in this case is timing. As in the Defense Department's existing "manufacturing time" guideline, supply must be available when needed. This generally rules out creation of new capacity, leaving existing supply that can be diverted in a crisis and the few cases where new supply can be rapidly created, for instance from unused capacity. Market economies do not typically maintain unused capacity and one goal of this paper is to start to determine whether there are sectors in which unused capacity should be maintained for national security.

The second challenge is the combination of quantity and quality. The scale of possible American defense needs means a consumption gap might be difficult for alternative supplies to fill. The crisis will probably also create shortages for third parties, which will then compete for available supply. Complementing that difficulty, the number of suppliers will be limited to those able to provide adequate quality for military-related use.

Demand competition links to the third challenge, price. Prices will rise during a crisis, but the U.S. can presently afford any conceivable replacement supply. Instead, price is a consideration in comparing alternative actions to try to mitigate trade dependence. The cost of paying for alternate supplies is important in assessing the desirability of stockpiling or investing in commercially unviable capacity before a crisis.

Ensuring alternative supplies may be difficult. In the case of China, the analysis has narrowed American vulnerability to a few items for which it is not clear that alternate supplies are even required. Perhaps the principal candidate for American dependence on China is computer imports. As noted, quantity has a quality all its own—the size of these imports makes (timely) replacement difficult. The same is true for communication and audio-visual equipment. Yet this is still not especially worrisome.

The PRC is an assembly point for mass computer production using low-end processors.[13] More capa-

12. A full analysis of other American trade partners requires a separate study. Perhaps more important, if the available data are insufficiently detailed, the broader analysis will still be inconclusive. Dependence on other suppliers for some advanced components could be obscured by categories that are too broad or focused on finished goods.
13. David Barboza, "Some Assembly Needed: China as Asia Factory," *The New York Times*, February 9, 2006, at *http://www.nytimes.com/2006/02/09/business/worldbusiness/09asia.html?_r=1&pagewanted=all* (September 7, 2010).

ble machines used for defense needs are not routed through China. For the assembly operations, trade data suggest Mexico as an alternative. A step beyond computers, the interruption of the global supply chain for mass-use electronics is merely an inconvenience, similar to loss of cheap, plentiful textiles and household appliances.

The need for and availability of alternate supplies varies wildly with time and the item in question. Again, power-driven hand tools are not critical in themselves but representative of items whose absence in a crisis could slow military-related production. American dependence on China in hand tools and the like could be addressed either by lowering any U.S. trade barriers or by seeking trade-expansion agreements with third countries that lower foreign barriers. The latter would increase incentives to create American production capacity.

At the far end of the spectrum, any dependence on Chinese rare earths cannot presently be solved with alternate supplies, neither quickly ramped up in the U.S. nor from other foreign sources. A planned mine reopening in the U.S. will take years to yield refined ore. Before that, Australian suppliers may be able to make a considerable contribution.[14]

Where Principles #1–#3 show American dependence, the Departments of Defense, Commerce, Energy, and other agencies should sponsor the corresponding private-sector assessment of timing, quantity and quality, and price of alternate supplies from domestic and foreign sources. It may also be worthwhile to try to cultivate sources of supply through trade policy.

Any new trade policy must not be self-defeating. The point of identifying economic vulnerabilities is to ensure defense capabilities. Raising trade barriers against goods that the U.S. military needs will increase defense costs and offset any gain from reduced dependence. By contrast, expanding trade in order to diversify sources of needed defense assets will reduce dependence and increase defense purchasing power by increasing supply competition. Both of these effects bolster national security.

The supply search extends beyond goods. At present, American use of foreign services and technology is narrow. That is beginning to change, though, and defense cooperation should include cultivation of alternative sources of services and technology.

In all cases, alternate foreign partners must be deemed reliable in a crisis and the timing and quantity and quality of supply must be assured. In terms of price, the idea is to seek some form of alternative supply which is cheaper, on a comprehensive basis, than building additional, unused capacity in the U.S. It may not prove worthwhile to alter trade policy but the need for supply diversification, as evaluated by the Defense Department, should be weighed against the feasibility and desirability of the trade policy changes, as evaluated by the Department of Commerce and the United States Trade Representative.

Principle #5: When supply diversification is unsatisfactory, evaluate stockpiling.

The Defense Department has a national stockpile holding more than 60 commodities in more than 70 depots worldwide. In light of criticism that the wrong materials were being held, the National Academy of Sciences and National Academy of Engineering submitted a report to Congress in April 2009 that proposed to update the stockpile in light of modern military technology and economic globalization.[15] The update proposal brings the stockpile into the 21st century, but more updates are needed.

The report addresses the problem of outdated stockpiles, but offers no long-term guidelines; rather, old materials are merely replaced with newer ones. The pace of technological modernization

14. Patrick Thibodeau, "China's Control of Rare Metals Threatens Jobs, Tech," *Computerworld*, March 17, 2010, at *http://www.computerworld.com/s/article/9172418/China_s_control_of_rare_metals_threatens_jobs_tech* (September 7, 2010); Keith Bradsher, "Challenging China in Rare Earth Mining," *The New York Times*, April 21, 2010, at *http://www.nytimes.com/2010/04/22/business/energy-environment/22rare.html* (September 7, 2010); and "Rare Earth Oxides are Widely Seen as Being the Rate Limiting Step for the 21st Century's Electron-Economy," AustralianRareEarths.com, 2009, at *http://www.australianrareearths.com/current-issues.html* (September 7, 2010).

means the updated composition will itself start to become obsolete within a few years. Data on trade and production, along with military consumption, must be consulted on an ongoing basis to identify evolving trends in use and possible American dependence.[16]

Beyond the recent report, the stockpile consists almost entirely of minerals, with only a few processed materials and no semi-finished or finished products. This presumes that the U.S. will always have the needed processing and manufacturing capability during a crisis, which almost surely will not be true indefinitely for all goods. Goods other than raw materials must be evaluated to determine whether import dependence indicates that stockpiling is needed and feasible.

The notion of stockpiling can even be extended beyond goods. As long as the dollar is clearly the world's reserve currency, there is no need to stockpile money in any form.

It is difficult to imagine stockpiling services or technology, but "stockpiling" the people who provide the services and technology is another matter. There is established concern about the supply of highly skilled labor being inadequate for American economic prosperity. There is also a security dimension where highly skilled labor can, during a crisis, help substitute for goods, services, and technology. Implementation of this form of stockpiling could be as simple as identifying a dependence on a single country's services or research in a specific field. Visa and immigration programs could target skilled labor in that field.

There may be circumstances where stockpiling is feasible but unwise. If supply is restricted such that stockpiling is prohibitively costly, that removes one of the main reasons for stockpiling. To truly avoid high spot prices, stockpiles must be built with purchases made at market prices. If there is a danger of supply being shut off entirely, even non-market stockpiling may be required, of course.

Finally, it is useful to determine when stockpiling simply cannot occur. The principles in this paper indicate when stockpiling is needed, but for some items stockpiling is effectively impossible. Among goods imports from China, computers cannot be meaningfully stockpiled, due to rapid obsolescence. Similarly, patents and other forms of knowledge cannot be stockpiled, though the human creators can be, to some extent.

Principle #6: Any remaining dependence calls for market intervention to protect national security.

Stockpiling introduces the idea of measures that may be very costly but necessary. An unreliable foreign supplier can meet a substantial portion of U.S. consumption of an asset that is militarily important and for which cultivating alternate supplies or stockpiling may be inadequate. In this case, harm to national security can be reduced by government action to boost American capacity, even though the action is expensive and may distort the economy. Fortunately, despite the huge volume of imports from China, analysis of trade data shows that no such intervention is necessary.

That may change in the future with respect to goods from China, another partner, or for another type of asset. If so, government intervention should be as unobtrusive as possible. Existing U.S. industrial plant could be modified to partly replace imports during a crisis. Education programs and workforce training could be tilted toward particular areas. Research priorities could expand to encompass areas of American dependence.

Such programs may prove to be inadequate, however, and outright creation of new supply of

15. "US Defense Stockpile Is 'Ineffective,' According to Report," ScienceDaily, October 7, 2007, at *http://www.sciencedaily.com/releases/2007/10/071005121908.htm* (September 7, 2010), and U.S. Department of Defense, Defense Logistics Agency, Defense National Stockpile Center, "Reconfiguration of the National Defense Stockpile (NDS) Report to Congress," April 2009, at *https://www.dnsc.dla.mil/pdf/NDSReconfigurationReporttoCongress.pdf* (September 7, 2010).
16. This assessment is similar in nature to the one by the Defense Science Board with regard to broader industrial base management. See Report of the Defense Science Board Task Force on Defense Industrial Structure for Transformation, "Creating an Effective National Security Industrial Base for the 21st Century: An Action Plan to Address the Coming Crisis," U.S. Department of Defense, July 2008, at *http://www.acq.osd.mil/dsb/reports/ADA485198.pdf* (September 7, 2010).

goods, skilled labor, or other assets could be required. This would involve multiple steps: Regulatory changes would need to accompany pre-crisis actions as well as enable necessary crisis actions. Infrastructure may need to be created in advance, even if there is no pre-crisis production of vulnerable assets.

Rare earths are an illuminating example. The low prices provided by imports from China have benefitted American national security in the short term. But even if China's present effort to restrict peacetime exports fails, the U.S. must have recourse in a crisis. Creating an alternative supply will not be easy. It will take years to win all regulatory clearances, develop a rare-earth mine, and build processing capacity. Until recently, government regulations aimed at environmental protection have inhibited domestic rare-earth exploration.[17]

Less drastic measures may be necessary in advanced electronics. There is no identified American dependence, but China's role as an assembly point could be used to compromise specific equipment. The supply of certain advanced electronics must be fully secure and adequate in quantity for the U.S. military and sensitive areas of government.

In contrast to market intervention motivated by protectionism, domestic production is the last resort in intervention for national security. In modern militaries, production for defense needs is very costly and may thus harm national security on a net basis. The output itself is not vital except in a crisis. However, a certain few production lines, including research, impart skills to participants that may not be generated or preserved without employment opportunities. Limited and very specific government action may be needed at some point to create or maintain production of a particular defense asset.

Determining how best to create required domestic capacity should be done jointly by the federal government and the relevant private actors. The Defense Department's office of Industrial Policy can coordinate among these, but the needed expertise goes far beyond the office, or even the department as a whole.[18] The principles set forth here will greatly narrow the scope of discussion by indicating areas for which there is no dependence. But, if called for, reducing dependence by intervening in the economy would remain a complex and difficult task.

What the American Government Should Do

There is at present no reason to restrict any Chinese goods imports on the basis of American dependence.[19] Nonetheless, evaluating and potentially responding to American dependence on an unreliable foreign supplier, such as China, will require ongoing multi-agency coordination and an equal partnership with the private sector. The determination of any dependence will primarily involve the federal government, but crafting and implementing a good solution must be led by the private sector, or the cure for dependence may turn out to be more costly than the disease.

1. **Better information comes first.** The Department of Commerce should generate data on trade and production that is fully compatible both in nature and timing, which presently is not the case. This applies to all trade data, not just for China. Greater compatibility by itself will enable a better assessment of any American dependence on foreign goods imports.

   To the extent possible, the Commerce Department should refine the categories for import and production measurements so that evaluations of dependence on foreign components and equipment can be more direct and accurate. This

17. For example, the Omnibus Public Land Management Act of 2009, S. 22, 111th Congress, at *http://www.govtrack.us/congress/bill.xpd?bill=s111-22* (September 7, 2010). Of course, it has been belatedly discovered that rare-earth minerals are vital in production of much environmentally friendly equipment. There are also charges that Chinese rare-earth producers have engaged in predatory pricing. Predatory pricing is only sensible if there are barriers that keep new entrants out. In this case, the barriers are time and U.S. environmental regulations.
18. U.S. Department of Defense, A Directorate of the Office of the Assistant Secretary of Defense for Acquisition, "Industrial Policy: Welcome Message," March 15, 2010, at *http://www.acq.osd.mil/ip/* (September 7, 2010).
19. Protectionists argue that unrestricted imports harm the economy. This issue is beyond the scope of this paper, which is focused on defense needs in the event that imports are interrupted.

refinement would modify an established and multilateral system of classification but, like the materials stockpile, the classification system is outmoded. Publicly available U.S. data, at least, do not provide the information needed to track globalized production of modern military equipment. The gap between what the data can show and the knowledge required for national security assessments will continue to widen.

2. **If dependence is discovered for a strategic good or asset, alternative supplies should be sought.** This is especially important in the case of China, given the extent of imports from the PRC and the bilateral geopolitical rivalry.

   The Departments of Defense and Commerce should work with the relevant private-sector companies to analyze alternative sources in terms of timing, quantity and quality, and price. Such efforts are currently being made but need to be expanded in light of globalization. The pursuit of these alternative supplies may suggest policy changes whose implications must by weighed by the Departments of Defense and Commerce, the U.S. Trade Representative, and other agencies.

3. **If alternative supplies are unsatisfactory, stockpiles should be created or augmented.** The current Defense Department stockpile upgrade is helpful but inadequate. Criteria for the stockpile must be updated on a continuous basis, in keeping with progression in military technology and resource requirements. Rare earths provide clear motivation.

   In addition, the possibility of stockpiling other assets beyond minerals should be considered by Defense in concert with other agencies and the private sector. Whenever possible, stockpiled items must be acquired at market prices.

4. If outright government intervention is necessary to mitigate dependence on China or another foreign supplier, **the Defense Department and other agencies should join with the private sector to choose the least intrusive interventions**, such as modifications of existing facilities and programs. More decisive action may be necessary due to long lead times for some assets or the presence of other threats to national security, such as compromise of specific equipment.

5. Finally, **examinations of dependence should be extended beyond China and simple goods imports.** The point of emphasis in this extension, as it will require years to fulfill, should be to try to identify future needs for highly skilled labor and construct education programs accordingly. This will require federal, local, and private participation.

Conclusion

Despite the impressive volume of imports from China, the data show no dependence that would threaten national security in a crisis. A notable qualifier to this conclusion is low data quality. Available data are insufficiently specific and partly incompatible, which may perhaps obscure instances of American dependence.

Moreover, this paper covers only goods imports from China. While these have drawn attention as a possible national security issue, Chinese goods imports are only one piece of a large puzzle. There currently is no U.S. dependence on flows of services, capital, people, and information from China, either, but the dimensions and magnitude of the bilateral economic relationship mean it bears watching. And there are certainly other economic partners now and in the future who might be deemed unreliable in a crisis.

While it is important to evaluate American dependence more systematically, any findings of dependence should still be treated carefully. Alternate supplies should be cultivated and the feasibility of stockpiling assessed. Direct government action to mitigate dependence and enhance military capability in a crisis should be a last resort. Such action will be costly, reduce incentives for innovation, and typically have unanticipated consequences that could rebound, harming national security. The principles in this paper serve to ensure that costly actions to reduce dependence only occur when absolutely necessary.

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