



Engaging China and India: An Economic Agenda for Japan and the United States

A BINATIONAL STUDY GROUP REPORT

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JEF

Japan Economic Foundation

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Foreword

China and India have catapulted onto the world stage. In contrast to the Cold War years when they largely sat on the sidelines, Asia's emerging twin giants are now transforming the international economy in fundamental ways. Their burgeoning economies are shifting global markets, reshaping trade and investment patterns, and directly affecting the planet's environment. While this development has lifted hundreds of millions out of poverty, it has also raised concerns about the potential economic and political dislocations in other countries. China's and India's imprint will become all the deeper in the years ahead as both evolve into centers of technological innovation and scientific excellence. China's and India's rise has already sparked adverse reactions in the two countries that currently sit atop the world's economic hierarchy: the United States and Japan.

Recognizing the immense challenges—and enormous opportunities—posed by the economic ascent of China and India, our three organizations convened this Binational Study Group of American and Japanese leaders and experts to forge a common understanding of how the two nations should respond. This report is the product of a year-long series of meetings and exchanges among the Study Group participants. It makes an especially timely and important contribution to policy debates now under way in Japan and the United States by arguing that the continued economic success of our countries is closely linked to the sustained growth of China and India.

The report recommends that the United States and Japan must actively engage China and India as they continue their economic development and ensure that the emergence of these two powers is not viewed in Japan and the United States as a zero-sum game. This will require strong leadership. Our countries must focus on the real opportunities for all four nations to grow and prosper through mutually beneficial partnerships. Indeed, the real danger ahead is not that China and India will someday surge ahead of the United States and Japan, but that they may falter in their progress, potentially destabilizing Asia and threatening the international trading system.

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completion of this report. We are particularly fortunate to have had such strong leadership from Kenneth W. Dam as one of the Study Group cochairs. The Chicago Council and the Pacific Council also extend their tremendous gratitude to Noboru Hatakeyama for his leadership in serving alongside Kenneth Dam as cochair. Their commitment of time, knowledge, and willingness to put forth extra effort led to productive discussions and forged consensus on key points.

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We are grateful for the involvement of Michael Moskow, president and CEO of the Federal Reserve Bank of Chicago, and Janet Yellen, president and CEO of the Federal Reserve Bank of San Francisco, who were active participants in the Study Group meetings but were not members and are not signers of the report. The views expressed in this report do not necessarily represent the views of the Federal Reserve Banks of Chicago or San Francisco or any other part of the Federal Reserve System. Moreover, Dr. Moskow and Dr. Yellen express no opinion or endorsement of the final report's recommendations.

We are also grateful to Mr. Kazumasa Iwata, deputy governor of Bank of Japan, and Mr. Masakazu Toyoda, director-general of the Commerce and Information Policy Bureau of the Ministry of Economy, Trade, and Industry, for speaking at dinners of the Tokyo meeting. In particular, we would like to thank His Excellency Mr. Yasuhisa Shiozaki, senior vice minister for foreign affairs, for the generous time he dedicated to our meeting despite his very tight schedule. (Mr. Iwata, Mr. Toyoda, and Mr. Shiozaki were not members of the Study Group and are not signers of the report).

The Study Group meetings in California and Chicago, held September 20-22, 2005, and in Tokyo, held July 6-10, 2006, were enhanced by the insights provided by outside participants who made presentations and joined the discussions on a wide range of topics.

We are especially grateful to David and Lyric Hughes Hale and Joydeep Mukherji for the insightful papers they presented in Chicago and to Mikal Herberg for writing and presenting his paper for the Tokyo meetings and for his close readings of and comments on the many drafts of the report. Thanks also to Amy Searight and Michael

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We are grateful for the time and valuable insights provided by the following people who participated as guest speakers and discussants in the Study Group meetings held in California, Chicago, and Tokyo:

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Speakers

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Discussants

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Executive Summary

The economic rise of the world's two most populous countries, China and India, will be a defining feature of the twenty-first century. Japan and the United States must resist the temptation to view the emergence of these two economic powers as a zero-sum game, potentially creating new geopolitical rivalries. Instead, Japan and the United States should strengthen their economic engagement with China and India to create long-term partnerships for peace and prosperity that will benefit the whole world.

This report by a binational team of American and Japanese academic, business, and government leaders makes specific recommendations about how Japan and the United States can work together to develop new initiatives with China and India in trade and capital flows, technology and innovation, and energy and the environment.

Evaluating the Economic Trajectories of China and India

Chinese annual economic growth has averaged almost 10 percent for the past twenty-five years. India's boom began more than a decade later, with average annual growth rates of 6 percent since. Some analysts project that China will pass Japan in a decade to become the world's second largest economy. Others forecast that the Chinese and Indian economies will be the two largest in the world by around 2050, surpassing even the United States.

Nevertheless, these developing giants face very real challenges to robust and sustainable development. Chinese growth is currently driven by very high levels of government investment in infrastructure. In marked contrast, private capital markets are underdeveloped, contracts are hard to enforce, and the banking system is shackled by nonperforming loans. Growth in demand comes more from exports than domestic consumption. Inequality is high and rising between urban and rural areas, between coastal China and the interior provinces, and between those participating in the global economy and those who are not.

India's economy is less export dependent and has better debt and equity markets. The Indian economy, however, faces its own challenges. Chronic, large, public-sector deficits divert government funds from much-needed public investment in roads, railways, ports, electricity, education, and health care. Bureaucratic inefficiencies constrain entrepreneurship. Just like in China, large gaps between

the rich and poor, urban and rural areas, and India's booming southern cities and the north of the country create concern about social unrest and political instability.

Japan and the United States should work with China and India to help them deal with these challenges, while also adjusting policies at home to ensure that we enjoy the full benefits of this economic engagement.

RECOMMENDATIONS:

- 1.1 Japan and the United States should provide technical assistance to help China strengthen domestic financial markets, the rule of law, and social security systems.
- 1.2 Japan and the United States should increase loans and aid to India for physical infrastructure, schools, and health care and encourage India to address its fiscal and structural problems.

Reducing Global Economic Imbalances

The U.S. bilateral trade deficit with China, which ballooned to \$194 billion in 2005, is by far the largest bilateral deficit in history. The United States is also running a trade deficit of over \$800 billion with the rest of the world. While these imbalances are currently being offset by the willingness of foreigners to buy U.S. assets, the China-U.S. imbalances threaten to destabilize the global economy and cannot be sustained.

The United States cannot continue indefinitely to import more than it exports, spend more than it earns, and borrow internationally to make up the difference. China cannot indefinitely rely on ever-greater trade surpluses to absorb the output of its rapidly expanding factories. Some financial bears worry that if both China and the United States break these patterns by cutting back on spending (on investment in China; on consumption in the United States) at the same time, the result could be a return of early 1980s-style, worldwide "stagflation" (stagnant economic growth plus inflation). The prospect of such dire outcomes, however, can be mitigated by coordinated policies among the world's major economies. This report calls for China to increase domestic economic activity through financial reform and for the United States and Japan to support infrastructure investments in India. But further American and Japanese action is warranted.

RECOMMENDATIONS:

- 2.1 The United States should increase national saving, first by reducing the size of the federal budget deficit.
- 2.2 Japan should boost personal consumption by reassuring workers and citizens that pension, health, and unemployment insurance programs are fiscally sound.
- 2.3 Japan and the United States should work to increase the involvement of China and India in the deliberations of multilateral economic organizations such as the G-8 and IMF to facilitate the coordination of macroeconomic policies to sustain global growth.

Promoting Free Trade throughout the Asia-Pacific

Japan and the United States have tried to maintain the momentum for freer international trade despite the stalling of trade negotiations in the WTO's Doha Round. Japan has enacted free trade agreements (FTAs) with Singapore, Mexico, and Malaysia. The United States has FTAs with Singapore and Australia in addition to NAFTA and has begun talks with South Korea and Thailand.

Regional economic integration is also being advanced through ASEAN Plus Three (the ten countries of the Association of South East Asian Nations plus China, Japan, and South Korea), which facilitated the signing of the ASEAN-China free trade agreement in goods. In 2005 this group was expanded to include India, Australia, and New Zealand in the new East Asia Summit with the lofty ambition of creating an "East Asian Community" along European Union lines.

The flurry of bilateral and regional activity in Asia may strengthen the broader liberal trade regime by stimulating "competitive liberalization" not only in the region but across the Pacific and potentially globally. But in the short term, regional groupings distort trade. Japan and the United States will face higher tariffs with ASEAN and with China. Even though both Japan and the United States are leading trading partners for most Asian nations, China is currently more centrally placed in the Asian trading regime.

Further, the United States does not have a seat at the table in these new Asian regional groupings. The Asia-Pacific Economic Cooperation (APEC) forum, which includes the major Asian nations as well as the United States, Canada, Mexico, and Latin America, has

lost its 1990s' momentum. Accordingly, Japan and the United States should become more actively involved in building free trade in the Asia-Pacific.

RECOMMENDATIONS:

- 3.1 Japan and the United States should continue to support WTO multilateral trade liberalization, but they should simultaneously promote regional economic integration and openness in the Asia-Pacific that is compatible with WTO.
- 3.2 A Japan-U.S. FTA should be developed to take the lead on difficult issues plaguing broader trade liberalization such as agriculture, services, investment, intellectual property rights, antidumping, and migration.
- 3.3 The United States should try to gain a seat in pan-Asian trade negotiations (the "ASEAN plus" groupings) and work with Japan to broaden these discussions to create an APEC-wide FTA.
- 3.4 Japan and the United States should support openness at home by empowering those dislocated by globalization through education and training.

Promoting Technological Diffusion and Economic Innovation

Exports from China and India are "moving up the value chain" from low-cost production of standardized goods and services to the development, design, marketing, and distribution of high-tech products. China and India together currently graduate twice as many engineers each year as Japan and the United States. While many Chinese and Indian degrees are not up to Western standards, the increasing skill levels available in China and India cannot be denied. The knowledge base for these economies is further enhanced by the return of Chinese and Indian graduates from American and Japanese universities in greater numbers than ever before. Tighter U.S. immigration rules since 9/11 exacerbate these problems.

American and Japanese firms have responded by conducting an increasing share of research and development (R&D) in China and India in sectors such as software, semiconductors, mobile telephony,

and pharmaceuticals. This accounts for up to one-third of all R&D for American multinationals according to a recent study. At the same time, piracy of intellectual property is rampant, especially in China. This extends beyond the well-known cases of Hollywood movies, music CDs, and computer software to include a growing range of manufactured products from automobiles to consumer electronics.

Japan and the United States, world leaders in economic innovation for decades, should embrace and encourage the growing competition in the innovation economy. This must be coupled with vigilant intellectual property rights protection and improved math and science education at home.

RECOMMENDATIONS:

- 4.1 The United States and Japan should promote cross-border movement of highly skilled people in science and technology among their two countries and China and India.
- 4.2 Japan and the United States should improve the quality and efficiency of primary and secondary science education.
- 4.3 The United States and Japan should encourage and assist China's and India's efforts to streamline and strengthen their systems of intellectual property rights protection.

Managing Energy Competition and Reducing Environmental Degradation

Rapid economic growth in China and India has been powered by fossil fuels. To feed their enormous needs for electricity, the two nations are projected to account for 75 percent of the entire increase in world coal demand over the next twenty years. China and India are also forecast to generate 30 percent of the growth in global demand for oil over the same period. Both countries are making concerted efforts to expand their gas infrastructure and to develop the capacity to import large quantities of liquefied natural gas.

Chinese and Indian demand for fossil fuels is an increasingly important factor in global energy markets. Both countries are trying to "lock up" long-term energy deals by paying top prices and are willing to sign agreements with countries like Iran, Kazakhstan, Russia, Syria, and Venezuela to do so. At the same time, environmental deg-

radation, particularly in China, is already a major problem because electricity is largely generated using old, "dirty coal" technologies.

Yet China and India are still consuming relatively low quantities of energy per capita. As the middle classes in both countries continue to grow, driving cars and using central heat and air conditioning at home, energy demand and environmental degradation will only increase. If the world's energy producers cannot boost output fast enough, upward pressure on fossil fuel supplies and prices will continue.

Japan and the United States, both world leaders in energy conservation and renewable technologies, should cooperate with China and India to address these issues. The opportunities for American and Japanese firms to benefit from improved energy efficiency and environmental quality in China and India are immense, but it will require government leadership to make this possible.

RECOMMENDATIONS:

- 5.1 Japan and the United States should work with India and China to build multilateral and regional institutions that enhance energy security through risk-sharing and market-based mechanisms.
- 5.2 Japan and the United States should encourage China and India to adopt domestic energy reforms that increase the role of market forces.
- 5.3 Japan and the United States should share with China and India new energy technologies for conservation and renewable energy.
- 5.4 Japan and the United States should work toward a post-Kyoto global warming regime that ensures steady reductions in carbon emissions.
- 5.5 Japan and the United States should work with current members of the International Energy Agency to establish a formal relationship with China and India with a view to their eventual membership in the organization.

Introduction

A sea change in the global balance of economic power is in progress. Even discounting the headline-grabbing hyperbole of China's and India's expected growth into the world's two largest economies by midcentury, there is no gainsaying that the economic rise of the globe's two most populous countries will be one of the defining features of the next several decades. Chinese exports have mushroomed since the 1980s in standardized manufactures, from textiles and toys to chemicals and computer chips. Outsourced operations to India such as call centers, back-office services, and software engineering are increasingly important components in the business strategies of major global firms. Corporations around the world are mesmerized by the prospective emergence of a billion or more new middle-class consumers in China and India.

This report by a binational group of Americans and Japanese is a common statement on how our two nations should respond to the economic rise of China and India. We fully recognize that our two countries are not in the same position economically or geopolitically vis-à-vis China, India, and the world at large. The United States has large and politically charged bilateral trade and financial imbalances with China, whereas Japan has a more balanced economic relationship with China. Tensions with China are central in Japanese politics, while Washington is focused on Islamic extremism. Economic and human ties with India are currently stronger for the United States than for Japan.

The members of the Binational Study Group are united, however, in the belief that our commonalities with respect to China and India are far greater than these differences. For both Japan and the United States, our interests lie in promoting the continued economic development of China and India in ways that benefit all four nations through well-crafted strategies of economic engagement.

The temptation to view the rise of China and India as damaging to the economic health of the developed world and as potentially destabilizing for the global geopolitical order must be resisted. The Study Group offers several specific recommendations for how Japan and the United States should partner with China and India on trade, technology, energy, and the environment to improve the well-being of citizens in all four countries and to promote peace and prosperity around the world.

Exports will continue to be important components of economic growth in China and India, perpetuating concerns about unfair com-

petition, the infringement of intellectual property rights, outsourcing, and offshoring in advanced industrial nations. These concerns will only be exacerbated by China's and India's move from competing in global markets solely on the basis of price toward vying with more developed economies in the design, financing, marketing, and distribution of products on the technological cutting edge. The social dislocations in Japan and the United States associated with the evolution of innovative economies in China and India cannot be dismissed. This report underscores, however, the conventional wisdom of economists that the benefits of an open global economy will considerably outweigh dislocations in Japan, the United States, and other Western economies and that these negative effects can be mitigated by effective government policies.

Over time, economic growth in China and India must be driven by domestic demand in addition to exports. Japan and the United States should encourage the Chinese and Indian governments to reduce their regulatory interventions, open their markets to domestic and international competition, and establish reliable social security systems. At the same time, Japan and the United States should promote the engagement of their public and private sectors in the development of markets in China and India.

Cooperation and engagement with China and India are all the more important given the impact of their economic development on world energy markets and the environment. Rapidly increasing demand for energy and other commodities in China and India is tightening global markets and putting upward pressure on prices. Industrial production and the use of automobiles, trucks, and coal-fired electricity are growing at least as quickly, with deleterious environmental consequences not only for China and India but for the world. Japan and the United States can and must work with China and India to ensure that their economies (and ours) grow in ways that benefit all of the world's citizens, measured not only by traditional economic indicators but also by broader outcomes such as environmental improvement.

Some observers contend that even if China's and India's rise is beneficial for the global economy, it will nonetheless destabilize geopolitics in Asia and around the world. In particular, they are concerned that China is acquiring the means to become a great military power, potentially challenging Japan in Asia and the United States globally. The Study Group believes these concerns are largely unfounded because sustained economic development is perhaps the best way to promote democratic governance and international peace. Rather

than empowering would-be rivals, Japan and the United States can create long-term partnerships for peace, prosperity, and freedom through a strategy of economic engagement with China and India. Additionally, it is unrealistic to expect that the United States or Japan could stop the economic development of China and India. The most likely outcome of any such efforts would be detrimental to all four countries and global security.

Frictions inevitably accompany major shifts in the world's tectonic plates of economic and political power. Enlightened action today by Japan and the United States can minimize these frictions and help the world realize the great potential benefits for everyone that Chinese and Indian development can produce. To do otherwise would be to risk falling into the spirals of protectionism, nationalism, depression, and war that plagued the world's last major power transition in the first half of the twentieth century.

While relations between our four countries today hardly resemble those that led to depression and war in the past century, tensions are certainly present. Economic nationalism interwoven with security concerns toward China is a significant undercurrent in American politics. Congressional leaders from both parties expressed concern about the ultimately unsuccessful bid by the Chinese National Overseas Oil Corporation for the American oil company Unocal in the summer of 2005. Others in Congress continue to call for protectionist retaliation against China for what they see as unfair competition and an artificially low exchange rate. In Japan, Prime Minister Koizumi's annual visits to the Yasukuni Shrine as well as territorial disputes have created political tensions with China that threaten to affect adversely vibrant private-sector commerce between the two countries. Relations between Taiwan and mainland China also continue to be a difficult issue for Japan and the United States.

Relations with India assume a lower profile in both Japan and the United States. Nonetheless, there is wariness in both countries about potential dislocations caused by Indian economic development. Regional geopolitical issues, ranging from balancing China's power to nuclear proliferation and South Asian security, sometimes get in the way of focusing on the economic relationship with India.

The Study Group believes, however, that Japan and the United States would benefit greatly from a coordinated set of policies for economic engagement with China and India. These policies should recognize the challenges posed by the economic rise of these developing giants, but respond to them in ways that benefit all four countries and the rest of the world.

The remainder of this report makes the case for engagement. Chapters I and II address common misperceptions about the trajectories of Chinese and Indian economic growth and their impact on international imbalances in trade and finance. Chapters III, IV, and V then present specific recommendations on what Japan and the United States should do to encourage mutually beneficial developments in China and India with respect to regional economic openness and integration, technology and innovation, and energy and the environment.

Chapter I

Evaluating the Economic Trajectories of China and India

According to GDP data reported by the International Monetary Fund, the Chinese economy has grown at an average annual rate of almost 10 percent since Deng Xiaoping's path-breaking reforms at the end of the 1970s. Since India began implementing economic reforms in the early 1990s, it has averaged annual growth of almost 6 percent. As the longevity of these growth miracles sinks in, some Western observers have moved from marveling at what has been accomplished to worrying about the global effects of the would-be Chinese and Indian economic goliaths. Some projections show the Chinese economy surpassing Japan's economy in size by 2020. Others forecast that in fifty years both the Chinese and Indian economies will be larger than that of the United States. Based on these projections, some geopolitical hawks express concern about how China and India might use their economic "dominance" in the geopolitical realm.

The Study Group believes that these concerns about the economic rise of China and India are overstated. China's most important goal is to increase its 2000 GDP fourfold by 2020. This will require China to continue focusing on the economy, limiting the potential for using the country's economic power for other purposes. Instead of worrying about relative growth rates, the United States and Japan should recognize that the continued economic development of China and India is a positive-sum game that delivers benefits to all four countries. As China and India grow and participate more fully in the global economy, this will promote growth and increase economic opportunities in Japan, the United States, and the rest of the world. Consumers will benefit from greater choice and lower prices. Producers in all four countries will be able to take advantage of low-cost production and massive new markets. Specialization will create opportunities for workers in the United States and Japan to earn more by moving into highly skilled positions, even as U.S. and Japanese firms gain access to imports of low-cost parts and components. Competition will motivate firms in all four nations to innovate and produce high-quality goods and services. Simply put, the future economic well-being of Japan and the United States will be improved, not harmed, by continued growth in China and India, even if it results in some closures of uncompetitive local factories.

Less obvious are the indirect benefits of continued, robust economic growth in China and India. According to the World Bank, economic growth lifted almost 200 million Chinese and Indians out of poverty in the 1990s alone.¹ Continued growth can be expected to bring the same opportunities to hundreds of millions more people in these two countries, which together constitute two-fifths of the world's population. Indeed, economic inequality is a significant threat to continued economic openness and to political stability in both China and India. The world will benefit from a stable Indian democracy committed to liberalization and economic reform. In China, the emergence of a large and powerful middle class is likely to be essential to the movement of the political system toward liberal democracy. We also know that military conflict is less likely among countries that trade with each other and that share similarly open political systems.

The real challenge facing Japan and the United States is not continued Chinese and Indian economic growth, but rather the prospect of sustained economic slowdowns in these countries. It is important to assess the major potential vulnerabilities of these economies and to identify how Japan and the United States might help ensure that China and India continue growing at stable and sustainable rates for decades to come.

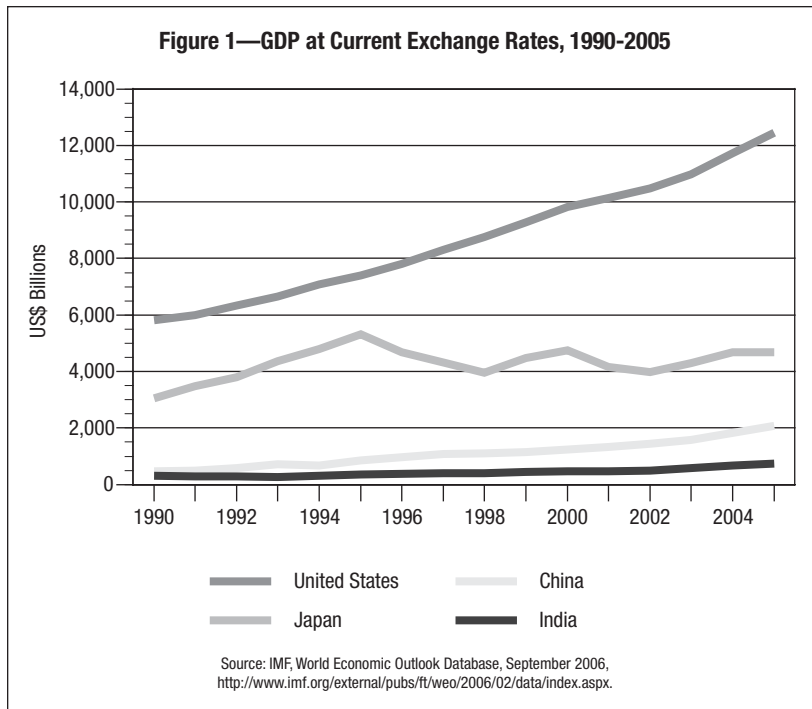
Chinese and Indian Growth: Looking Back and Looking Forward

China and India have been among the world's best performing economies for the past fifteen years, with annual average growth rates of nearly 10 and 6 percent, respectively. But how quickly are they catching up with the world's leading economies, the United States and Japan?

Some economists believe that the best way to compare economies is in terms of purchasing power parity (PPP), or an estimate of economic output based on the relative cost of purchasing similar goods and services in one country compared to another. The CIA's World Fact Book estimates that in 2005, in PPP terms, China's economy (at almost \$9 trillion) was already much larger than that of Japan (\$4 trillion) and not so far behind the United States (more than \$12 trillion). By the same measure, India's economy (\$3.6 trillion) is almost as big as Japan's.²

1. See <http://www.worldbank.org/research/povmonitor/>.

2. See <https://www.cia.gov/cia/publications/factbook/index.html>.



These numbers should be viewed, however, with great caution. Estimating economic output in terms of PPP is as much an art as a science, particularly in less-developed countries. There is also debate about whether it is better to compare economies in terms of how far a person's income goes at home (PPP) or in international markets (based on current exchange rates). While economic theory suggests that PPP-based and exchange rate-based comparisons should converge over time, in practice PPP-based measures have consistently overvalued economic output in developing countries like China and India, often by a factor of two or more.

A different picture emerges when looking at each economy's total output in U.S. dollars at the prevailing exchange rates (see Figure 1). By this measure China and India (with over one billion people each) are catching up with the United States and Japan (with fewer than 500 million people combined), but still have a long way to go to rival them.

Using these more conservative numbers, analysts have made different projections as to when China and India may catch up (in total economic size) to Japan and the United States. The U.S.

National Intelligence Council has said most forecasts indicate that by 2020 China's gross national product (GNP) will exceed that of individual Western economic powers except for the United States, and India's GNP will have overtaken or be on the threshold of overtaking European economies.³

In a widely publicized exercise in futurology, Goldman Sachs economists projected that China's total economic output will pass Japan's in 2016 and the United States' in 2041. They predict that India will pass Japan in 2032 and be four-fifths the economic size of the United States in 2050.⁴

The year 2050, of course, is a long way off. Who could have forecast in 1955 that Japan's economy would grow to almost three-quarters the size of the U.S. economy in the early 1990s before falling back to less than two-fifths its size by 2005? Similarly, we should view with great caution all projections about where the Chinese and Indian economies will be ten, twenty, thirty, and more years from today. What seems clear is that the Goldman Sachs projections paint a very rosy picture for the evolution of the Chinese and Indian economies.

Closer observers of China and India tend to be more cautious in their forecasts. Many point to troubling issues that will have to be resolved if the recent rapid growth of the Chinese and Indian economies is to continue for the next few decades. The Study Group believes that these challenges are real and that it is in the interests of Japan and the United States to confront them by working with each other and with China and India to help ensure continued robust economic development in the world's two largest emerging markets.

The Implications of Continued Chinese and Indian Growth

Irrespective of China's and India's global economic rankings, growth in these countries has important implications for the global economy. Size matters because it establishes the gravitational weight of a nation in its region and in the world, i.e., the degree to which other nations rely on it as an export market, a source of imports, an investment location or source, and an economic partner.

The growth of China's economy has changed patterns of world trade because of the enormous export and import flows to and from that nation. For example, in 1995 the United States and Japan were

3. See http://www.dni.gov/nic/NIC_globaltrend2020_es.html.

4. Dominic Wilson and Roopa Purushothaman, "Dreaming in BRICs," Goldman Sachs Global Economics Paper, no. 99.

Figure 2—United States Total Trade with Leading Partners

	1995		2005	
	Billions US\$	Portion of total	Billions US\$	Portion of total
Canada	271	20.4%	499	19.4%
China	102	7.7%	372	14.5%
Mexico	126	9.5%	226	8.8%
Japan	150	11.3%	196	7.6%
India	9	0.7%	27	1.0%

Source: United States International Trade Administration, TradeStats Express database, <http://tse.export.gov/>.

Figure 3—Japan's Total Trade with Leading Partners

	1995		2005	
	Billions ¥	Portion of total	Billions ¥	Portion of total
China	8,299	11.4%	24,948	20.4%
United States	18,409	25.2%	21,878	17.9%
South Korea	4,550	6.2%	7,840	6.4%
India	512	0.7%	740	0.6%

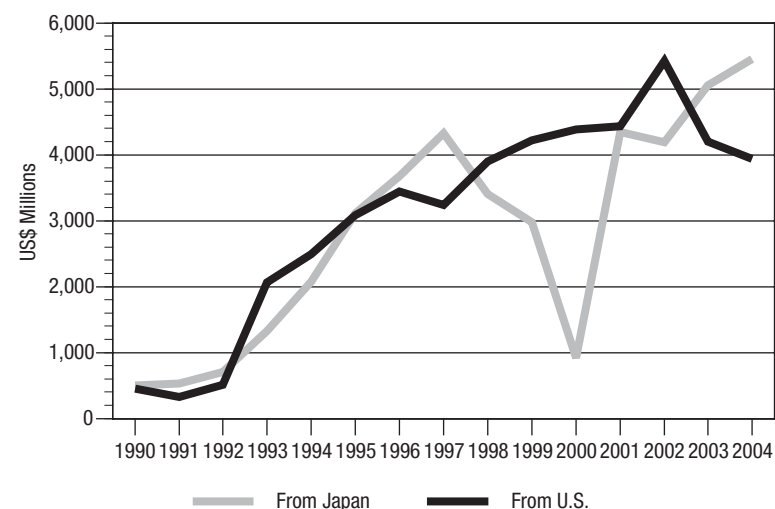
Source: Japanese Ministry of Finance, Japan Customs database, <http://www.customs.go.jp/toukei/srch/indexe.htm>.

South Korea's number one and number three export markets, jointly accounting for 33 percent of those exports. China's share was just 15.9 percent. Today China is South Korea's leading export market by a significant margin, accounting for 27.3 percent of those exports. The United States and Japan together now account for only 23 percent.⁵ Other East Asian nations have seen similar shifts in trading patterns over the past decade, helping to explain why so many of them are interested in forging stronger links with China at all levels.

The shift has not been confined to third-country markets. The United States and Japan conduct a growing share of their trade with China (including Hong Kong) and India. Figures 2 and 3 show the growth over the past decade in trade between the United States and Japan and their leading economic partners. Over that ten-year period, China jumped from the United States' fourth most important trading

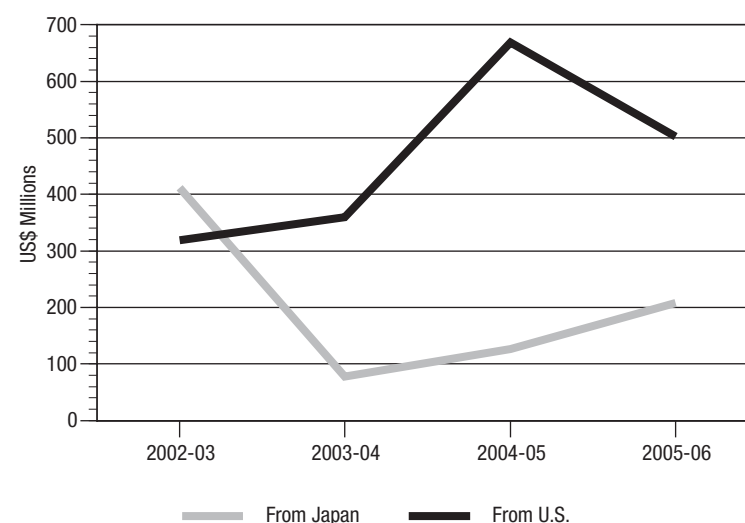
5. South Korean trade data from the South Korea Customs Service Trade Statistics, <http://www.customs.go.kr/>.

Figure 4—Annual Foreign Direct Investment Flows to China, 1990-2004



Source: PRC Ministry of Commerce, China Commerce Yearbook.

Figure 5—Annual Foreign Direct Investment Flows to India, 2002-2006



Source: Department of Industrial Policy and Promotion, Fact Sheet on FDI, October 2005 and April 2006, http://www.dipp.gov.in/fdi_statistics/india_fdi_apr06.pdf.

partner to second, just behind Canada, while Japan has fallen from second place to fourth.⁶ Similarly, the United States has fallen from the top spot in Japan's trade to number two, behind China.⁷ India still accounts for a small share of both nations' trade, although its share of U.S. trade has grown slightly over the past decade.

China and India are also increasingly important to global investment patterns. In the case of China, the volume of foreign direct investment (FDI) going into the market has been especially striking. The annual flow of FDI from Japan to China topped \$5.45 billion in 2004, while in the same year flows from the United States were \$3.94 billion (see Figure 4).

Less well known is the recent surge of foreign investment in India. The total accumulated stock of U.S. FDI in India stood near \$5 billion in 2003, similar to the total in China just a decade ago. Annual FDI flows from the United States to India have also been rising in recent years, with the United States sending more than \$500 million in FDI to India in each of the past two years (April 2004 to March 2005 and April 2005 to March 2006). Annual flows from Japan have been at lower levels but also growing quickly, with \$126 million going to India in 2004-05 and \$208 million in 2005-06 (see Figure 5).⁸

As economic interactions with China and India grow, some observers worry that Japan and the United States are becoming increasingly vulnerable to the vicissitudes of economic development in China and India and to potential capricious action by their governments. To be sure, such vulnerability is inherent in today's interdependent global economy. But interdependence is a two-way street. China and India will continue to rely on Japan and the United States as sources of capital, exports, imports, and many other economic transactions for the foreseeable future.

The Study Group believes that instead of worrying about the growing economic power of China and India, which we most probably could not stop even if we wanted to, the United States and Japan should focus on the substantial mutual benefits of continued interdependence. The world currently depends too much on a single locomotive (the American economy) to pull it along. With continued growth in China and India, their locomotives could be added to this train. Expanded domestic markets in these nations will provide

producers in the United States, Japan, the rest of Asia, and the world with new opportunities for expansion, creating a steady stream of jobs in all of these economies.

Challenges Facing the Chinese Economy

With economic growth recorded by the Chinese government at 10.3 percent in the first quarter of 2006 and 11.3 percent in the second quarter, China appears to be speeding up rather than slowing down. But the government and close China watchers are, in fact, quite worried that the economy may be headed for a significant fall in the coming years. Analysts are concerned that the Chinese economy is overheating and that a substantial cooling period is possible in the coming decade. Japan and the United States should work with China to smooth potential bumps on the road to development and build a foundation for strong, stable, and sustainable growth for years to come.

On the back of record rates of investment, China's industrial output is booming, increasing 19.2 percent from June 2005 to June 2006. The Chinese government has reported investment rates in excess of 40 percent for several years running.⁹ Since neither China nor the world can absorb output growth produced by this capital stock this quickly, much of the recent investment is likely to end up as idle factories or empty housing and commercial buildings, exacerbating the problems of surplus capacity and bad debt already burdening the Chinese economy.

This high-savings, high-investment approach to growth, long exhibited by Japan and now practiced in China, presents three major challenges. First, investment in a hothouse environment is often used unproductively, generating bad debt. In China's case, this tendency has been aggravated by the structure of its banking system, which has been dominated by four large, state-owned banks set up to provide inexpensive credit to state-owned enterprises (SOEs). Since the banks have been encouraged to use credit to keep SOEs afloat—to maintain the Chinese government's "iron rice bowl" employment and wage commitments to workers—the banks have not applied commercial criteria to their lending decisions and have made large loans that are now nonperforming. These bad loans totaled an estimated \$164 billion (or 7.2 percent of Chinese GDP) in 2005 before the government injected \$60 billion in public funds into the banking system in an effort to improve their balance sheets.¹⁰

6. U.S. trade data from United States International Trade Administration, TradeStats Express database, <http://tse.export.gov/>.

7. Japanese trade data from <http://www.customs.go.jp/toukei/srch/indexe.htm>.

8. Department of Industrial Policy and Promotion, "Fact Sheet on FDI," 2005, http://www.dipp.gov.in/fdi_statistics/india_fdi_apr06.pdf.

9. Stephen Roach, Global Economic Forum, July 21, 2006.

10. China Statistical Yearbook and China Banking Regulatory Commission Web site.

The state-owned banks that previously focused almost exclusively on lending to SOEs have recently begun to make more loans to the private sector. A number of significant private Chinese banks have also begun to serve private firms. Nevertheless, the nonstate sector that has been the source of much of China's growth remains underserved. The shadow banking system in China that supplies private firms with some of their funds—estimated to be at least 50 percent the size of the formal banking system—is largely unregulated, limiting its potential and creating possibilities for abuses and financial panics. One symptom of private investor concern about corporate governance is the poor performance of the Chinese stock market in recent years, belying the tremendous growth of the economy as a whole. The value of the Shanghai SE Index, for example, has experienced significant volatility since 2000 and has suffered a net decline of more than 20 percent since then.

The second major challenge facing the Chinese economy is the necessary transition from the high-savings, high-investment growth model to one driven more by consumption and domestic demand. In March 2006 the Chinese government announced a new five-year plan committing itself to a consumption-led economic model with lower annual growth targets (7.5 percent) as well as to implementing much-needed financial reforms. But the ability of the government to deliver on this plan is constrained by the pressures to maintain high levels of employment as laid-off workers in underperforming SOEs search for private sector jobs.

This is the third major challenge for China. The country must face the difficult task of absorbing laid-off workers from the SOEs, which have shed more than sixty million jobs since 1997, while simultaneously mitigating high and rising rural poverty. Almost one-half the Chinese population—most of them in rural, interior provinces or in shantytowns on the edges of big cities—continue to live on less than \$2 per day.¹¹ In addition, infrastructure projects have displaced millions of citizens. Chinese authorities worry about the potential for unrest among these large numbers of dislocated people.

The rapid pace of change in China has already resulted in a surge of sometimes violent protest. The Chinese government has been monitoring social unrest closely, estimating that 87,000 “public order disturbances” took place in 2005, or 240 every day of the year.¹² In an attempt to address the underlying causes of this unrest, the gov-

ernment is seeking to prime the pump for development in interior regions through a massive public works program of building roads, railways, power grids, and industrial parks. These efforts, however, face resistance from farmers and villagers whose land lies in the way of this development program. More than one million Chinese were displaced to make way for the Three Gorges Dam, and this is just one of hundreds of electric-generating projects designed to address the nation's fast-growing need for electricity. Millions more Chinese have been displaced, often with little or no compensation, to make way for other infrastructure, housing, and commercial projects. Others at the fringes of these projects have been forced to live with dirty air, degraded water quality, and loud noise. The nation's underdeveloped legal system offers little protection of land rights, much less the right to clean air and water or the right to live in a quiet, clean environment.

Finally, China faces a huge demographic challenge. Due to its one-child policy, China will grow old before it is rich. The labor force is estimated to begin declining by about 2015, not only constraining growth, but putting greater pressures on family-based models of elder care in an environment of rudimentary public provision of social services. Pollution and environmental degradation are also major problems, as is rapidly growing Chinese demand for energy and other raw materials needed to fuel economic development (see Chapter V for further discussion of these issues).

Clearly, there are significant obstacles to maintaining strong and sustainable economic growth in the coming years and decades for China. Recent policy statements by Chinese authorities, such as the new five-year plan announced in March 2006, suggest that they are committed to slowing investment, opening financial markets, and dealing with social and environmental pressures. However, the conflicting nature of many of these different reform projects could easily lead to delays or failure.

The United States and Japan should help the Chinese government achieve its stated aim of moving from a growth strategy based on government investment to one driven more by domestic demand and consumption. This should be done by providing technical assistance and material support for financial reforms; developing a robust credit culture among banks; establishing a reliable “rule of law;” and developing social security programs such as unemployment insurance, pensions, and health insurance. In addition, the United States and Japan should continue to encourage the Chinese government to adopt a more inclusive, open, and responsive form of politics.

11. World Bank poverty data for 2001, using the threshold of \$2 in purchasing power parity dollars, http://devdata.worldbank.org/wdi2005/Table2_5.htm.

12. *Los Angeles Times*, April 19, 2006, 1.

Challenges Facing the Indian Economy

In important respects, the strengths and weaknesses of the Indian economy are the mirror image of those for China. This is most evident in the financial sector. Even though the rate of savings in India is only about one-half that in China, well-developed debt and equity markets in India provide a solid domestic supply of investment capital. This has allowed leading private-sector conglomerates in India such as Reliance Industries and the Tata Group to expand rapidly since the mid-1990s. More generally, Indian stock markets have attracted \$30 billion in new investment since 2002, fully one-fifth of total inflows into all developing country equity markets.¹³ While much of this money is local, a growing portion comes from other countries, demonstrating how far India has come since the time it had some of the world's highest barriers to foreign investment (though it still is considerably less open to FDI than China is).

Nevertheless, India must overcome three challenges if it is to sustain or improve upon its economic performance over the past decade. First, India must finally remedy its chronically weak fiscal situation, which has resulted in inadequate public investment in infrastructure, education, and health care. The combined budget deficit of India's central and state governments hovers around 9 percent of GDP today, not much lower than the levels before Indian economic reform began in the early 1990s. India's gross national debt stands at around 80 percent of GDP, up from 65 percent in 1996-97. Servicing these chronic deficits and mounting debt swallows much of the country's financial savings, leaving less money available for the private sector to invest. Indeed, more than one-third of total government revenues are devoted to paying interest on the public debt. When paying the salaries of a bloated civil service is also taken into account, the public sector has precious little money left to provide basic services or to invest in critical infrastructure such as roads, ports, airports, and the power supply. India's total investment in infrastructure is hovering around 6 to 7 percent of GDP per year. The comparable figure in China is roughly 20 percent.¹⁴

The persistent Indian underinvestment in infrastructure significantly limits the potential for further economic development. There

are just 3,000 kilometers of four-lane highways in all of India. Many of the roads limit trucks and buses to speeds of no more than 40 kilometers per hour. India has plans to build an additional 14,000 kilometers of four-lane highways, but the first phase of the plan is already well behind schedule. The situation is not much better with respect to rail transportation, highlighted by a recent surge in rail accidents and a decline in rail's share of freight transport. The average time for shipping goods from Indian ports to the United States is six to twelve weeks, compared with two to three weeks from China.¹⁵

India's greatest infrastructure deficit, however, is in electricity. Electricity distribution and generating capacity is largely in the hands of state electricity boards. These boards are able to recover just 68 percent of the costs of supplying power because of government policies offering low rates to rural customers and widespread theft of power from the grid. With annual losses amounting to 1.4 percent of GDP each year, the electricity boards have been unable to invest in improving the distribution grid, let alone to increase generating capacity. Power shortages are common throughout the country. As a result, 61 percent of Indian manufacturing relies on their own generators for power at a cost of 8 cents per kilowatt-hour, compared with around five cents in the United States and three cents in China.¹⁵ Reform legislation passed recently may improve the situation by allowing private players largely to bypass the bankrupt public utilities, but it is too early to tell if the legislation's good intentions will be translated into noticeably better results.

The second principal challenge facing the Indian economy is overregulation, even after more than a decade of concerted efforts to liberalize and deregulate. Opening a business in India requires, on average, ten permits and ninety days, double the time required in China.¹⁶ And the small-scale reservation system, designed to reserve sectors of the economy for smaller firms that were expected to employ labor-intensive methods of production, has ironically stifled the growth of labor-intensive manufacturing, which tends to require economies of scale to be productive. The system, which continues to cover 500 products, has been one reason for the relatively slow pace of development of manufacturing in India. That sector accounted for just 27 percent of India's GDP in 2003, compared to 52 percent in China.¹⁷ Given this and other policy constraints as well as

13. Ruchir Sharma of Morgan Stanley in *Newsweek*, March 6, 2006.

14. Joydeep Mukherji, "Discussion Paper on India: The Future of the Indian Economy and Its Impact on the World," August 2005 (prepared for the September 2005 Study Group meetings). Also Oxford Analytica, March 22, 2006 (for information on highways and rail).

15. Ibid.

16. Ibid.

17. Ibid.

power problems, it is not surprising that Indian manufacturing lags far behind that in China and that job growth in India is slower than growth in the labor force. The Indian service sector, of course, is considerably more buoyant, but this has not been enough to counteract the tendency toward “jobless growth,” particularly among younger Indians.¹⁸

The final major problem facing India concerns the social consequence of the first two challenges: inequality and unrest. The fiscal weakness of the Indian state has led major private firms to go it alone by creating their own independent “islands” of power, roads, and ports to service their operations, mostly in the booming cities of the south. The nation’s rural areas and large parts of northern India continue to languish far behind. Basic services such as public health care and elementary and secondary education are also much worse outside Bangalore, Hyderabad, and the other “boom towns” employing India’s very well-educated elite. Per capita state domestic product in Andhra Pradesh in the south grew by 67 percent between 1996 and 2002, bringing annual average per capita incomes in that state to 18,661 rupees (\$389), while average incomes in the large northern state of Uttar Pradesh grew by just 38 percent over the same period and remained at a level of 10,289 rupees (\$214).¹⁹

These problems should concern the United States and Japan not simply out of compassion for the poor and jobless. Inequality, poverty, and joblessness on this scale have the potential to cause widespread social and political instability in India. Already, India has seen the growth of a Maoist insurgency in the central part of the country, and tensions persist between Muslims and Hindus. In addition, the 2004 election, in which the incumbent Hindu nationalist prime minister was defeated, was widely seen as a protest by India’s “have nots” against being left behind by the reforms.

India is already Japan’s top aid recipient, but both Japan and the United States need to provide more assistance to India to help it deal with these economic and social challenges. Both countries should step up infrastructure loans and grants to India with the aim of expanding connections between rural areas and domestic and international markets (roads, ports, airports); eliminating shortages of electricity and water; and helping India expand its excellent

elite education system into parts of the country that are underserved. Whenever possible, these aid projects should support efforts of private industry (Indian and foreign) to expand and create jobs. Meanwhile, the two countries should encourage India to address the fiscal and structural problems identified above.

Japan and the United States have much more at stake in how China and India grow than in the magnitude of growth itself. We will all be much better off if these two rising powers can be induced to grow in ways that improve the livelihoods of their long-impooverished peoples; that bring about greater economic and political equality, rights, and the rule of law; that engage them in broad and liberal international trading networks linking Chinese and Indian consumers (not just workers) to the global marketplace; and that contribute to the global pool of knowledge and innovation.

RECOMMENDATIONS

- 1.1 Japan and the United States should provide technical assistance to help China strengthen domestic financial markets, the rule of law, and social security systems.
- 1.2 Japan and the United States should increase loans and aid to India for physical infrastructure, schools, and health care and encourage India to address its fiscal and structural problems.

18. The period up to 2000 is the most recent for which the International Labor Organization reports labor force and total employment data, <http://laborsta.ilo.org/>.

19. Per capita net state domestic product at current prices data from India’s Ministry of Finance, *Union Budget and Economic Survey*, covering years up to 2004-05, <http://indiabudget.nic.in/es2004-05/tables.htm>.

Chapter II

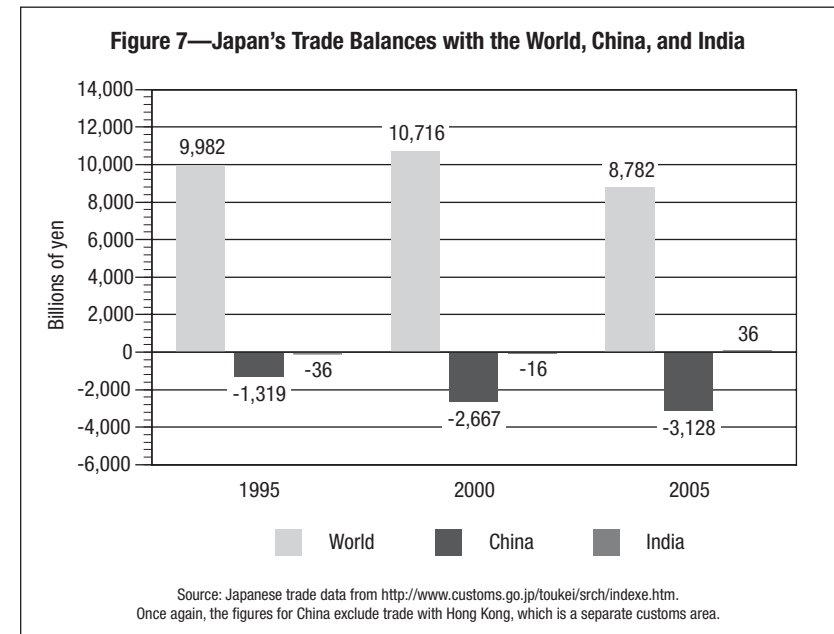
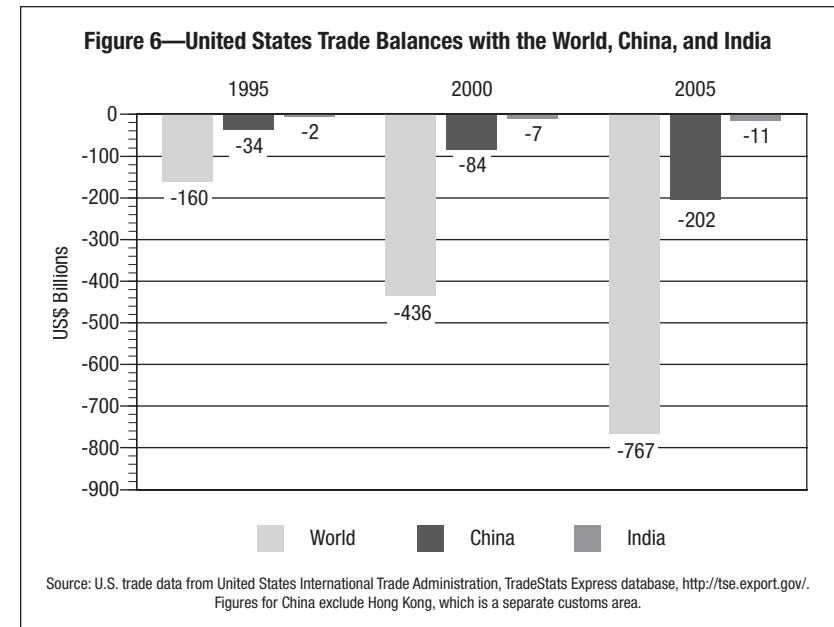
Reducing Global Economic Imbalances

Perhaps the most common perception of China among Americans is that its “unfair” trade practices are devastating U.S. manufacturing and the American middle class. This perception is largely based on a single fact. In 2005 the United States imported \$244 billion in goods and services from China but exported just \$42 billion—a one-year bilateral trade deficit of \$202 billion, up from only \$34 billion a decade before (see Figure 6). This deficit was by far the largest negative trade imbalance the United States has ever recorded with any country. By comparison, India looks considerably less threatening to Americans. Bilateral trade volumes and deficits are both much smaller. Japan currently enjoys a bilateral trade surplus with Hong Kong that offsets its small deficit with China, giving it a surplus in its overall trade with the two Chinese custom areas. It has a surplus with India as well (see Figures 6 and 7).

By examining trading patterns between Japan and the United States on the one hand, and China and India on the other, it becomes clear that China should not be “blamed” for the United States’ fiscal imbalances. In fact, the Study Group believes that there are domestic roots to many of America’s current economic woes and that strengthening trade and financial ties with China over the longer term will help mitigate them.

Unpacking the Imbalances

Bilateral trade imbalances make for great newspaper headlines and populist punditry. Professional economists, however, tend to dismiss them as unimportant, viewing a nation’s overall trade and capital account balances (i.e., with the whole world) as much more significant. In Japan’s case, its surpluses with India and China are simply part of its overall positive trade balance with the world, which in turn reflect the Japanese economy’s persistently high rate of net savings (domestic savings minus domestic investment). Japan has sent a significant portion of its savings overseas for many years, building up large holdings of foreign reserves in the process. Moreover, most economists believe that Japan’s trade surplus will decline in the coming decades because of its aging society: As retiring baby boomers start drawing down their savings, the volume of capital that is exported will decrease.



Things look very different in the United States, which is running a current account deficit without precedent among large industrial nations.²⁰ The headline numbers regarding China are consistent with the United States' overall international imbalances. The total U.S. current account (trade) deficit in 2005 was \$805 billion, or 6.4 percent of GDP. Simply financing the American trade deficit now requires about \$2.2 billion in foreign capital inflows every day of the year. Only small countries like Austria, Greece, and New Zealand have run deficits even close to this share of GDP in the last thirty-five years, triggering sweeping promarket reforms in these countries. More worrisome, the U.S. trade deficit has been growing steadily in recent years and has been accompanied by a run-up in the government budget deficit, which grew substantially between 2001 and 2005.

Many economists question the sustainability of these imbalances. Given that China is both the largest net exporter to the United States and one of the largest holders of U.S. government bonds and dollar reserves (amounting to almost one trillion dollars in 2006), it is not surprising that China figures prominently in the public debate over the sustainability of imbalances.

The bullish view is that large capital flows into the United States from China (and elsewhere) reflect the attractiveness of America as a place to invest, in particular because its productivity has been growing rapidly. As Ben Bernanke, chairman of the U.S. Federal Reserve system has argued, the world is experiencing a "global savings glut" that is being channeled into productive investment in the United States.²¹

According to this line of thinking, the current U.S.-China imbalances fulfill important objectives in both countries, at least in the short term. China is thus exporting more than it is importing, and exports are fueling its ongoing economic growth miracle. Chinese citizens are saving more than they are consuming and need to find good ways to invest their savings, which is difficult to do domestically given that China's financial markets are so underdeveloped (see Chapter I). It is therefore in China's interest to send surplus savings to the United States, earning a decent rate of return and supporting American consumption-driven economic growth that absorbs large outflows of goods produced or assembled in China. In turn,

20. Sebastian Edwards, "Is the U.S. Current Account Deficit Sustainable? And If So, How Costly Is the Adjustment Likely to Be?" National Bureau of Economic Research Working Paper, no. 11541 (2005).

21. See <http://www.federalreserve.gov/boarddocs/speeches/2005/200503102/default.htm>.

Americans benefit from lower interest rates, increasing equity in their homes, and the ability to buy Chinese goods at affordable prices.

But these imbalances are only beneficial in the short term because the United States cannot continue indefinitely importing more than it exports, spending more than it earns, and borrowing internationally to make up the difference. China cannot expect indefinitely to rely on growing trade surpluses to absorb the output of its rapidly expanding factories. Some financial bears worry that if both China and the United States break out of these unsustainable patterns by cutting back on spending at the same time (on investment in China, on consumption in the United States), the result could be a global downturn.

The U.S. economy is not facing an imminent crash, but the warning signs of a significant slowdown are evident. As former U.S. Treasury secretary Lawrence Summers recently pointed out, foreign investment in the United States (including from China) is increasingly in the form of government bonds and dollar reserves, which earn significantly lower returns than other forms of investment.²² In 2000, \$162 billion in net foreign direct investment flowed into the United States. By 2004 the direction of FDI flows had reversed to a net outflow of \$133 billion.²³ This abrupt change in FDI, however, did not alter the broader pattern of capital inflows into the United States because foreign governments (led by China and Japan) increased the pace of their purchases of Treasury bills and dollar reserves. In 2004 foreigners purchased a total of \$900 billion in U.S. government debt.²⁴ Former U.S. Treasury official Brad Setser estimates that foreign accumulation of U.S. dollar reserves increased by \$670 billion in 2005.²⁵ At the same time, U.S. interest rates continue to rise, and the American housing market is slowing.

What would clearly be best for the United States, for China, and for the global economy would be for these imbalances to be reduced—slowly, systematically, and sustainably. But how can this be done?

Blaming China is tempting, but should be resisted. Efforts to effect change among Chinese officials should be integrated into a

22. See http://www.president.harvard.edu/speeches/2006/0324_rbi.html.

23. Sebastian Edwards, "Is the U.S. Current Account Deficit Sustainable? And If So, How Costly Is the Adjustment Likely to Be?" National Bureau of Economic Research Working Paper, no. 11541 (2005): 48.

24. Brad Setser and Nouriel Roubini, "How Scary is the Deficit?" *Foreign Affairs* 84, no. 4 (July-August 2005).

25. See <http://www.rgemonitor.com/blog/setser>.

coordinated set of economic policies with the other major economies, led by the United States and Japan. If the United States were able to increase its national savings gradually by cutting its fiscal deficits, while China, Japan, and Western Europe all increased their consumption, the imbalances would shrink in a way that would have relatively few adverse effects on their economies or global growth.

But it is quite easy to imagine less rosy scenarios. The growing U.S. trade deficit with China has led to protectionist proposals in Congress focused on the dollar-renminbi (RMB) exchange rate. Senators Graham and Schumer have proposed that the United States levy an across-the-board tariff of 27.5 percent on imports from China unless the Chinese government significantly increases the value at which RMBs are exchanged for dollars. The temptation to engage in this or some other form of retaliation will remain if the news on U.S.-China trade continues to be “bad.” If the U.S. were to act in this manner, of course, Beijing would then be tempted to respond with its own protectionist measures.

It would also be unnerving for global markets if the imbalances were not to unwind in an appropriately coordinated fashion. Should, for example, the needed adjustment (a decline in American consumption and an increase in savings; a decline in Chinese investment) take place without compensating increases in consumption elsewhere in the world, the result would be a diminution in global demand, slower growth, and recession in many countries. Even worse, lower demand in countries like China could sustain or even increase their savings rates in a manner that would prevent their current account surpluses—and hence the U.S. deficit—from shrinking. The world would thus suffer slower growth without any improvement in the imbalances.

The Study Group believes, therefore, that efforts to deal with U.S.-China imbalances by pressuring the Chinese to remove controls on the value of the RMB are unduly risky—and may not even produce movement in the intended direction.²⁶ If Chinese households reacted to currency appreciation by moving their deposits out of the country’s troubled banks, a collapse of the financial system and the RMB might ensue. Short of that extreme, a failure of aggressive attempts to push China to revalue the RMB could prompt the United States to adopt other protectionist measures that might spark a trade

war. Averting these doomsday scenarios begins with the enactment of much-needed fiscal reforms in the United States and China that would facilitate a gradual reduction in the imbalances between the two countries.

The United States should accordingly increase national saving, beginning by reducing the size of the federal budget deficit. To ensure that this does not inordinately reduce global demand, increased U.S. saving should be offset by higher consumption in other leading economies. Here, Japan should play an important role by maintaining its recent higher rate of growth in domestic demand without relying on public works spending and continuing efforts to improve productivity through reforms, bringing market forces to bear on sheltered sectors of the economy. At the same time, the Japanese government should reassure workers and aging citizens that pension, health, and unemployment insurance programs are fiscally sound, increasing confidence among citizens that they do not need to save excessively based on worries that these programs might collapse.

An increase in consumption in Japan alone, however, would only partly offset the drag on world economic growth from a substantial reduction in American fiscal deficits. It is therefore critical that the United States and Japan coordinate these policies with China to ensure a soft landing for the global economy in the context of a systematic reduction in U.S. imbalances in trade and finance. China’s most recent five-year plan is laudable, and the United States and Japan should encourage China to fulfill its objectives, particularly with respect to financial reform, which would enable greater flexibility of the RMB. The two countries should also encourage China’s plans to establish reliable social security programs and to move toward domestic, consumption-led growth.

Finally, to improve the ability of China and India to coordinate their macroeconomic policies with policies in the G-8 nations, the United States and Japan should work together to increase the involvement of China and India in the deliberations of the major economies and in the IMF. Indian and Chinese participation will be critical in the coming decades to coordinating (when necessary) macroeconomic policies around the world and strengthening the global financial system. U.S. and Japanese leadership in embracing these new roles for China and India would go a long way to ensuring better and more coordinated management of the global economy.

26. For a good discussion of the issues involved, see “Why the RMB might be overvalued (but probably isn’t),” presented at a Federal Reserve Bank of San Francisco conference in September 2005, <http://www.frbsf.org/economics/conferences/0509/paper-chinn.pdf>.

RECOMMENDATIONS

- 2.1 The United States should increase national saving, first by reducing the size of the federal budget deficit.
- 2.2 Japan should boost personal consumption by reassuring workers and citizens that pension, health, and unemployment insurance programs are fiscally sound.
- 2.3 Japan and the United States should work to increase the involvement of China and India in the deliberations of multilateral economic organizations such as the G-8 and IMF to facilitate the coordination of macroeconomic policies to sustain global growth.

Chapter III

Promoting Free Trade throughout the Asia-Pacific

The global economic reach of China and India is evident in every photograph of bustling Chinese ports loading mountains of merchandise onto ships bound for Japan, the United States, and the rest of the world, and in every phone call to a customer service center answered by a voice with an Indian inflection. Given declining employment in manufacturing, slow wage growth and rising inequality in the United States and more than a decade of economic stagnation in Japan, it is easy to see why some pundits and politicians wonder aloud whether it is only a matter of time before there is nothing left for workers in the United States or Japan to do.

Demands for protectionism and insulation from the international economy are endemic to domestic political life. Yet these demands have reached a higher pitch than at any time in recent memory. The European Union's constitution was rejected in large measure because French citizens blamed globalization for what they perceived to be a deteriorating quality of life. The Doha Round of the World Trade Organization's trade negotiations fell victim to an intractable dispute between the developed and developing world over agriculture.

In response, the United States and Japan have tried (despite sometimes strong domestic currents of opposition) to keep the momentum going for open international markets through a series of bilateral and sometimes regional free trade agreements (FTAs). The nations of Southeast Asia have also pursued FTAs with other countries in the region, including China. All of this activity assumes that free trade is win-win for all nations because it allows them to concentrate on what they do best and to realize economies of scale in the generation of goods and services, an assumption well founded in fact. Political leaders in the Asia-Pacific region are to be commended for their commitment to continued economic integration and openness.

There are, however, problems with the emerging Asia-Pacific trade regime. Global liberalization would be best for the world, and to some extent the bilateral and regional focus detracts from that effort. The number of FTAs agreed to, in progress, or proposed in Asia is sufficiently large and tangled to earn the derisive moniker of "spaghetti" among some pundits, reflecting concerns about how the proliferation of different trade rules distorts trade patterns and makes it

costly for firms that operate in multiple jurisdictions to navigate the regime. Moreover, in stark comparison with the halcyon days of the Asia-Pacific Economic Cooperation (APEC) forum in the mid-1990s, of which the United States was an important part, the United States is now not directly involved in many of the regional initiatives in Asia even though it is one of the most important trading partners of most Asian nations.

The potential gains from free trade among the Asia-Pacific economies are enormous. But it will require strong and creative leadership among the major countries, led by China, India, Japan, and the United States, to ensure that these gains are realized and that preferential, distorting, and asymmetric agreements among subsets of nations do not get in the way.

Trade, Jobs, and Wages

Chinese manufacturing exports increased from \$46 billion in 1990 to \$427 billion in 2005, the greatest surge in manufacturing exports over such a short period of time in world history. Over the same period, a large number of manufacturing plants shut their doors in the United States and Japan. The United States lost 3.4 million manufacturing jobs between 1990 and 2004 (a decline of 20 percent), while Japan saw its manufacturing workforce shrink by 3.5 million (23 percent).²⁷

It would be easy to believe, as prolabor and antiglobalization groups often do, that the rise in Chinese manufacturing has caused the decline in manufacturing in Japan and the United States. Sober economic analysis, however, suggests that while globalization has played some role in the decline of manufacturing in the United States and Japan, it is far from the whole story. Manufacturing has been shrinking for decades in all of the advanced nations as part of a natural transition to postindustrial economies with larger service sectors. Computerization and the increasing bias in technology toward higher-skilled sectors have hastened this process.

Many of the manufactured goods now coming from China into Japan and the United States came previously from Taiwan or South Korea (or from Japan to the U.S. before that), and many of the parts inside the products assembled in China are still made in those countries. The challenge posed by the rise of China (and India) must be

27. U.S. data from the Bureau of Labor Statistics historical employment data, <ftp://ftp.bls.gov/pub/suppl/EMPSIT.CESEEB1.txt>; Japanese data from the Japan statistical yearbook.

seen as just one part of the broader integration of ever-larger portions of the world's population into the global economy. Because China and India are so populous, however, their integration has produced an expansion in the global pool of labor that is an order of magnitude greater than was the case when the international economy absorbed the fruits of labor from Taiwan or South Korea. This has deprived labor-intensive manufacturing industries in the United States and Japan of the ability to hold onto market share, and it has eroded the ability of workers in our countries to win wage increases.

What makes the growth of Chinese manufacturing exports particularly difficult for advanced industrialized nations to absorb is the rapid pace at which they are surging into new sectors of the economy. The first wave of Chinese exports came in consumer product sectors such as textiles, shoes, and electronics. The American and Japanese consumer product industries were already suffering before the rise of China, but the rapid expansion of Chinese production effectively sealed the fate of mass production in these industries. Employment in the U.S. textile and apparel sectors has declined by 750,000 jobs (53 percent) since 1996, while that in Japan has fallen by 343,000 jobs (43 percent).²⁸ Employment in consumer electronics has fallen sharply over the same period, by 580,000 jobs (25 percent) in the United States and by 377,000 jobs (22 percent) in Japan.²⁹

The next wave of Chinese exports may threaten a centerpiece of the American and Japanese industrial economies in the twentieth century: the auto industry. U.S. annual imports of auto parts from China are up from \$1.9 billion to \$4.2 billion over the past five years.³⁰ Imports of parts are also up in Japan, from \$620 million in 2000 to \$2.2 billion in 2005.³¹ These increases still represent relatively small proportions of the American and Japanese markets—only

28. U.S. data are for “textile mills,” “textile product mills,” and “apparel” from the Bureau of Labor Statistics (BLS) Current Employment Statistics Survey on Employment, Hours, and Earnings, contrasting employment in 2005 with that in 1996, <http://www.bls.gov/webapps/legacy/cesbtab1.htm>. Japanese data are for “textile mill products” and “apparel” from the Ministry of Internal Affairs and Communications (MIAC) Statistics Bureau, contrasting employment in 2002 with that in 1996, <http://www.stat.go.jp/data/chouki/zuhyou/08-06.xls>.

29. U.S. data are for “computers and electronics products” plus “electrical equipment and appliances” from the same BLS survey. Japanese data are for “electrical machinery and equipment” from the MIAC Statistics Bureau.

30. Figures are for vehicles and parts from 2000 to 2005, from the TradeStats Express database of the U.S. International Trade Administration, <http://tse.export.gov/>.

31. Data is from the Japan Auto Parts Industries Association based on Trade Statistics of Japan, Ministry of Finance.

enough to make the Chinese the fourth-ranking supplier of parts to the American auto industry behind Mexico, Canada, and Japan.³² Nevertheless, the increase in parts imports from China, combined with the challenge from other low-cost foreign suppliers, has been enough to force a substantial contraction of the industry.

American motor vehicle and auto parts employment had been buoyant through 2000 at more than 1.3 million jobs, but the industry has since lost 215,000 jobs (16 percent).³³ By the spring of 2006, four of the largest American auto parts makers were in bankruptcy (Delphi, Dana, Tower Automotive, and Collins & Aikman). Their court-directed reorganization plans are slated to close many plants, cut wages and benefits, and cut workforces significantly in the coming years. The Japanese motor vehicle and parts industry has lost jobs too, down by 56,000 (6 percent) between 1996 and 2002.³⁴

All of this is happening before Chinese automakers have exported a single complete vehicle to Japan or the United States. In 2005 Chinese motor vehicle exports totaled only 172,800, most of them small vans exported to developing countries for use on farms. But this figure was larger than China's auto imports (161,900) and thus was large enough to make China a net exporter of vehicles for the first time. Over the next several years, Chinese auto firms, led by Chery and Geely, are expected to expand exports significantly and begin exporting to advanced industrial markets. Honda has already begun exporting Chinese-made vehicles and plans to do so in larger volumes in the near future.³⁵ Chinese auto production has already increased from 3.3 percent of world motor vehicle production in 1999 to 8.6 percent in 2005. During this same period the combined share of American and Japanese auto production fell from 42 percent to 34 percent.³⁶ If this trend continues, with Chinese automobile and auto parts exports surging into U.S. and Japanese markets in the way textiles and consumer electronics have over the past decade, the economic and political dislocation could be significant.

32. PowerPoint presentation made to Study Group on September 21, 2005, by staff of the Chicago Federal Reserve Bank (page 13).

33. Bureau of Labor Statistics (BLS) Current Employment Statistics Survey on Employment, Hours, and Earnings (see n. 25).

34. Ministry of Internal Affairs and Communications (MIAC) Statistics Bureau (see n. 25).

35. *Financial Times*, February 28, 2006, 3.

36. Chicago Federal Reserve Bank presentation, 14; International Organization of Motor Vehicle Manufacturers.

The impact of India's rise has been very different from China's. India is by no means a manufacturing giant. Instead, its global economic impact has been felt most in the service sector as India has won "outsourcing" business in the past decade, made possible by advances in telecommunications, broadband, and Internet technologies.

In the mid-1990s, annual Indian "software exports" (defined as on-site and offshore professional services, consultancy and training products and packages, and IT-enabled services) were estimated at no more than \$665 million. By the late 1990s, however, these exports had grown to about \$3.7 billion per year as Indian workers began providing call-center support, reading the results of radiological scans, and crunching financial data for large multinational firms.³⁷ By 2004 Indian annual outsourcing revenue had grown to almost \$20 billion, with some predicting it could reach \$35 billion by 2008.³⁸ These numbers remain small relative to those in manufacturing trade, but they have been large enough to contribute to a slowdown in growth of some service sectors in the United States. American employment in computer systems design and related services, for example, increased by 844,000 jobs (206 percent) from 1990 to 2000. Since then it has fallen by 65,000 jobs (5 percent).

Moreover, the impact of growing economic exchange with India and China has not been limited to the specific sectors hit with job losses. Lower-skilled workers in general have seen their bargaining power eroded as the integration of the giant Chinese and Indian labor markets into the global economy over the past decade has put a seemingly unlimited pool of workers into competition with employees in advanced industrialized nations. This has created what Morgan Stanley's Stephen Roach calls an "increasingly powerful, IT-enabled global labor arbitrage that reslices the global pie" between capital and labor. Even though wage levels are also influenced by technological change, immigration, and macroeconomic conditions, the incorporation of large, new Indian and Chinese labor forces into the global economy has been one factor contributing to the stagnation in U.S. and Japanese wages. American wages and benefits rose only 2.2 percent per year between 2001 and 2005, even as productiv-

37. T.N. Srinivasan and Suresh D. Tendulkar, *Reintegrating India with the World Economy* (Washington, DC: IIE, 2003), 59.

38. Joydeep Mukherji, "Discussion Paper on India: The Future of the Indian Economy and Its Impact on the World," August 2005 (prepared for the September 2005 Study Group meetings), 17.

ity rose 3.3 percent a year.³⁹ Meanwhile, Japanese real wages have actually fallen by a total of 3.4 percent over roughly the same period (2000 to 2005).⁴⁰

Sustaining International Economic Openness

Given the intense political pressures surrounding globalization, governments in Japan and the United States have done a good job resisting the temptation to throw sand in the wheels of international economic integration. Both countries have responded to troubles in multilateral trade talks, which culminated in the suspension of the Doha Round, with aggressive agendas for bilateral and regional trade liberalization. In the United States, at least, this is a significant change from the 1980s, when the United States responded to protectionist pressures by insisting on the imposition of “voluntary export restraints” (VERs) on their competitors (primarily Japan) and used “Super 301” legislation to call for the cessation of “unfair trade practices” among competitors under threat of unilateral American trade sanctions. Over the past decade, China has periodically been the target of protectionists in the United States and Japan. But most disputes have focused on relatively small and specific product segments, and they have been resolved without the imposition of long-term protectionist barriers.

The relative quiet so far does not mean that we can assume the global trading system will easily absorb China and India as major players. China is new to the WTO and has been busy trying to live up to the commitments it made when it joined the organization in 2001. It has largely watched the multilateral bargaining from the sidelines. India was a significant player in the Doha negotiations, but not as a vocal advocate of broad-based global trade liberalization. Rather, India was a leader among developing countries in the fight for special treatment in the service sector and in decrying agricultural protectionism in Europe, Japan, and the United States.

As the momentum behind multilateral trade liberalization has slowed to a virtual stop, Asia has engaged in increasing efforts to cre-

ate bilateral and regional FTAs, just as Europe and the United States have. The decisions of ASEAN to create and deepen its regional FTA over the course of the 1990s, followed by efforts to create FTAs with its major neighbors and external trading partners (China, Japan, and South Korea) have contributed to a “spaghetti bowl” of agreements in Asia.

Japan has FTAs with Singapore, Mexico, and Malaysia and is in various stages of talks with many other Asian nations, including ASEAN as a whole and India. Most of the agreements Japan has made so far have included “higher quality” provisions in the areas of intellectual property rights, investment, and services. However, the scope of tariff cuts has been limited by Japan’s unwillingness to accept deep cuts in farm barriers.

China has been more willing to make agreements that include agriculture, making it an attractive partner for ASEAN agricultural exporters like Thailand. Thailand has seen a rapid increase in farm exports since it agreed to an “early harvest” accord with China as a first step toward the China–ASEAN FTA in goods that went into effect in 2005. Nevertheless, China’s FTAs have fallen short of broader, deeper, and “higher quality” free trade agreements such as NAFTA.

The United States has pursued its own set of bilateral free trade agreements in Asia. It currently has accords with Singapore and Australia and has begun talks with South Korea and Thailand. But the United States has yet to approach ASEAN as a whole and is a bystander to recent proposals for an East Asian FTA. President Bush has been a less vocal advocate for and less energetic participant in APEC than was President Clinton. This has significantly reduced the United States’ leadership role in Asian trade liberalization because the Asian countries had already begun to lose confidence in APEC as a mechanism for managing their economies in the wake of the Asian financial crisis of the late 1990s. This explains in part the new dynamism of ASEAN.

The flurry of bilateral and regional activity in the Asia-Pacific may enhance global free trade by generating “competitive liberalization” in other countries. But economists are quick to point out that bilateral and regional FTAs can also create distortions that weaken the global system of freer trade. If Japan is unable to keep up with ASEAN’s recent moves toward an FTA with China (including the FTA on goods that is already in place and the ongoing negotiations on services), Japan will face higher tariffs than its East Asian competitors in a large part of Asia. The lack of U.S. involvement in Asia may have similar effects. The resulting shift in trade patterns would connect

39. Stephen Roach, comments in Morgan Stanley’s online Global Economic Forum, February 6, 2006.

40. Data from the government’s Labor Force Survey shows that cash wages are down 5.3 percent since 2000, while its Consumer Price Index shows cumulative deflation of only 1.9 percent over this period, for a net loss of 18 percent in real purchasing power, <http://www.stat.go.jp/english/19.htm> and <http://www.mhlw.go.jp/english/database/db-1/18/1801pe/xls/1801t1pe.xls>.

the ASEAN countries more with China and less with Japan and the United States. And, a Chinese-led FTA regime in Asia would likely be weaker in its provisions on intellectual property rights, investment, and services than would be an Asia-Pacific regime led by Japan and the United States.

It is therefore important to pay attention to the effects of the withering of APEC as a forum. APEC, which includes the United States, Japan, China, and eighteen other Asian, North American, and Latin American economies, has held annual summit meetings since 1989. In 1994 in Bogor, Indonesia, APEC leaders declared their intent to liberalize trade and investment completely by 2010 for developed economies and 2020 for developing economies. Because the group included three of the largest economies in the world and was committed to “open regionalism” and deeper integration in areas such as investment and intellectual property rights, APEC was seen as the vehicle that might push the WTO to the next level.

Unfortunately, after APEC proved powerless to address very real economic problems during the Asian financial crisis and then became deadlocked during its efforts to jump-start the WTO with a commitment to Early Voluntary Sectoral Liberalization (EVSL) in 1998, APEC has been reduced to little more than a “talk shop.”

In its wake, the ASEAN Plus Three forum became a venue for discussing regional issues, economic as well as political. As its name implies, this group is restricted to the ASEAN nations plus the big three economies of Northeast Asia: Japan, South Korea, and China. It is therefore much less inclusive than APEC, leaving out the United States, Taiwan, Australia, New Zealand, and Latin American countries. It also leaves out India, which is not a member of either ASEAN Plus Three or APEC.

Over the past two years, Asian nations have also begun devoting energy to a brand new forum, the East Asia Summit, where the nations discuss economic and security issues, including the possible creation of a regionwide “East Asian Community.” The East Asia Summit grouping includes China and India as well as Australia and New Zealand, but it excludes the United States and Latin American countries. China has urged that the next summit include Russia. If this new body becomes a significant player in Asian economic and political relations, it would clearly complicate efforts by Japan and the United States to respond to the economic rise of China and India.

The Study Group believes that Japan and the United States should reaffirm their commitment to a free and open global trad-

ing system as the “first best” outcome for the global economy. They should also resist domestic political pressures to blame China and India for economic challenges that are largely homegrown. The likely consequences of hectoring China and India would be soured economic relations among the four nations whose futures (not to mention those of the global economy) are inextricably tied to their economic interactions.

The United States and Japan should strive to reinvigorate multilateral trade liberalization, either through a revived Doha Round or a new initiative at the WTO level. A joint proposal from the two governments going beyond their previous concessions on agriculture might still resuscitate Doha. It is especially important that the WTO dispute settlement process be strengthened as a neutral and respected arbiter of trade disputes. Continued Japanese and American support of WTO dispute resolution, including acceptance of all its decisions, could only help global trade.

But given that progress in the short term at the multilateral level is far from guaranteed, Japan and the United States should work together on regional economic integration and openness in the Asia-Pacific. Of course, this should be executed in ways that are compatible with multilateral liberalization. The United States and Japan should work to ensure that advances made through bilateral or regional FTAs are structured so as to facilitate their eventual adoption by and absorption into the multilateral trading system.

Japan is already making progress in its efforts to establish a network of FTA agreements. It should make every effort to build on what has been achieved so far and to realize the vision put forth by the Japanese Minister of Economy, Trade, and Industry (METI), Toshihiro Nikai, of an East Asian FTA that incorporates all of ASEAN, China, South Korea, India, Australia, and New Zealand. There are no comparable U.S.-ASEAN talks on an FTA. Nevertheless, the United States has a number of agreements in the region and is currently working on a particularly important agreement with South Korea. The South Korea-U.S. FTA is promising because it is being negotiated with the understanding that all of agriculture, services, investment, and intellectual property rights are on the agenda. The United States should continue its efforts to arrange a deep and broad FTA with South Korea, while pushing for a similar FTA with Japan and a broad regional agreement with Asia as a whole.

A Japan-U.S. FTA should be a central part of this initiative since it has the potential to be deep and broad and could help push the WTO process forward by overcoming resistance to liberalization on

some of the toughest issues (agriculture, services, investment, intellectual property rights, antidumping, and migration). To facilitate an agreement that includes agriculture, the United States should offer to include in the FTA a food security provision promising that it will never cut off food exports. This is currently allowed under WTO rules and was done thirty years ago when President Nixon cut off soybean exports to Japan.

The agreement should also include: (1) commitments to forgo unilateral antidumping duties against each other (requiring instead a dispute settlement process), (2) an investment code at least the equivalent of the one governing NAFTA members, (3) commitments to open up service sectors that are heavily protected by regulations, (4) harmonization of intellectual property rights protections at a much higher level than provided for under the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), and (5) an agreement on migration that allows liberal immigration between the United States and Japan. The intellectual property provisions of such a deal could be used as a model for other Asian bilateral or regional trade agreements.

Meanwhile, the United States should seek an FTA with ASEAN as the central building block of a liberal Asia-Pacific regional trading regime. An agreement with ASEAN is an attractive opportunity for the United States because this group of Southeast Asian nations has taken the lead in calling for an East Asian FTA. The United States needs to be at the table when such potential arrangements are discussed since it is a major economic partner of all of the East Asian nations. Once it has a seat at the table, the United States would be better able to argue that the East Asian FTA should include all APEC economies (including Australia, Taiwan, New Zealand, Canada, Mexico, Chile) as well as India.

Finally, Japan and the United States should support openness at home by empowering those dislocated by globalization through education and training. We need strong political leaders in both nations to make the case for how openness contributes to the public good, but we also need leaders who are sensitive to the needs of those who may lose jobs or bargaining power over wages as a result. The Study Group calls on our governments to spread the gains of liberalization by boosting the incomes of lower-wage workers. We also call on our governments to increase support for training programs that assist workers who have lost jobs due to import competition, while also strengthening education more broadly to provide our citizens with the ability to adjust to a fast-changing economy.

RECOMMENDATIONS

- 3.1 Japan and the United States should continue to support WTO multilateral trade liberalization, but they should simultaneously promote regional economic integration and openness in the Asia-Pacific that is compatible with WTO.
- 3.2 A Japan-U.S. FTA should be developed to take the lead on difficult issues plaguing broader trade liberalization such as agriculture, services, investment, intellectual property rights, antidumping, and migration.
- 3.3 The United States should try to gain a seat in pan-Asian trade negotiations (the "ASEAN plus" groupings) and work with Japan to broaden these discussions to create an APEC-wide FTA.
- 3.4 Japan and the United States should support openness at home by empowering those dislocated by globalization through education and training.

Chapter IV

Promoting Technological Diffusion and Economic Innovation

If economic competition from China and India were solely in low-tech industries such as shoes, leeks, and underwear, Japan and the United States would have a much easier time dealing with the rise of these economies. What has become clear in the past several years, however, is that these nations are poised to compete for markets in high-technology goods and services. These areas were supposed to provide the “good jobs at good wages” in our countries to replace those lost at lower wage scales. In some sectors, Chinese and Indian companies can already compete for high-tech markets on the basis of their highly skilled engineers and scientists. In others, they have sought to gain an edge by infringing on the intellectual property rights of American and Japanese competitors. Since some of the technologies involved have military applications, the potential for advances in Chinese and Indian technologies to weaken American and Japanese security is also beginning to concern defense planners in Washington and Tokyo.

In many ways, this situation resembles the U.S.-Japan economic conflicts that arose in the 1980s after Japanese electronics firms gained a lead in memory chip technology and supplied the Soviet Union with milling equipment that enabled their submarines to run much more quietly than they had before. This led the United States to impose sanctions on Japanese chips in 1986 and U.S. congressmen to smash Japanese electronics equipment with baseball bats on the steps of the Capitol building. If technology competition could get this hot between two such strong allies, it is easy to imagine how similar developments involving China and India might quickly escalate into serious economic conflict.

How significant is the Chinese and Indian challenge in technology? Pundits emphasize that Chinese and Indian universities are producing large numbers of scientists and engineers. In 2003 China graduated 9,100 science and engineering (S&E) PhDs. But the trajectory suggested by the size of its entering class that year (48,740) makes it inevitable that China will be producing more S&E doctorates than the United States by 2010.⁴¹ With the number of PhDs being

41. Richard B. Freeman, “Does Globalization of the Scientific/Engineering Workforce Threaten U.S. Economic Leadership?” Paper prepared for Innovation Policy and the Economy Conference, April 19, 2005, 5.

earned in Europe and India also up sharply, by 2010 the United States will likely be producing just 15 percent of the S&E doctorates in the world. Japan’s share is likely to be under 5 percent.⁴²

Meanwhile, the United States has already lost the number one position it once held in the number of university-trained engineers (graduating with degrees at both the undergraduate and graduate levels). India is currently graduating 215,000 engineers a year and China 350,000, compared to 222,000 in the United States and 63,000 in Japan.⁴³ However, some of the graduates of these engineering programs, especially in China where they have been expanding at breakneck speed, are not currently up to the level of American and Japanese graduates. One study estimated that just one-third of the graduating engineers in China met the standards expected by multinationals.⁴⁴ Nevertheless, it is likely that Chinese programs will improve as they adjust to the recent influx of students. The graduates of the best engineering programs in India are already commensurate with the best American and Japanese engineers.

Furthermore, many of the individuals receiving graduate degrees in science and engineering in U.S. universities are international students, raising questions about how many will remain in the country to meet the demand for their expertise. In 2002 international students accounted for 35 percent of PhDs in physical sciences and almost 60 percent in engineering.⁴⁵ Since 9/11, the United States has made it more difficult for those earning degrees in the country under temporary visas to remain after graduation. This policy was put in place despite the fact that American universities have been unable to meet the local employment demand for scientists and engineers with advanced degrees. Labs that employ postdoctoral workers, in particular, have had to rely on foreign-educated scholars for a significant portion of their workforce. About 80 percent of postdocs on temporary visas had non-U.S. doctorates in 2001. Unable to find enough qualified science and engineering talent, American firms and universities have pushed for an expansion

42. The U.S. number is extrapolated from recent trends by Freeman (ibid.); Japanese projected share is based on the assumption that the ration of Japan’s degrees to those in the United States (1:3) will not increase.

43. Data for all nations other than Japan supplied by Michael Zielenziger, Discussion Paper: Japan and the Innovation Challenge, June 2006 (prepared for the July 2006 Study Group meetings in Tokyo, Japan). The number for Japan is for those finishing a master’s degree in engineering in 2003, from Ministry of Education, Culture, Sports, Science, and Technology (MEXT) data.

44. “Are India and China up to the Job?” *Financial Times*, July 19, 2006.

45. Freeman, 5-6 (see n. 38).

in the quota of H-1B visas (65,000 a year since 2003) so they can fill their jobs with immigrants.

A shortage of graduates in science and engineering has also emerged in Japan, where demographic trends have dramatically reduced the number of young people reaching university age as science and engineering have lost some of the allure they once enjoyed. The number of undergraduates studying engineering was down from 471,000 in 1999 to 447,000 in 2003, while the numbers for social science and humanities increased.⁴⁶ While Japan has made an effort to attract foreign students to its universities with scholarships and other support, it has been unable to expand its pool of science and technology workers. Visa rules force these foreign students to return to their home countries after they finish their degrees unless they are permitted to change their residence status to a new visa category.

The availability of large pools of lower-paid science and engineering workers in China and India, along with shortages at home, have encouraged American and Japanese firms to begin doing a growing share of their research and development (R&D) in those countries. Motorola, for instance, now has sixteen R&D offices in five Chinese cities, employing more than 1,800 researchers. The American software industry has similarly expanded its operations in India, taking advantage of the fact that Indian engineers can be hired for one-third to one-half the cost of comparable workers in Silicon Valley. The pharmaceutical industry too has been attracted to India by the opportunity to conduct clinical drug development and R&D at a fraction of what it costs in the United States.⁴⁷ A recent Booz Allen Hamilton survey of 186 top companies found that over the next several years these firms plan to locate the bulk of their new R&D centers in China and India, employing 31 percent of all R&D employees in these countries by 2007, up from 19 percent in 2004.⁴⁸

American firms have been at the forefront of this expansion of R&D work in China and India, driven in part by the international networks built by Chinese and Indian engineers who work for a few years in the fast-paced American entrepreneurial system and then return to their homelands to launch their own startups. U.S. venture capital has aided this process as it has looked eagerly for opportuni-

ties to invest seed capital in promising new technologies. This has allowed firms working in China and India to leapfrog into the first tier of innovation in some segments of the software, semiconductor, and mobile telephony industries.⁴⁹ As a result, China and India are today exporting goods and services with much higher high-tech content. Harvard Business School professor Michael Porter reported that in four areas of emerging technology, China is now fourth in the world in publishing scholarly articles after the United States, Japan, and Germany. Japanese authorities estimate that China is already close behind their scientific community in publications and patents in the cutting-edge area of nanotechnology.⁵⁰

Japanese firms, conscious of how China is closing the technology gap, have kept most of their research operations in Japan and located their overseas R&D operations in Europe and the United States rather than China. Their R&D operations are much less plugged into the transnational network of Chinese and Indian engineers who move abroad to study and then move back to their home countries than is the case in the United States. Japanese firms have also deliberately divided production between domestic and overseas factories to ensure that cutting-edge products are always developed at home. When production of such goods is transferred overseas, key technological components are kept “black-boxed” to minimize the chance that the technology will be copied by Chinese competitors. Japanese universities, too, have tended to hire few foreign scientists, relying on nationals to staff their research labs.

Despite these efforts to protect new technology, Japanese and American firms have recently reported a growing number of intellectual property piracy cases. The Japan External Trade Organization (JETRO) maintains a display in its Beijing office showing the latest examples, including copies of Yamaha’s latest motorcycles and products onto which the misspelled “SQNY” name is pasted onto products SONY does not even produce. American firms too have been victims of piracy. Six months before General Motors (GM) was ready to start production in China of a new car model called the Spark, the company found out that the Chinese auto company Chery had produced an identical car under the name “QQ” for sale at a price 25 percent below what GM had planned to charge. The car was based on a design GM had obtained from Daewoo when it acquired a controlling interest in that South Korean auto firm. The cars were so similar

46. MEXT data for undergraduate degrees in engineering, <http://www.mext.go.jp/english/statist/xls/082.xls>.

47. Michael Zielenziger, Discussion Paper: Japan and the Innovation Challenge, June 2006 (prepared for the July 2006 Study Group meetings in Tokyo, Japan), 2.

48. *Wall Street Journal*, “China and India Lure Corporate Research Centers,” July 13, 2006.

49. Michael Zielenziger, Discussion Paper: Japan and the Innovation Challenge, June 2006 (prepared for the July 2006 Study Group meetings in Tokyo, Japan), 6-7.

50. Freeman, 28 (see n. 38).

that when doors were removed from the QQ and the Daewoo vehicle and switched, they fit perfectly.⁵¹ The QQ, priced at around \$4,000, has become one of Chery's best-selling models. GM sued in Chinese courts in an effort to challenge the patent infringement but ended up settling out of court in November 2005.⁵²

While such cases highlight the need for Japan and the United States to be vigilant in pressing China and India to respect intellectual property rights, the Study Group's answer to the innovation challenge from these countries is the same as our overall approach to growing trade and capital flows: Welcome the competition. Just as competition from the Soviet Union prompted us to develop better computers and the Internet, and just as competition from Japan prompted American firms to improve the quality of their manufacturing processes, free and fair technological competition with China and India will stimulate further innovation in all four countries.

The United States and Japan should promote expanded cross-border movement of individuals in all fields, including science and technology, among all four countries. This policy should also extend to all domains, including educational, business, and cultural exchanges as well as tourism. Liberalization of immigration laws in the United States (including more H1B visas) is needed to maintain the powerful stimulus that foreign students, researchers, and engineers have provided to the American system of innovation. Japan also needs to expand the number of skilled-worker visas allowed under its immigration laws. Because the Japanese language is an additional hurdle for foreign engineers from nations like India, the government should expand the use of English in technology labs through reforms in the structures of higher education and labs.

Second, Japan and the United States should improve the quality and efficiency of primary and secondary science education (and the United States should also improve math education). In both nations the pool of native-born science and technology researchers as well as engineers has failed to keep up with demand because of deficiencies in basic education and a failure to motivate and encourage young people to enter these fields.

Finally, the United States and Japan should encourage and assist China's and India's efforts to streamline and strengthen intellectual property rights (IPR) protection through trade missions, bilateral consultations, and training assistance programs. They should

also work to strengthen IPR protection in China and India through the WTO and through efforts to include rigorous IPR provisions in bilateral and regional FTA agreements, as discussed in our recommendations in Chapter II. Japan is planning to move in this direction already in its FTA negotiations with India.

RECOMMENDATIONS

- 4.1 The United States and Japan should promote cross-border movement of highly skilled people in science and technology among their two countries and China and India.
- 4.2 Japan and the United States should improve the quality and efficiency of primary and secondary science education.
- 4.3 The United States and Japan should encourage and assist China's and India's efforts to streamline and strengthen their systems of intellectual property rights protection.

51. Peter Hessler, "Car Town," *New Yorker*, September 26, 2005.

52. *Financial Times*, February 28, 2006, 3.

Chapter V

Managing Energy Competition and Reducing Environmental Degradation

The economic engines that have propelled the rapid growth of China and India run primarily on fossil fuels—in larger quantities every year. China’s electricity demand is expected to triple by 2025, while India’s is projected to rise by 150 percent. To keep up with this demand, China will need to construct, on average, five 250-mega-watt power plants every week for the next two decades. If current trends hold, most of these power plants will be coal-fired. The two nations alone are projected to account for 75 percent of the entire increase in world coal demand over the next twenty years.

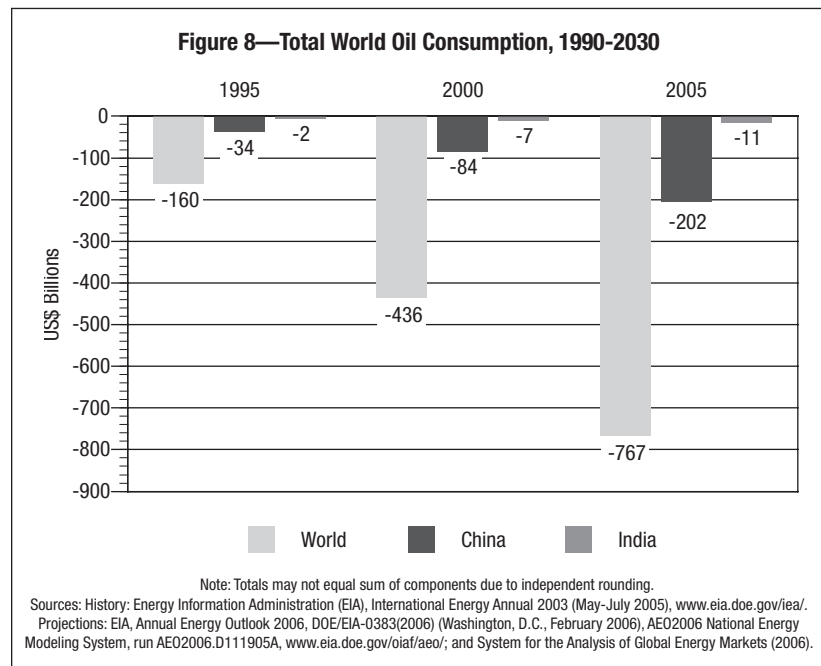
Meanwhile, Chinese and Indian demand for oil is also growing very rapidly (see Figure 8). China is already the world’s third largest oil importer, while India is the seventh largest. Forecasts suggest that the two nations will account for 30 percent of world oil demand growth over the next two decades. China and India currently rely on natural gas for relatively small shares of their energy (3 percent in

China and 8 percent in India), but they are making concerted efforts to expand their gas infrastructure and develop the capacity to import gas via sea through liquefied natural gas (LNG) terminals and over-land from Russia, Iran, and Central Asian nations.⁵³

The impact these two nations are already having on world energy markets could be seen in 2003-04, when China’s decision to use oil to boost electricity production quickly in the face of shortages led to a surge in its oil imports. This contributed strongly to exceptionally high global oil demand growth in 2004. The resulting tight energy markets caused oil prices to double between 2003 and 2005, pushing them up to record-high levels. At about the same time, China’s rush to expand its access to energy resources sparked controversy in the United States. When the state-owned China National Offshore Oil Corporation (CNOOC) attempted to acquire Unocal in 2005, fears were raised in the U.S. Congress about American-held energy resources falling under the control of the Chinese government. The United States has also been concerned about Chinese and Indian efforts to try to “lock up” long-term energy deals with nations ranging from Canada (tar sands) and Australia (uranium) to Iran (gas) and Venezuela (oil). Moreover, growing Chinese and Indian energy investments in “problem states” such as Iran, Venezuela, Myanmar, Sudan, and Syria are adding to U.S. concerns over the impact of China’s and India’s outward reach for energy resources.

Perceptions of growing national competition for energy resources has also been strong in Japan. Japan imports virtually all of its energy and is wary of competition with China for access to these resources. The governments of both Japan and China have been engaged in a prolonged bidding war over Russian plans to build a pipeline from East Siberian oil fields to either northeastern China or, alternatively, to the Pacific Coast to supply Japan’s market. Japanese officials have also reacted strongly to China’s recent development of a natural gas field near disputed territorial waters in the East China Sea, arguing for joint development since production from the field could potentially siphon off reserves that extend into waters claimed by Japan.

These episodes demonstrate how the perceived competition for scarce energy resources could become a major flash point in international relations. The fact that we are seeing these strains already, even when China and India are still consuming relatively low quan-



53. Mikal Herberg, Discussion Paper: The U.S. and Japan and the Energy Rise of China and India (prepared for the July 2006 Study Group Meetings in Tokyo, Japan)

tities of energy per capita (compared to the advanced industrialized nations), is particularly disconcerting. As growing numbers of middle-class Chinese and Indians seek to mimic Western lifestyles, including reliance on the automobile and the widespread use of central heat and air for the home, we can expect their demand for energy to put even greater strains on energy markets. If the world's energy producers cannot boost output fast enough, we are likely to see continued strong pressure on global oil supplies and prices. The prospect that energy markets could remain tight for many years also raises concerns about political instability in energy-producing nations. Competition for access to resources in a tight market may undermine diplomatic efforts to deal multilaterally with key, energy-rich problem states such as Iran and Sudan.

Even if global oil production can be increased rapidly in the short term, and even if we can somehow avoid trouble in politically volatile, energy-producing states, oil demand will continue to rise as the Chinese and Indian economies grow larger—adding to the long-term problem of tight and volatile oil markets. Oil reserves that can be accessed at low cost by the major international oil companies in places like the United States and the North Sea are being exhausted. Of the remaining oil reserves, 90 percent are controlled by state-owned, national oil companies and are largely off-limits to investment by the major international companies. Even the size of these reserves has been disputed by some analysts because national oil monopolies are under political pressure to exaggerate the size of their reserves.

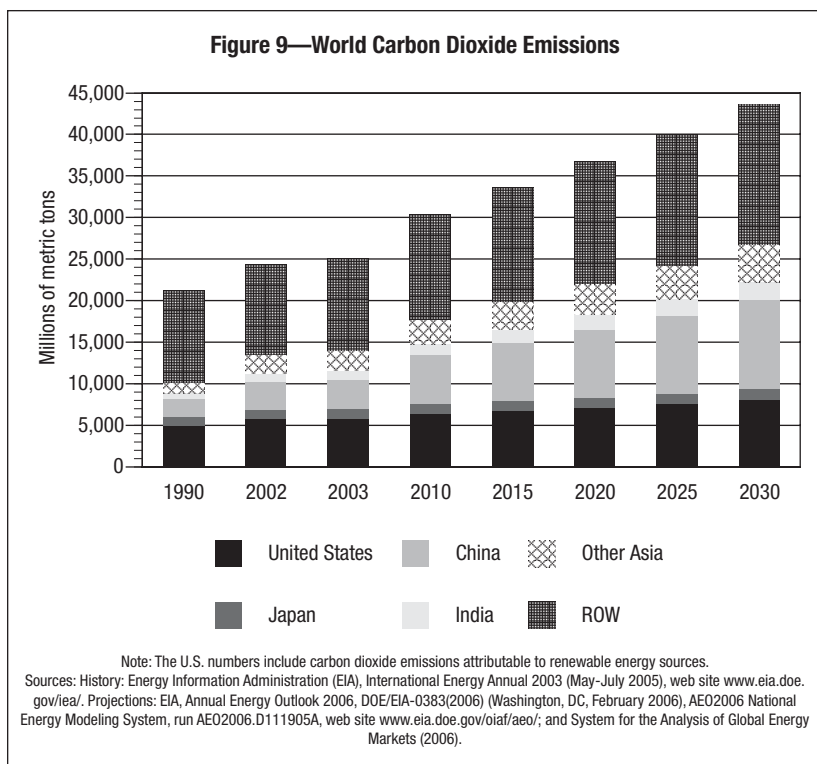
Uncertainty about whether the world's oil reserves can be tapped at a sufficient pace to keep up with growing demand is among the reasons international oil companies and states are focusing increasingly on the world's large untapped natural gas reserves, especially to meet rising electricity demand. But while the size of global gas reserves is large, the cost of transporting natural gas long distances is high compared with oil, which can be transported cheaply and flexibly by ship. In addition, global gas supplies are concentrated among a small group of countries, mainly Russia, Turkmenistan, Iran, and Persian Gulf states. These factors increase the risk of supply disruptions and future competition over access to supplies. Moreover, both India and China are moving to access future gas supplies from Iran and natural gas via a pipeline from Myanmar. Competition between India and China to gain preferential access to potential Myanmar offshore gas reserves underscores the potential for international conflict driven by energy competition.

One of the great achievements of the postwar international oil market has been its depth and the assurance that buyers could access the oil they needed as long as they were willing to pay the prevailing world price. If large portions of the world's gas reserves are controlled by a few strategic customers or are operated on nonmarket principles whereby gas is sold on a preferential basis to "friendly" customers, we may see the return of conflictual international competition for control of energy resources.

Closely related to the challenge of managing China's and India's growing energy demands is the challenge of avoiding further environmental degradation driven by their growing consumption of fossil fuels. As noted above, most of the power plants being built in China and India are powered by coal. The nations have large domestic supplies of coal, and with large supplies available on international markets, it remains the most cost-efficient option for supplying much-needed electricity in China and India. Yet coal is also the dirtiest fuel source. Coal produces much larger quantities of carbon per unit of energy produced (four tons of CO₂ per ton of coal burned) than other forms of energy. It also produces large volumes of sulfur dioxide, which causes serious health problems as well as acid rain. It is estimated that high ambient pollution in urban areas in China, mostly due to coal burning, accounts for the premature deaths of 178,000 people per year.

Even if China and India are able to reduce pollution from stationary sources by adopting the latest technologies, they will face the equally daunting prospect of coping with the growing use of automobiles. China's vehicle fleet is projected to rise from thirty million on the road today to 120 to 150 million by 2020. The nation is already home to sixteen of the twenty most polluted cities in the world. As strong economic growth continues, oil demand will rise rapidly. As more city residents come to rely on the automobile as their primary means of transportation, pollution levels will get even worse and cause widespread health problems.

While all of these environmental problems are already causing human suffering and economic losses in China and India, they have international implications for global warming as a result of greenhouse gas emissions. At present, neither China nor India (nor the United States) is governed directly by the Kyoto Protocol on Global Warming, so each nation is making only voluntary and, in most cases, limited efforts to slow their rapidly rising carbon emissions into the atmosphere. China's total CO₂ emissions are projected to rise 250 percent by 2025, while India's are expected to double. With the



United States expected to account for a large portion of CO₂ emissions as well, the three non-Kyoto nations are projected to account for 56 percent of the global increase in carbon dioxide over this period (see Figure 9).

On the current trajectory, the world is on its way to seeing atmospheric carbon dioxide levels rise from the current level of 380 parts per million to 600 parts per million by the end of this century. CO₂ levels are already up from 300 units per million in the 1950s, and scientists project that the expected doubling of these levels risks warming the globe by 3 to 9 degrees Fahrenheit, even if alternative energy sources are used in significant volumes after the middle of the century. An increase in average temperatures of this magnitude is unprecedented in human history. Among the potential results of global warming is the possibility that shifts in weather patterns will produce permanent shortfalls of precipitation in areas that are currently fertile, leading to destabilizing migration flows, political instability, and an increased risk of war. There is also the risk that melting

ice caps will raise sea levels, inundating coastal cities and reducing the salinity of the North Atlantic to the point where it shuts down the Gulf Stream that currently warms Europe.

Tightening energy markets have made it tempting for China and India as well as our own governments to fall into a spiral of national competition over access to energy resources. Similarly, the significant burdens of reducing the environmental impact of our energy use have discouraged each nation from taking much action, in hopes that other nations will bear the burden of reducing carbon emissions. However, our fates in both of these areas are intertwined. We all suffer when energy markets are tight and access to energy supplies is uncertain and increasingly politicized. And, we will all suffer when our failure to curb carbon emissions causes rapid global climate change.

Dealing with these issues in a cooperative manner is therefore a win-win proposition for all of us. Japan is a world leader in energy conservation, renewable energies, and the efficient use of hydrocarbons. The United States also has advanced technological resources in these areas, along with strong experience with highly competitive, efficient energy markets. China and India, with their plans to rapidly expand energy use, are a huge market for these technologies and need to move toward more efficient, competitive, market-oriented energy markets. Rather than racing to seize needed oil and gas supplies or attempting to escape the burden of reducing carbon emissions, all four countries need to work together to make sure world energy markets are sufficiently flexible and diversified to cope with growing demand and cooperate to reduce carbon emissions.

First, Japan and the United States should work with China and India to build multilateral and regional energy institutions that enhance energy security through risk-sharing and market-based mechanisms. This would reduce the temptation of all four nations to seek security through national competition over energy supplies. Currently, the International Energy Agency (IEA) operates a system under which the advanced industrialized nations that are members of the OECD each maintain strategic petroleum reserves capable of meeting their own needs for at least ninety days and agree to share their reserves in case an energy crisis leaves one or more of them short of oil. But since IEA membership is restricted to OECD members, China and India are not part of this system.

The United States and Japan should encourage China to expand its recent efforts to build strategic petroleum reserves and encourage India to move forward more quickly with its stated plans to build

strategic petroleum reserves in line with IEA standards. At the same time, they should lead the effort with current IEA members to establish a formal, strong relationship with China and India, providing a framework for cooperation on emergency stocks in the period before they qualify for formal membership in the organization.

Energy markets can also help share risk and reassure energy importers that they do not need to compete to expand territorial claims, develop oil fields, or lock up long-term contracts with energy suppliers. The market is still the most efficient and least geopolitically destabilizing way to allocate energy, even in an era of tight markets. It distributes energy according to the ability to pay and removes the temptation to use political and military power to seek preferential access. We can only avoid the costs of national competition over energy supplies—tolerating problem regimes and risking of military conflict—if the leading energy-importing nations agree to allow energy supplies to be allocated and transported according to market arrangements.

To enhance energy allocation on this basis, the United States, Japan, China, and India, together with Canada, South Korea, Russia, and other leading energy producers and consumers in the region, should set up a regional energy forum designed to help them work multilaterally toward this end. This forum should facilitate the cooperative regional development of energy infrastructure such as major regional oil and gas pipelines, LNG development and terminals, electricity transmission systems, and nuclear energy development. This infrastructure should be set up so that it efficiently moves energy across regional markets and global markets rather than relying on state-driven efforts to move energy exclusively to a specific buyer.

The forum should also facilitate cooperation to protect critical regional sea-lanes such as the Malacca Strait so energy can be securely transported to all regional importers. Finally, the forum should help nations that disagree over territorial boundaries cooperatively develop energy resources that span these borders. Border conflicts over energy resources are common across the world, but the energy industry has developed standard industry arrangements that have allowed for the joint, cooperative development of many of these contested fields. The regional energy forum should work to help East Asian nations apply these principles in a way that allows for the development of oil and gas fields in the East China Sea and the South China Sea.

International cooperation designed to assure that energy is allocated according to market forces rather than military and political

considerations can only work if nations organize their domestic energy markets along similar lines. For this reason, the Study Group's second set of recommendations related to energy and the environment calls for the United States and Japan to encourage China and India to adopt domestic energy reforms that increase the role of market forces. Some of the biggest energy conflicts among our four countries have involved tensions over the preferential access to finance and subsidies given by the Chinese and Indian governments to their national energy companies. These companies have been given access to capital for use in acquiring energy development rights and building infrastructure on terms that are so generous that it distorts patterns of energy development and use. Markets should decide which firms are in the best position technologically and financially to develop energy resources most efficiently.

Moreover, both China and India need to move toward market pricing for energy domestically rather than relying heavily on government subsidies for energy use. The subsidies accelerate rising energy demand and encourage inefficient energy use and industrial development. Japan and the United States experimented with heavy state involvement in the energy industry and energy pricing in the past, but have been moving away from this model for thirty years. We should encourage China and India to do the same.

Increasing the role of market forces in structuring domestic energy markets will also encourage greater investment in areas where development of productive capacity has lagged the growth in demand, especially in India. As noted earlier in this report, India suffers from chronic electricity shortages, in large part because its politicized system for governing electric utilities caps prices, allows siphoning, and gives away a great deal of electricity for free. Reforms designed to price energy, especially electricity and natural gas, according to market forces will encourage greater investment in productive capacity and distribution infrastructure. The growth in capacity will be particularly great if these steps are accompanied by regulatory changes that open energy sectors to private (and foreign) investment so that market distortions caused by state control over supply are not perpetuated.

While the challenges we face in the areas of energy and the environment can be addressed to some degree through the above steps, aimed at increasing energy supplies and improving allocation mechanisms, the challenges are too great to be met through these steps alone. The United States and Japan also need to work together with India and China to accelerate the development of alternative energy

resources, slow down consumption of oil, and cooperate so that our use of fossil fuels (especially coal) imposes the least possible burden on the environment.

Japan and the United States should begin by making full use of the Asia-Pacific Partnership on Clean Development and Climate, a body that already includes representation from all four of the countries that are the focus of this study, along with South Korea and Australia. This group invites industries to work out their own voluntary agreements aimed at reducing carbon emissions. It has the potential to help countries develop cooperative schemes through which companies agree to coordinate investments in the adoption of technologies that improve the efficiency of energy use and minimize the environmental impact of the energy. These schemes could include technology-sharing arrangements under which American and Japanese firms that have the cleanest and most energy-efficient technology agree to share it with counterpart industries in India and China. Such arrangements could have a major impact on carbon emissions, especially if they were designed to share technologies that make the use of coal as clean and efficient as possible, since China and India are planning to rely heavily on coal as they grow.

Motivating industries to adopt these sometimes costly technologies, however, will require continued efforts by the international community to create regulatory and funding mechanisms designed to reward carbon and energy efficiency and punish wasteful and dirty uses of fossil fuels. The Kyoto Protocol is currently the primary international mechanism set up for this purpose, but as mentioned, the regime has many limitations—foremost among them the fact that China, India, and the United States are not full participants. Japan and the United States should work toward a post-Kyoto global warming regime that includes all three Kyoto outsiders and promises steady reductions in carbon emissions through treaty commitments that might include: (1) improved standards across countries requiring high levels of energy efficiency in automobiles, appliances, industrial plants, and other areas; (2) incentives for the use of alternative energy sources; (3) reductions in state subsidies that encourage consumption of fossil fuel; (4) the phased and coordinated adoption of carbon taxes; and/or (5) a cap-and-trade system that encourages international cooperation designed to reduce the carbon intensity of China's and India's economic growth as well as that of the United States and Japan.

The key challenge our four nations and the rest of the world face as we attempt to mitigate global climate change lies in the difficulty

of inducing poor but fast-growing developing nations like China and India (as well as cost-conscious firms in Japan and the United States) not to focus investment in the most energy- and carbon-intensive technologies. As noted above, current plans call for extensive use of coal in China and India. Industrial and electric-generating plants in these nations rarely feature the cleanest and most efficient technology because plants with these features are costly to build, even if they promise cost-savings down the road. Aggressive use of the Clean Development Mechanism provided for in the Kyoto Protocol could also accelerate the diffusion of more energy-efficient technology to China and India, whereby relatively limited amounts of investment capital can yield very large reductions in carbon emissions.

Another way to induce China and India to invest in more efficient and cleaner technologies is to include a cap-and-trade system in a post-Kyoto regime that would include both countries. This would give carbon emitters in the United States, Japan, and other advanced industrialized nations financial incentives to buy carbon credits from potential polluters in China and India, who could then, in turn, use the cash for making their new plants cleaner and more efficient.

Another promising avenue would be to expand bilateral cooperation along the lines of the Japan-China Bilateral Energy Dialogue inaugurated in May 2006 in Tokyo. Bilateral schemes of this type have the potential to motivate and finance technology-sharing by highlighting the common interest our nations have in minimizing pollution and improving energy efficiency. The government of Japan has put yen-based loans behind such initiatives, helping China finance the cost of cleaner and more energy-efficient technologies.

Such schemes could be expanded to share and finance the cost of investing in the latest desulfurization and denitration technologies; carbon sequestration technologies; alternative energy sources like wind and solar power; and the civilian use of nuclear energy. They could also include assistance with the design of energy-efficient cities that maximize use of public transit and minimize use of single-occupancy vehicles. Japan is a world leader in energy efficiency, pollution control, and the design of public transit systems, so it has a great deal to share. The United States also has some world-leading technologies and is in a position to motivate China and India to move toward energy efficiency by moving sharply in this direction itself. We have a lot to contribute through leadership by example.

RECOMMENDATIONS

- 5.1 Japan and the United States should work with India and China to build multilateral and regional institutions that enhance energy security through risk-sharing and market-based mechanisms.
- 5.2 Japan and the United States should encourage China and India to adopt domestic energy reforms that increase the role of market forces.
- 5.3 Japan and the United States should share with China and India new energy technologies for conservation and renewable energy.
- 5.4 Japan and the United States should work toward a post-Kyoto global warming regime that ensures steady reductions in carbon emissions.
- 5.5 Japan and the United States should work with current members of the International Energy Agency to establish a formal relationship with China and India with a view to their eventual membership in the organization.

Study Group Cochairs

Kenneth W. Dam has devoted his career to public policy issues, both as a practitioner and as a professor. In the former capacity he served as deputy secretary (the second-ranking official) in the Department of Treasury (2001 to 2003) and in the Department of State (1982 to 1985). In 1973 he was executive director of the Council on Economic Policy. From 1971 to 1973 he served as assistant director for national security and international policy in the Office of Management and Budget. He began his Washington career as law clerk to U.S. Supreme Court Justice Charles E. Whittaker (1957 to 1958). Professor Dam has spent his entire academic career at the University of Chicago, from 1960 to the present, serving as provost from 1980 to 1982. His publications include *The GATT: Law and International Economic Organization; Economic Policy Beyond the Headlines* (with George P. Shultz), and, most recently, *The Rules of the Global Game: A New Look at U.S. International Policymaking*.

His other activities include serving as IBM vice president for law and external relations from 1985 to 1992 and as president and chief executive officer of the United Way of America for a six-month period in 1992. He has extensive experience as an arbitrator, including five years as the system arbitrator for professional basketball. He is a member of the board of the Brookings Institution and serves as a senior fellow of that organization. He is a member of the Shadow Financial Regulatory Committee and of the National Academies' Science, Technology, and Law Panel. He was chairman of the German-American Academic Council and a board member of a number of nonprofit institutions, including the Council on Foreign Relations (New York) and The Chicago Council on Global Affairs. He served for thirteen years on the board of Alcoa. He received his BS from the University of Kansas and JD from the University of Chicago.

Noboru Hatakeyama has been the chairman and chief executive officer of the Japan Economic Foundation (JEF) since 2002. He served as the chairman and CEO of the Japan External Trade Organization (JETRO) from 1998 to 2002. Mr. Hatakeyama joined the Ministry of International Trade and Industry (MITI) in 1959 and served as a secretary to Prime Minister Zenko Suzuki from 1980 to 1982. Mr. Hatakeyama was appointed director-general of various bureaus and departments, including the Petroleum Department of MITI's Agency of Natural Resources and Energy from 1984 to 1986, the International Trade Administration Bureau from 1986 to 1988, the Basic Industries

Bureau of MITI from 1988 to 1989, and the International Trade Policy Bureau from 1989 to 1991. Mr. Hatakeyama was appointed MITI's vice-minister for International Affairs from 1991 to 1993. During this period he was Japan's representative in GATT Uruguay Round negotiations and other negotiations, primarily with the United States and the EU, focusing on automobile issues.

Mr. Hatakeyama's numerous awards include the Republic of Peru's Grand Cross of the Order of Merit for Distinguished Services, the Republic of Panama's Grand Cross of the Order Vasco Nunez de Balboa, and the Republic of Colombia's Grand Cross of the San Carlos Order received in 2000. In 2001 he was awarded the Republic of El Salvador's Grand Cross Silver Plaque of the National Order of Jose Matias Delgado, the French Republic's Chevalier de la Legion D'honneur, the Republic of Chile's Grand Cross of the Order of Bernardo O'Higgins, the Republic of Indonesia's Order of Service-First Class, the Federal Republic of Germany's Commander's Cross of the Order of Merit, and in 2004 he received the Republic of Paraguay's National Order of Merit in the rank of Grand Official. He authored the book *Trade Negotiation, Dramas around National Interest*, published in Japanese by the Nihon Keizai Shimbun, Inc. Mr. Noboru Hatakeyama graduated from Tokyo University's Faculty of Law in 1959.

Study Group Members

Marshall M. Bouton became president of The Chicago Council on Global Affairs on August 13, 2001. Dr. Bouton came to The Chicago Council from the Asia Society, New York, where he was executive vice president and chief operating officer from 1990 to 2001. A specialist on South Asia, Dr. Bouton cochaired the Task Force on India and South Asia cosponsored by the Council on Foreign Relations, New York, and the Asia Society from 2001 to 2003. Dr. Bouton was previously the director of policy analysis for Near East, Africa, and South Asia international security affairs in the U.S. Defense Department and special assistant to the U.S. ambassador to India, Robert F. Goheen. He was the founding U.S. executive secretary of the Indo-U.S. Subcommittee on Education and Culture. In 1991 Dr. Bouton created the Center for India-U.S. Education within the Asia Society to foster dialogue among key professional groups and promote public education on India.

Dr. Bouton is chairman of the International Advisory Board of the Center for the Advanced Study of India at the University of Pennsylvania. He is a member of the Council on Foreign Relations, the Visiting Committee to the Division of Social Sciences at the University of Chicago, and the International Institute for Strategic Studies of the Malaysia-US Business Council. He serves on the board of directors of Chicago Sister Cities International Program, the World Affairs Councils of America, Leadership Education for Asian Pacifics (LEAP), and the Pacific Council on International Policy. He holds a BA in history from Harvard College, an MA in South Asian studies from the University of Pennsylvania, and a PhD in political science from the University of Chicago.

Geoffrey Garrett became president of the Pacific Council on International Policy on July 1, 2005. A frequent contributor to newspapers, radio, and television in the United States and around the world, he has written widely on the causes and effects of globalization, the interactions between the global economy and international security in the post-9/11 world, inequality, European integration, international law, and partisan politics in capitalist democracies. Dr. Garrett is also professor of international relations, business administration, communication, and law at the University of Southern California. He was previously founding dean of the International Institute and vice provost of International Studies at UCLA. Before that he was director of Ethics, Politics, and Economics at Yale University.

Dr. Garrett has also served on the faculties of Oxford and Stanford universities as well as the Wharton School of the University of Pennsylvania. Dr. Garrett is a Fulbright Scholar and has held fellowships at the Center for Advanced Studies in the Behavioral Sciences and the Hoover Institution at Stanford, the Institute for Advanced Studies in Australia, the Juan March Institute in Madrid, and the Wissenschaftszentrum, Berlin.

Marvin Gottlieb founded M. Gottlieb Associates, Inc. (MGA), an international manufacturers' representative company that specializes in matching world-class technologies with the needs of its Fortune 500 clients, in 1965. Headquartered in Chicago, Illinois, MGA has had offices in Indiana, Michigan, Mexico, Singapore, Hong Kong, London, Portugal, Japan, and Yugoslavia. Mr. Gottlieb has also served as a consultant to IBM and advisor to General Motors, Ford, and Zenith Electronics on global procurement issues. His government experience includes travels to the Far East and Australia with top officials of the Defense Department during the Reagan administration on trips concerning acquisition and procurement.

Recently, Mr. Gottlieb visited Cuba as a member of a fact-finding tour sponsored by the Center for International Policy. An active member of The Chicago Council on Global Affairs, Mr. Gottlieb is a founding member of the Chairman's Circle. Mr. Gottlieb is also the president of Howland International, an Isle of Jersey-based corporation that is actively involved in energy issues and oil reserves. He is currently interested in new approaches to oil exploration, production, and alternative sources of energy. He is an active member of the Association of Peak Oil.

Robert Madsen is a senior fellow at the Center for International Studies at Massachusetts Institute of Technology and was formerly a fellow at Stanford University's Asia-Pacific Research Center. He is also the author of the Economist Intelligence Unit's quarterly *Japan Country Reports* and a contributor to that organization's coverage of other countries. Until April 2002 he was Asia strategist at Soros Private Funds Management, an equity investment group undertaking leveraged buyouts and corporate restructuring in Europe and East Asia. Dr. Madsen has counseled the Robert M. Bass Group on its activities in Japan and is a limited partner in those endeavors.

In his previous career as a McKinsey consultant he specialized in financial services and trans-Pacific business ventures. He has published numerous articles on the politics and economics of specific

countries, international trade and capital flows, political theory, and environmental economics. Dr. Madsen holds degrees from Harvard University and Stanford Law School and a doctorate from Oxford University, where he served as a Rhodes Scholar. Dr. Madsen is a member of the Pacific Council on International Policy.

William H. Overholt is the director of the Center for Asia Pacific Policy at RAND Corporation's California headquarters. Previously, Dr. Overholt was joint senior fellow at Harvard University. He was also Distinguished Visiting Professor at Yonsei University in South Korea from 2003 to 2005. He served as head of strategy and economics at Nomura's regional headquarters in Hong Kong from 1998 to 2001 and as managing director and head of research at Bank Boston's regional headquarters in Singapore. He served for eighteen years at Bankers Trust, running a country risk team in New York from 1980 to 1984 and then becoming regional strategist and Asia research head based in Hong Kong.

Dr. Overholt was a governor of the American Chamber of Commerce in Hong Kong and executive committee member of the Business and Professionals Federation of Hong Kong, both for six years. He is a member of the Pacific Council on International Policy and serves on advisory boards for Harvard University's Asia Center, the Hang Lung Center for Organizational Research at Hong Kong University of Science and Technology, and Chinavest Ltd. Dr. Overholt received his BA from Harvard and his MPhil and PhD from Yale.

Marina v.N. Whitman is professor of business administration and public policy at the Gerald R. Ford School of Public Policy and Ross School of Business, University of Michigan. Previously, she was vice president and group executive, public affairs staffs, at General Motors Corporation, where she also served as chief economist. Dr. Whitman was a fellow at the Center for Advanced Study in the Behavioral Sciences at Stanford University while on leave from the University of Pittsburg, where she was a professor of economics. Presently, she is on the board of trustees of the Institute for Advanced Study and the National Bureau of Economic Research and on the board of directors of the Institute of International Economics.

Among her numerous governmental activities, Dr. Whitman served as a member of the Technology Assessment Advisory Council of the U.S. Congress Office of Technology Assessment, the President's Advisory Committee on Trade Policy and Negotiations,

and the President's Export Council. She is also an active member of the Consultative Group on International Economic and Monetary Affairs (Group of Thirty), and The Chicago Council on Global Affairs. Dr. Whitman received her BS from Radcliffe College and her MA and PhD from Columbia University.

Akira Kojima is the chairman of the Japan Center for Economic Research. He also serves as professor of Keio University's Graduate School of Business and Commerce. He is currently the editorial advisor to *NIKKEI (The Nihon Keizai Shimbun)* and serves as councilor for Aspen Institute, Japan, the Institute for International Monetary Affairs (IIMA), and the Global Industrial and Social Progress Research Institute (GSPRI). He is also a member of the Japan-German Forum, the Japan-Canada Symposium, and the Japan-Spain Forum. His awards include the Japan Press Club Award, Vaughn-Ueda International Journalist Award, and the Japan Newspaper Publishers' Association Award. He has published numerous books and essays. He graduated from Waseda University and was a British Council Scholar at Manchester University (UK).

Makoto Kojima is professor of Indian economic studies in the Faculty of International Studies at Takushoku University, where he also serves as director of the Graduate School of International Cooperation Studies. He was professor at Chiba University of Commerce from 1984 to 2000 and was a visiting researcher at the Fernand Braudel Institute of World Economy (São Paulo) from 1989 to 1990. He holds a bachelor's, master's, and PhD degree in economics from Keio University.

Dr. Kojima is author of *Analysis of the Modern Indian Economy* (Keiso Shobo, 1993), *The Indian Economy in a Changing Asia* (PHP Institute, 1995), and *The Indian Software Industry* (Toyokeizai Simposha, 2004), which won an Asian Pacific Prize in 2004. He served as chairman of the Study Group on India at the Ministry of Finance from 2004 to 2005 and a member of the Japan-India Joint Study Group from 2005 to 2006. He also acted as a standing member of the board of directors at the Japan Society of International Economics from 1998 to 2006.

Ryosei Kokubun is director of the Institute of East Asian Studies and professor of the Political Science Department at Keio University. After completing graduate courses at Keio University, he began teaching there in 1981 and became associate professor in 1985 and profes-

sor in 1992. He has been a visiting scholar at Harvard University, the University of Michigan, Fudan University, Beijing University, and National Taiwan University. His research interests are Chinese politics and foreign relations and international relations in East Asia.

He is also president of the Japan Association for Asian Studies, vice president of the Japan Association of International Relations and Japanese-side director of the 21st Century Commission for Japan-China Friendship. He edited *Challenges for China-Japan-US Cooperation*, Japan Center for International Exchange (JCIE), and *The Rise of China and a Changing East Asian Order*, JCIE. His Japanese publications also include *Politics and Bureaucracy in Contemporary China* (2004), which won the Suntory Prize for Social Sciences and Humanities, and *Chinese Politics and Democratization* (1992).

Sakutarō Tanino is the director of Toshiba Corporation and visiting professor at Waseda University, a position he has held since 2001. He has served as ambassador to India (1995-98) and as ambassador to the People's Republic of China (1998-2001). Mr. Tanino graduated from Tokyo University Faculty of Law in 1960 and entered the Ministry of Foreign Affairs the same year. During his long career in the Japanese Foreign Service, he served as director of the China and Mongolia Division (1978-80) and as director-general of the Asian Affairs Bureau (1989-92). His overseas assignments included first secretary of the Japanese Embassy in Moscow (1970-73), first secretary of the same Embassy in Beijing (1973-75) and minister of the Japanese Embassy in the Republic of Korea (1984-87).

Apart from his diplomatic career, he served as private secretary to Prime Minister Zenko Suzuki (1980-82) and as chief cabinet councilor of the Councilors' Office on External Affairs, Cabinet Secretariat (1992-95). From 1982 to 1983 he was a fellow at the Center for International Affairs, Harvard University. Mr. Tanino authored the book *The Rise of the Republic of Korea: A View of a Japanese Diplomat* (1988) and has contributed many articles on Asia to various Japanese periodicals.

Other Participants

The following individuals were active participants in the Study Group meetings but were not members of the Study Group and are not signers of the report. The views expressed in this report do not necessarily represent the views of the Federal Reserve Banks of Chicago or San Francisco or any other part of the Federal Reserve System. Moreover, Dr. Moskow and Dr. Yellen express no opinion or endorsement of the final report's recommendations.

Michael H. Moskow took office on September 1, 1994, as the eighth president and chief executive officer of the Federal Reserve Bank of Chicago. Dr. Moskow's career includes service in the public and private sectors as well as in academia. During the course of his career, Dr. Moskow has been confirmed by the Senate for five U.S. government positions. In 1991 President Bush appointed Dr. Moskow deputy U.S. trade representative with the rank of ambassador. He was responsible for trade negotiations with Japan, China, and Southeast Asian countries as well as industries such as steel, semiconductors, and aircraft. Dr. Moskow returned to academia in 1993, joining the faculty of the J.L. Kellogg Graduate School of Management at Northwestern University, where he was professor of strategy and international management at the time of his appointment as president of the Chicago Reserve Bank. He is chairman of the National Bureau of Economic Research and former chairman of the Economic Club of Chicago. He also serves as a director of the Council on Foreign Relations, New York, The Chicago Council on Global Affairs, the Northwestern Memorial Foundation, World Business Chicago, and the Chicagoland Chamber of Commerce. He received an AB from Lafayette College in Easton, Pennsylvania, and a PhD from the University of Pennsylvania.

Janet Yellen is president and CEO of the Federal Reserve Bank of San Francisco. Prior to joining the bank, Dr. Yellen was the Eugene E. and Catherine M. Trefethen Professor of Business and professor of economics at the University of California at Berkeley, where she has been a faculty member since 1980. She is currently on leave from these positions. From 1994 to 1997 she served as a member of the board of governors of the Federal Reserve System. Dr. Yellen has chaired the Council of Economic Advisers and the Economic Policy Committee of the Organization for Economic Cooperation and Development. She serves as vice president of the American Economic Association and as a research associate of the National Bureau of Economic Research. She is immediate past president of the Western Economic

Association. Additionally, Dr. Yellen is a fellow of the Yale Corporation and also is a member of the American Academy of Arts and Sciences. She served on the advisory board of the Center for International Political Economy and the Jerome Levy Economics Institute. Dr. Yellen serves as a director of the Pacific Council on International Policy.

Commissioned Papers and Presentations

Fall 2005

Two sets of two papers each were commissioned by the U.S. and Japan teams for the September 2005 meetings. All four papers, which were designed to facilitate discussion at the first set of Study Group meetings, were distributed to all Study Group members and collaborating organizations in early September 2005.

“Discussion Paper on China: Binational Study on the Impact of the Rise of China and India and Its Implications for the U.S.-Japan Economic Relationship.” Prepared by the Japanese Study Group for the first Study Group meetings, September 19-21, 2005. Japan Economic Foundation.

“Discussion Paper on India: Binational Study on the Impact of the Rise of China and India and Its Implications for the U.S.-Japan Economic Relationship.” Prepared by the Japanese Study Group for the first Study Group meetings, September 19-21, 2005. Japan Economic Foundation.

Hale, David and Lyric Hughes Hale. “Discussion Paper on China: Its Reemergence and Implications for the World Economy.” September 7, 2005. Hale Advisers, LLC.

Mukherji, Joydeep. “Discussion Paper on India: The Future of the Indian Economy and Its Impact on the World.” August 31, 2005.

Spring 2006

Four papers were commissioned by the U.S. and Japan teams for the July 2006 meetings. All four papers, which were designed to facilitate discussion at the second set of Study Group meetings, were distributed to all Study Group members and collaborating organizations in June 2006.

Japanese Discussion Paper. Prepared by Japanese team members, April 28, 2006.

Herberg, Mikal E. “The U.S. and Japan and the Energy ‘Rise’ of China and India.” The National Bureau of Asian Research, 2006.

Searight, Amy. “Pathways to Prosperity: Japan, the United States, and the Challenges of Global and Regional Economic Integration.” George Washington University, 2006.

Zielenziger, Michael. “Japan and the Innovation Challenge.” Institute of International Studies, UC Berkeley, 2006.

Presentations

Several presentations were made over the course of both the September 2005 and July 2006 meetings. Following is a list of speakers, organized by the meeting at which they presented.

September 18, 2005

Invitational cocktail/dinner reception and roundtable, cohosted by Indian Consul General B.S. Prakash and The Indus Entrepreneurs (TiE)

B.S. Prakash, Consul General of India to San Francisco

September 19, 2005

Breakfast discussion at the Federal Reserve Bank of San Francisco

Reuven Glick, Group Vice President, International Research
Mark Spiegel, Senior Vice President, International Research and Director, Center for Pacific Basin Studies

Luncheon and discussion in Silicon Valley at Cisco Systems, Corporate Briefing Center

Laura Ipsen, Vice President, Government Affairs, Cisco Systems
Mike Volpi, Senior Vice President and General Manager of the Service Providers and Routing Technology Group, Cisco Systems

September 21, 2005

**Morning seminar, Federal Reserve Bank of Chicago, Chicago, IL
(Japanese Study Group members presented the following short papers and presentations)**

Akira Kojima, Chairman, Japan Center for Economic Research:
“U.S.-Japan and Rising China.” Japan Center for Economic Research, *Nihon Keizai Shimbun (NIKKEI)*. U.S.-Japan Conference, “Binational Study on the Impact of the Rise of China and India and the U.S.-Japan Economic Relationship.” September 21, 2005, Chicago, IL.

Akira Kojima, Chairman, Japan Center for Economic Research:
“East Asia’s Thirst for Energy.” *Japan Echo* (October 2005): 32-35.

Makoto Kojima, Professor, Faculty of International Development, Takushoku University: “India Issues.” Takushoku University. September 21, 2005.

Sakutaro Tanino, Director of Toshiba Corporation and Visiting Professor of Waseda University: “India and China—How do they compare?” 2005.

September 21, 2005

Luncheon briefing with Federal Reserve Bank experts

Thomas Klier, Senior Economist, Federal Reserve Bank of Chicago
William Testa, Vice President, Federal Reserve Bank of Chicago

July 6, 2006

Welcoming dinner hosted by JEF

Speaker: Kazumasa Iwata, Deputy Governor, Bank of Japan

July 7, 2006

Morning session on policies designed to facilitate sustained growth and development in India and China

Speaker: Taizo Nishimuro, President and CEO, Tokyo Stock Exchange, Inc., Adviser to the Board, Toshiba Corporation

Discussants:
James Jin Du, Professor of Economics, Faculty of Asian-Pacific Studies, Department of International Development, Takushoku University
Hideki Esho, Dean and Professor, Faculty of Economics, Hosei University

Afternoon session on technology-sharing and its relationship to innovation

Speaker: Fujio Cho, Chairman, Toyota Motor Corporation

Discussants:
Tomoo Marukawa, Associate Professor, Institute of Social Science, University of Tokyo
Hiroyuki Oba, Professor, International Economics Department, Reitaku University

July 8, 2006

Morning session on meeting the energy challenges faced by the four countries

Speaker: Kunihiko Matsuo, Chairman, INPEX CORPORATION

Discussants:
Tsutomu Toichi, Senior Managing Director and COO, Chief Executive Economist, The Institute of Energy Economics, Japan
Shigeru Sudo, Director, Energy and Environment Program, International Development Center of Japan

Afternoon session on trade relationship issues

Speakers:

Noboru Hatakeyama, Chairman and CEO, Japan Economic Foundation: "Regional Integration in Asia." July 2006, Tokyo, Japan.

Zembei Mizoguchi, President, Japan Center for International Finance: "Regional Financial Cooperation in East Asia and Global Imbalance." July 2006, Tokyo, Japan.

Discussants:

Sayuri Shirai, Professor of Economics, Keio University
Shujiro Urata, Professor of Economics at the Graduate School of Asia-Pacific Studies, Waseda University

Dinner hosted by JEF

Speaker: Masakazu Toyoda, Director-General, Commerce and Information Policy Bureau, Ministry of Economy, Trade, and Industry

July 10, 2006

Concluding session

Speaker: Yasuhisa Shiozaki, Senior Vice-Minister for Foreign Affairs

Selected Bibliography

Background Reading: September 2005

Readings listed as "essential" were distributed to all Study Group members in printed form prior to the September meetings.

1. China and India: Economic Rise and Prospects

Essential Reading:

Ahluwalia, Isher Judge. "Indian Economy: New Pathways to Growth and Development."

Ayres, Alyssa, and Philip K. Oldenburg, eds. *India Briefing: Takeoff at Last?* Asia Society, March 2005.

"From T-shirts to T-bonds: China and the World Economy." *The Economist*, July 28, 2005. http://www.economist.com/finance/displaystory.cfm?story_id=4221685.

Supplemental Reading:

Mukherji, Joydeep. "India's Long March to Capitalism." *India Review* 1, no. 2 (April 2002): 29-60.

Srinivansan, T. N. "Economic Reforms and Global Integration." Chap. 7 in *The India China Relationship*, 219-266. Edited by Francine Frankel and Harry Harding. Asia Society, Woodrow Wilson Center for International Studies, 2004.

2. Employment Impact of the Rise of China and India

Essential Reading:

Drezner, Daniel. "The Outsourcing Bogeyman." *Foreign Affairs* 83, no. 3 (May-June 2004): 22-34.

Yang, Dali L. "China's Looming Labor Shortage." *Far Eastern Economic Review* 168, no. 2 (January-February 2005).

Supplemental Reading:

Cowling, Keith and Philip R. Tomlinson. "The Japanese Crisis—A Case of Strategic Failure?" *The Economic Journal* 110 (June 2000): 358-381.

Schultze, Charles. *Offshoring, Import Competition, and the Jobless Recovery*. Brookings Institution Policy Brief 136, August 2004.

3. Trade Policy Impact of the Rise of China and India**Essential Reading:**

Hughes, Neil C. "A Trade War with China?" *Foreign Affairs* 84, no. 4 (July-August 2005).

Srinivasan, T.N. and Suresh D. Tendulkar. "India and the World Trade System: A Quantitative Assessment." Chap. 2 in *Reintegrating India with the World Economy*. Washington, DC: IIE, 2003.

Supplemental Reading:

Eichengreen, Barry, Yeongseop Rhee, and Hui Tong. "The Impact of China on the Exports of Other Asian Countries." NBER Working Paper #10768, September 2004.

Zeng, Ka. "Trade Structure and the Effectiveness of America's 'Aggressively Unilateral' Trade Policy." *International Studies Quarterly* 46, no. 1 (March 2002): 93-115.

4. Capital Flow Impact of China's Currency Policy/ Trade Surplus**Essential Reading:**

Dooley, Michael, David Fokerts-Landau, and Peter Garber. "An Essay on the Revived Bretton Woods System." NBER Working Paper #9971, September 2003.

Goldstein, Morris and Nicholas Lardy. "China's Role in the Revived Bretton Woods System: A Case of Mistaken Identity." IIE Working Paper 05-2, March 2005.

Supplemental Reading:

Goldstein, Morris and Nicholas Lardy. "China's Revaluation Shows Size Really Matters." *Financial Times*, July 22, 2005.

Krugman, Paul. "China Unpegs Itself." *New York Times*, July 22, 2005.

Setser, Brad and Nouriel Roubini. "How Scary Is the Deficit?" *Foreign Affairs* 84, no. 4 (July-August 2005).

5. Resource Competition Impact of China's and India's Thirst for Oil**Essential Reading:**

Shaw, Debnath. *Securing India's Energy Needs: The Regional Dimension*. Center for Strategic and International Studies, 2005.

Toichi, Tsutomu. "Energy Security in Asia and Japanese Policy." *Asia-Pacific Review* 10, no. 1 (May 2003): 44-51.

Supplemental Reading:

Editorial, "The 'Great Game' of China." *Washington Times*, July 1, 2005.

Harrison, Selig S. *Seabed Petroleum in Northeast Asia: Conflict or Cooperation?* Woodrow Wilson International Center for Scholars Asia Program Publication, 2005, 3-14.

Mallet, Victor. "Fuel for Rivalry: Asia's thirst for energy brings fresh alliances but also tensions." *Financial Times*, February 25, 2005.

Yergin, Daniel. "Over a Barrel: Energy-Starved China Is Doing What You Would Expect." *Fortune*, May 16, 2005.

6. Intellectual Property Impact of China's and India's Rise

Essential Reading:

Cookson, Clive. "Innovative Asia: How spending on research and development is opening the way to a new sphere of influence." *Financial Times*, June 9, 2005, 11.

Freeman, Richard B. "Does Globalization of the Scientific/Engineering Workforce Threaten U.S. Economic Leadership?" NBER Working Paper #11457, June 2005.

Supplemental Reading:

Paarlberg, Robert L. "Knowledge as Power: Science, Military Dominance, and U.S. Security." *International Security* 29, no. 1 (Summer 2004): 122-151.

Segal, Adam. "Is America Losing Its Edge?" *Foreign Affairs* 83, no. 6 (November-December 2004): 2-8.

7. Shifts in Geoeconomic Power Due to the Rise of China and India

Essential Reading:

Shambaugh, David. "China Engages Asia: Reshaping the Regional Order." *International Security* 29, no. 3 (Winter 2004-2005): 64-99.

Tellis, Ashley J. "India as a New Global Power." Carnegie Endowment for International Peace, 2005.

Supplemental Reading:

Center for the Advanced Study of India. "India in Transition: Economics and Politics of Change" in India's *Strategy of IT-Led Growth: Challenges of Asymmetric Dependence*. Summer 2005.

Mukherji, Joydeep. "China, India and the Fate of Globalization, Standard & Poor's." *CreditWeek*, January 5, 2005, 11-22.

Garver, John W. "The China-India-U.S. Triangle: Strategic Relations in the Post-Cold War Era." *The National Bureau of Asian Research* 13, no. 5 (October 2002).

Kaplan, Robert D. "How We Would Fight China." *Atlantic Monthly*, June 2005, 49-64.

Naoki, Tanaka. "Living with the 'Rising Dragon'." *Japan Echo* 31, no. 4 (August 2004): 29-34.

U.S.-China Economic and Security Review Commission. *China and Globalization*. Testimony of William H. Overholt, May 19, 2005.

Virmani, Arvind. "A Tripolar Century." Working Paper No. 160, Indian Council for Research on International Economic Relations, March 2005.

8. Downside Risk

Essential Reading:

Goldstein, Morris and Lardy, Nicholas. *What Kind of Landing for the Chinese Economy?* IIE Policy Briefs in International Economics PB04-7, November 2004.

Kapur, Devesh. "India's Promise? Conflicting Prospects for the World's Most Populous Democracy." *Harvard Magazine* (July-August 2005): 36-39; 87.

Supplemental Reading:

Chidambaram, P. "A Passage to Prosperity." *Wall Street Journal*, March, 4, 2005.

Economist, "India is Doing Better." The Economist Intelligence Unit, Business India Intelligence, March 23, 2005.

Kelkar, Vijay L. "India: On the Growth Turnpike." Narayanan Oration, Australian National University, Canberra, April 27, 2004.

Panagariya, Arvind. "India's Trade Reform: Progress, Impact and Future Strategy." WUSTL working paper, March 4, 2004.

9. India–China Relations

Essential Reading:

Mitra, Pramit and Drew Thompson. “China and India: Rival or Partners?” *Far Eastern Economic Review*, April 2005.

Supplemental Reading:

Ramesh, Jairam. “Sour Turns Sweet.” *The Wall Street Journal*, April 18, 2005.

Sommers, Justin. “The India-China Relationship: What the United States Needs to Know.” Conference Report, Asia Society, 2002.

Background Reading: July 2006

The following papers were distributed to all Study Group members at the July meetings.

Hideki Esho, Hosei University: “The Prospects of Rising Indian Economy.”

James Jin Du, Takushoku University: “Policies Designed to Facilitate Sustained Growth and Development in China.”

Tomoo Marukawa: “Chinese-Style Innovation.”

Hiroyuki Oba, Reitaku University: “A comment on technology-sharing and its relationship to innovation: Building up the common frame of US-Japan partnership for India and China.”

Sayuri Shirai, Keio University “Financial and Monetary Cooperation in East Asia.”

Shigeru Sudo, International Development Center of Japan (IDCJ): “India’s Challenges in Energy sector.”

Shujiro Urata, Waseda University: “Further Promotion of Trade/ FDI-Driven Economic Growth in East Asia through the Creation of an East Asia FTA.”

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