The Economic Impact of China's Emergence as a Major Trading Nation

Wing Thye Woo
wtwoo@ucdavis.edu

Professor, Economics Department
University of California at Davis

and

Director, East Asia Program, Center for Globalization and Sustainable Development
Columbia University

19 May 2004 revisions

Prepared for the *2004 Forum on WTO, China and Asian Economies* organized by the Research Center for International Economics at the University of Washington, Business School of Renmin University, and East-West Center in Beijing, 18-20 June 2004. This paper originated from the statement made at the Hearing of the U.S.-China Economic and Security Review Commission on *China's Growth as a Regional Economic Power: Impacts and Implications*, December 4, 2003, Room 124, Dirksen Senate Office Building. The empirical work presented in this statement is from joint research conducted with Professor Warwick McKibbin of Australian National University as part of the of the ongoing project on Economic Growth in China conducted by the East Asian Program of the Center for Globalization and Sustainable Development at Columbia University.

Introduction

The key to understanding the international impact of China's emergence as a major economic power, as marked by its accession to the World Trade Organization (WTO), is that the global division of labor at the end of the last millennium was a highly unnatural one. It was unnatural because the self-imposed isolation of China in the 1949-1979 period and its slow integration into the international economy in the 1980-1991 period kept over one fifth of the human race from meaningful participation in the world trade and investment systems. This is why China's accelerated integration into the world economy beginning in the mid-1990s has led to significant relocation of labor-intensive industries to China. In mid-2003, the electronic and electrical firms in Penang, Malaysia, employed 17 percent fewer workers than in 2000. On the other side of the Pacific, 500 of Mexico's 3,700 *maquiladoras* (foreign owned export-oriented firms) have closed since 2001, and the surviving *maquiladoras* have reduced their employment by almost a third.

Foreign direct investment (FDI) into China increased from US$44.2 billion in 1997 to US$52.7 billion in 2002. This caused China's share of total FDI into the developing world during this period to rise from 22.9 percent to 32.5 percent, and its share of total FDI into Asia to soar from 40.6 percent to 55.5 percent.

The Gorilla Awakes

Developments like the above are the reason why the Prime Minister of Singapore, Mr. Goh Chok Tong, informed his fellow citizens during his National Day address in 2001 that:

> "... China poses a big economic challenge. Some economists describe China as an *800-pound trading gorilla.* A Hong Kong newspaper added that this gorilla was *very hungry ...*

> "Even India is being flooded with cheap but good quality Chinese goods. Some Indian manufacturers are finding it hard to compete. So they have done the next best thing. They stick 'Made in China' labels on their products to boost sales...
>
> "Our biggest challenge is therefore to secure a niche for ourselves as China swamps the world with her high quality but cheaper products. China's economy is potentially ten times the size of Japan's. Just ask yourself: how does Singapore compete against ten post-war Japans, all industrializing and exporting to the world at the same time?
>
> "I do not mean that China will overpower every other economy, and grow at the expense of everybody else. As China develops and exports more, its imports will grow too. There will be many opportunities to invest in China. We must grasp those opportunities."

Mr. Goh is certainly correct in pointing out that China cannot just be an exporter without also being an importer too. But the crucial issue is whether the composition of goods that China would import would require a complete overhaul of the production structures of East and Southeast Asia. Would China's WTO accession cause Indonesia, Malaysia, Philippines and Thailand (the ASEAN-4) to de-industrialize and return to their roles in the 1950s and 1960s as primary commodity exporters? Or would there be sufficient lucrative niches within the manufacturing production chains that the ASEAN-4 could specialize in?

The second scenario is certainly a possibility, particularly for Singapore, Taiwan, and South Korea. In the opinion of Stanley Fischer, the former deputy managing director of the IMF:

> ... there is little cause for fear ... a big dynamic economy in the neighborhood is a benefit, not a curse, for those around it—look at Canada or Mexico ... Or, one might add, look at Asia after Japan emerged as an economic power from the 1970s onward. ("Don't fear China threat," *The Straits Times*, 4 September 2001.)

Boom or doom? And for whom? These are the two questions that I would like to address in this statement. In order to answer the above two questions about the international impact of China's rise as a major economic power, we have to first understand why China has been so arduous in its pursuit of WTO membership. Since WTO membership for China mainly

requires it to implement drastic reductions in its trade barriers across-the-board in a relatively short period of time, it can therefore appear puzzling why WTO membership is necessary when China can achieve the same results by undertaking unilateral cuts in effective tariff rates by the amount that it chooses and within a time period that it determines. Why did China pursue protracted negotiations to get an arrangement where the lowering of trade barriers is externally supervised, and leaves China open to international sanctions if the trade liberalisation does not meet the externally imposed criteria, when unilateral trade deregulation is an option?

The answer to this riddle is that the fundamental reason for China's enthusiasm for WTO membership is that WTO membership will greatly enhance China's economic security. The United States had enacted the Permanent Normal Trade Relations (PNTR) Act on 10 October 2000, and the PNTR ended the annual approval from the U.S. Congress for most-favored-nation (MFN) status in order for its exports to compete in the U.S. markets on equal terms against the exports from WTO countries. However, the important point to note is not the passage of PNTR, but the realistic situation that whatever laws passed by Congress can also be repealed by Congress later without violating any international law. So, until China is a WTO member, which gives China unconditional, ***permanent***, multilateral rights to trade with other WTO members, the threat of PNTR being repealed renders China's exports vulnerable to passing passions in the U.S. political arena. Examples of recent passing passions would include accidents like military airplane collisions in the South China Sea, and the Chinese burning of the US consulate in Chengdu following the unintended US bombing of the Chinese embassy in Belgrade. The importance to China of maintaining high export growth and of maintaining the competitiveness of its exports to the U.S. market is hard to overstate.

The United States is China's biggest export market. The United States, until the recent restrictions on steel imports, had been perceived as ideologically committed to free trade and consequently less prone to protectionism than Europe and Japan. Clearly, in order for exports to be a sustainable growth engine, China must secure assured access to its biggest market. And, only WTO membership can prevent the United States from the impulsive unilateral action of switching off one of China's most important growth engines by simply suspending the PNTR Act, and raising tariffs on China's exports. (The reader interested in the legal protocol under which China joined WTO should consult Qin (2003).)

China's Economic Linkages to the World

China's enhanced economy security has important implications for its neighbors because the international movement of goods is only one of China's two economic links to the world. The international movement of capital is the other. The important but oft-neglected point in analysing China's WTO membership is that the removal of the uncertainty about China's market access to the U.S. market increases China's reliability as a supplier. This means that producers of labor-intensive goods destined for sale in the high-income economies can now reduce management cost by reducing the geographical diversification of its production facilities. More of the production can now be carried out in China because its labor costs are lower than in the ASEAN-4.

Analytically, the removal of the MFN threat when China officially became a WTO member at the end of 2001 is equivalent to a reduction in the risk premium demanded by investors in China's export-oriented industries. The complete picture of China's WTO membership is more than a reduction in China's effective tariffs; it also includes a reduction in

the risk premium for investment in export-oriented production inside China. The effect of the tariff reduction is to reallocate the composition of China's output from importables to exportables and non-tradeables; and the effect of the risk premium is to reconfigure the global distribution of FDI in China's favor.

There is indeed evidence of the FDI diversion effect created by China's WTO membership. The Japan Bank for International Cooperation (JBIC) conducts an annual survey of Japanese trans-national corporations (TNCs) to find out which are the top 10 locations for manufacturing FDI over the next three years. Table 1 contains the results from the surveys undertaken in 1996, 2000 and 2001. 68 percent of Japanese TNCs listed China as one of the top 10 locations in 1996, and 65 percent did so in 2000. These responses made China the most frequently identified promising location for FDI in both years, i.e. China was ranked first in the list of 10 locations.

The evidence in favor of our FDI diversion hypothesis is captured in the 2001 survey. It became clear to the international community at the end of 2000 that China's accession to WTO was imminent. The upshot was that the proportion of Japanese TNCs in 2001 that identified China as one of the 10 most promising locations for manufacturing FDI jumped to 82 percent from 65 percent in 2000. Most telling of all, the "identification gap" between China and the United States, which were ranked first and second respectively in 2000 and 2001, widened from 24 percentage points in 2000 to 50 percentage points in 2001.

The frequency that the ASEAN-4 economies were identified as top 10 locations for FDI dropped between 1996 and 2000, and the most important reason for this change in TNC's perception could be the Asian financial crisis. The frequency that Thailand was identified fell from 36 percent to 24 percent, Indonesia from 34 percent to 15 percent, Malaysia from 20

percent to 12 percent, and Philippines from 13 percent to 8 percent. In terms of ranking within the 10 most cited locations, Thailand shipped from 2 to 3, Indonesia from 3 to 4 and Philippines from 8 to 10, while Malaysia improved from 6 to 5.

As the Asian financial crisis was over by early 2000, the changes in the frequency of identification and ranking of the ASEAN-4 economies on the list of profitable FDI locations between 2000 and 2001 could therefore justifiably be attributed to the WTO-created improvement in China' reliability as an international supplier. The frequencies that Thailand and Indonesia were identified as desirable FDI locations are practically identical in 2000 and 2001, but the identification gaps between them and China increased significantly. The China-Thailand gap went up from 41 percentage points to 57 percentage points, and the China-Indonesia gap from 50 percentage points to 68 percentage points. The frequency that Malaysia was cited declined from 12 percent to 8 percent, and the Philippines dropped out of the top 10 list. Malaysia's rank moved from 5 to 9, and the China-Malaysian identification gap soared from 53 percentage points to 74 percentage points. These differences in the survey results of 2000 and 2001 are certainly consistent with our hypothesis of WTO-induced diversion of FDI to China.

A recent news report makes clear that the drop in inward FDI in Malaysia has been substantial in 2002, and that the Malaysia government has no doubt that much of the drop is due to FDI diversion to China:

> "Malaysia attracted approved manufacturing FDI of only RM 2.16 billion ... for the first six months of this year [2002]. This is a sharp drop from the RM 18.82 billion it pulled in for the whole of last year.
>
> ... 'Everybody is feeling the pinch because the amount of FDIs has shrunk and then, a lot of that is going to China,' Dr. Mahatir [Prime Malaysia] told a news conference later." ("Malaysia turns inward for growth," The Straits Times, 21 September, 2002)

To fully appreciate the importance of this diversion of FDI, we should be cognizant of the possibility that FDI diversion could be more than just a simple relocation of the capital stock. FDI might also generate positive externalities. The East Asian experience suggests that FDI could facilitate technological transfers (i.e. generate technological spillovers) not only to domestic firms in the same industry but also to domestic firms in other industries; see Okabe (2002). Furthermore, FDI could also help solve the difficulties of access to the international markets in these goods. In short, a country gaining FDI could experience not only a bigger capital stock but also possibly a (maybe temporary) increase in its total factor productivity (TFP) growth rate; while a country losing FDI could experience a (maybe temporary) slowdown in TFP growth as well as a (maybe temporary) lower capital stock.

Table 2 presents the evidence in support of the link between FDI and technological diffusion by presenting the index values of the Overall Technological Capacity, column (3), for a number of the 59 countries ranked in the World Competitiveness Report issued by the World Economic Forum (2000). Also shown in Table 2 are the two determinants of the Overall Technological Capacity: the Indigenous Ability to Innovate, column (1), and the Ability to Obtain Technology Transfer from Abroad, column (2). The overall technological capacity index is determined by averaging the other two indices, the "indigenous innovation index" and the "technology transfer index."

The rankings of the Overall Technology Index for Malaysia (18), Philippines (32), and Thailand (43) are above China (48), and Indonesia (50) is only slightly below China in ranking. However, it is important to realize that the higher average rank of the ASEAN-4 in overall technology (36) comes from the higher technology transfer from abroad – the rank of Malaysia is 7, Philippines is 19, Thailand is 36, China is 43, and Indonesia is 45. China's indigenous ability

to innovate is ranked 34 which is substantially above the rank of the ASEAN-4 to innovate indigenously (46). The point is that the average ASEAN-4 economy depends critically on technological diffusion through FDI to raise its overall technological level to be above that of China. FDI diversion from China's WTO membership is therefore likely to cause the future rank of Indonesia, Malaysia, Philippines, and Thailand in the Overall Technology Index to fall, and of China to rise.

Since Hong Kong, Japan, Singapore, South Korea, and Taiwan rank above China in both the ability to innovate indigenously and to obtain foreign technology, the diversion of FDI into China is unlikely to affect their levels of technological capacity. The fact is that these five East Asian economies are some of the sources of FDI into China and into the ASEAN-4 means that they are amongst the sources of the technological diffusion that is being discussed.

In summary, there are three levels of answers in thinking about the consequences of China's WTO membership on the ASEAN-4. The first level is the standard analysis of a unilateral cut in China's effective tariff rates. The result is a redirection of labor and capital away from China's importable goods sector toward its exportable goods sector, causing China to import and export more. A more detailed examination might reveal that the additional Chinese imports will be capital-intensive goods from the developed economies, and the additional Chinese exports will be labor-intensive goods to developed and developing countries. We call the first level answer the *naive analysis*.

The second level answer recognizes that not only would there be tariff cuts as required by WTO membership but also that the removal of the market access threat to China would likely lower the risk premium required for investing in China. The expectation generated by the latter

development is that there would be diversion of FDI to China, especially from its East and Southeast Asian neighbors. We call this second level answer the *FDI Diversion analysis*.

The third level answer enriches the second level answer by pointing out that FDI would not only increase the domestic capital stock, but some argue that it could also increase technological transfers to the whole economy and improve the access of more Chinese goods to foreign markets. We call this the *analysis of the diversion of FDI with technological spillovers*.

Quantifying the Impact – the G-Cubed (Asia-Pacific) Model

The G-Cubed Asia Pacific (AP-GCUBED) model is ideal for such analysis having both a detailed country coverage of the region and rich links between countries through goods and asset markets. The AP-GCUBED model encompasses the United States, Japan, Australia, New Zealand, South Korea, the Rest of OECD (ROECD), China, Indonesia, Malaysia, Philippines, Taiwan, Thailand, Hong Kong, Singapore, India, OPEC, EEFSU (Eastern Europe and the former Soviet Union), and the Rest of the World (ROW). Each of the 18 countries in the AP-GCUBED model has 6 sectors: energy, mining, agriculture, durable manufacturing, non-durable manufacturing, and services.

Each core economy or region in the model consists of several economic agents: households, the government, the financial sector and the 6 production sectors. Intertemporal budget constraints on households, governments and nations (the latter through accumulations of foreign debt) are imposed. To accommodate these constraints, forward looking behavior is incorporated in consumption and investment decisions. The investment process is assumed to be subject to rising marginal costs of installation. Aggregate consumption is chosen to maximize an intertemporal utility function subject to the constraint that the present value of consumption be

equal to human wealth plus initial financial assets. International trade imbalances are financed by flows of financial assets between countries (except where capital controls are in place).

As a result of this structure, the AP-GCUBED model contains rich dynamic behavior, driven on the one hand by asset accumulation and, on the other by wage adjustment to a neoclassical steady state. It embodies a wide range of assumptions about individual behavior and empirical regularities in a dynamic general equilibrium framework. The interdependencies are solved out using a computer algorithm that solves for the rational expectations equilibrium of the global economy. It is important to stress that the term 'general equilibrium' is used to signify that as many interactions as possible are captured, not that all economies are in a full market clearing equilibrium at each point in time. Although it is assumed that market forces eventually drive the world economy to a neoclassical steady state growth equilibrium, unemployment does emerge for long periods due to wage stickiness, to an extent that differs between countries due to differences in labor market institutions. The model has approximately 7,400 equations in its current form with 140 jumping or forward looking variables, and 263 state variables. More technical details of the model are given in Appendix 1 of this statement.

We will undertake four sets of simulations:

1. Baseline simulation;
2. Naïve simulation;
3. Reduction in risk premium simulation; and
4. Diversion of FDI with technological spillovers simulations.

The Baseline Simulation: This simulation generates the future values of all the endogenous variables based on the assumption that the existing policy regimes in the world will persist indefinitely into the future. The tariff rates we use are based on the GTAP 4 database

which contains estimates of the levels of tariff and non-tariff barriers. The baseline simulation, in short, assumes that the trade regimes in 2000 are continued forever (which includes China's exclusion from WTO).

Counterfactual Simulation No. 1 -- The Naive Simulation: The only changes are the reduction in China's trade barriers (both tariff and non-tariff barriers). We assume that trade barriers are reduced gradually over time by an equal amount (measured in percentage points) over the ten-year period of 2003 to 2012.

Counterfactual Simulation No. 2 -- A Reduction in the Risk Premium Demanded by FDI -- TheFDI Diversion Simulation: This simulation supplements the naive simulation with a 1 percentage point reduction in the risk premium demanded by foreign investors in China.

*Counterfactual Simulation No. 3 -- FDI creates technological spillovers in the host economy -- The FDI with Technological Spillovers Simulation***:** We supplement the simulation of the FDI diversion case with the 5 conditions of:

1. a temporary decrease in the total factor productivity (TFP) growth rate of the manufactured durable goods industries located in Indonesia, Malaysia, Philippines, and Thailand. We assume an annual decline of 1 percentage point beginning in 2003 until TFP level is 10 percentage points below baseline TFP level in 2012;
2. a temporary decrease in the TFP growth rate of the manufactured nondurable goods industries located in Indonesia, Malaysia, Philippines, and Thailand. We assume an annual decline of 1 percentage point beginning in 2003 until TFP level is 10 percentage points below baseline TFP level in 2012;

3. a temporary increase in the TFP growth rate of the manufactured durable goods industries in China. We assume an annual increase of 1 percentage point beginning in 2003 until TFP level is 10 percentage points above baseline TFP level in 2012;
4. a temporary increase in the TFP growth rate of the manufactured nondurable goods industries in China. We assume an annual increase of 1 percentage point beginning in 2003 until TFP level is 10 percentage points above baseline TFP level in 2012; and
5. a temporary increase in the TFP growth rate of the service industries in China. We assume an annual increase of 1 percentage point beginning in 2003 until TFP level is 10 percentage points above baseline TFP level in 2012.

The above 5 conditions are assumptions about the stances of public policy and the steepness of the learning curves in the ASEAN-4 and China. We assume that it will take a decade for the ASEAN-4 to improve their scientific bases sufficiently to offset the slowdown in technological diffusion due to the lower FDI inflows. We also assume that it will also take a decade for the Chinese sectors to fully master the new technology contained in the diverted FDI. Again these are assumptions rather than predictions, but they give indicative estimates of the impacts of a range of plausible assumptions.

The Results of the Simulations

Naive Simulation: Figure 1 reports the deviations from baseline GDP of 11 economies: United States, Europe, Australia, New Zealand, Japan, South Korea, Taiwan, Indonesia, Malaysia, Philippines, and Thailand. None of their GDP deviations are more than two-tenths of one percent from the baseline, which are indistinguishable from measurement errors. Figure 2 shows the deviations of exports of 10 out of the 11 economies from the baseline to be less than

three-tenths of one percent. The largest export deviation is that of the United States which is 0.8 percent above the baseline in 2020 -- possibly, the reduction in Chinese protection of its import-competing industries led China to import more capital goods from the United States. In practical terms, however, China's WTO membership has no impact on these 11 economies.

Simulation of the FDI Diversion Case: Figure 3 reveals that while the deviations in GDP are negative for these 11 economies, their magnitudes are trivial. In 2020, the deviations of 10 economies are below three-tenths of one percent, and Korea's deviation is almost half of one percent. The export deviations exhibited in Figure 4 are almost the same as in Figure 2 -- U.S. exports in 2002 is now 0.9 percent above the baseline. On the whole, it is hard to say that any of the eleven economies are hurt in a non-trivial way.

Simulation of the Case of FDI with Technological Spillovers: We consider this simulation to be the most realistic one. Figure 5 shows substantial long-run GDP losses by four Southeast Asian economies: 7 percent for Thailand, 5 percent for Malaysia and Philippines, and 3 percent for Indonesia. The GDP of the other seven countries show minor long-run deviations from the baseline. Figure 6 reports that only the ASEAN-4 face significant export displacements. The United States, being primarily an exporter of capital goods and high value added services, has the biggest positive deviation, which is about 0.9 percent in 2020.

The interested reader can find more details of the above simulations in McKibbin and Woo (2003a), and full details in McKibbin and Woo (2003b).

Economic Impact on the ASEAN-4

Table 3 examines the export composition for the *FDI diversion scenario* and the *Diversion of FDI with Technological Spillovers scenario* for China and the ASEAN-4. There are

no substantial changes from the baseline for any ASEAN-4 country under FDI Diversion. In the export compositions from the Technological Spillover simulation, we observe significant deviations from baseline in the ASEAN-4 countries. Table 3 reports that:

1. China's manufactured exports accounted for 27 percentage points of the 33 percent increase in total exports above the baseline;
2. the manufacturing sectors in the ASEAN-4 show substantial long-run declines vis-a-vis their baselines. In Indonesia and Phillipines, the drop in manufactured exports exceed the drop in total exports; and in Malaysia and Thailand the decline in manufactured exports accounted for, respectively, 97 percent and 91 percent of the fall in total exports.

This transfer of manufacturing jobs to China will not stop in the medium-run because a vast amount of surplus agricultural labor remains to be tapped. Rightly, ASEAN is concerned about whether it would return to its previous role as a supplier of minerals and primary commodities. The likelihood of this development is greatly strengthened when one realizes that the other shoe is about to drop on ASEAN. India, which is still shallowly integrated into the world economy because of its strong economic nationalism and the home to another fifth of the world labor force, is now implementing significant economic deregulation in response to the sustained high growth in China, e.g. the cap on FDI has been raised from 51 percent to 76 percent. One sobering scenario for ASEAN is that whatever manufacturing jobs that did not move to China would now migrate to India!

This gloom-and-doom projection for ASEAN is not inevitable, however. The final outcome actually rests largely in the hands of ASEAN leaders. When the ASEAN-4 are able to implement policies to completely offset the reduction in technological diffusion from the reduction in FDI, then we are back in the FDI diversion case. In the FDI diversion case, China's

insertion of one-third more workers into the international division of labor leads to further division of labor (i.e. to even finer specialisation in production activities) within the manufacturing sector worldwide rather than the displacement of the ASEAN-4 from manufacturing. The prerequisite for the lengthening of the production chains in manufacturing to create niches in manufacturing activities for the ASEAN-4 is that they are technologically versatile. For the ASEAN-4 to have such versatility, their governments must invest in strengthening the scientific and technological capability of their citizens; see Yusof (2003) for a discussion of the Malaysian situation.

The ratcheting up of indigenous innovation in the ASEAN-4 requires, among many things, the institutionalization of synergistic relationships among the government, the business sector, and the universities. This national mobilization to promote indigenous innovation will have to overturn many taboos. An illustration of such national taboos is the Malaysian redistribution policy to reduce income inequality across races, which results in the regulation that Malay Malaysians must own at least 30 percent of a publicly listed firm; see Perkins and Woo (2000) for details. This means that a firm seeking listing must sell 30 percent of its shares at a heavy discount. The upshot from this tax on firm growth is that, unlike Taiwanese firms, few Malaysian firms have expanded beyond import-competing enterprises to achieve economies of scale and become big exporters of manufactured goods. In the case of Malaysia, whether a zero-sum or a win-win outcome will emerge from its economic interaction with China will depend on whether the enlightened self-interest concept that "a rising tide raises all ships" will prevail.

China has recently proposed the formation of a free trade area (FTA) with the Southeast Asia. This action should be recognized as a natural consequence of a fast-growing China that is anxious to undertake investments in the production of primary commodities and minerals so that

its vertically-integrated conglomerates could better absorb large price shocks of raw materials should they appear. (This is also why China also recently attempted, unsuccessfully, to buy oil fields in Russia.) China's enthusiasm for an FTA with ASEAN flows directly from the convergence of its economic interests to those of the major developed countries, i.e. the minimization of disruption from huge increases in the prices of raw commodities, the breakdown of the international communication system, and the collapse of the open multilateral trading system. This last concern is particularly important because China cannot get rich by exporting only to its neighbors, it needs access to all the markets of the world to get rich. This means that any Chinese regional economic strategy is likely to be subordinate to the concern of helping to maintain an open multilateral trading system, and that if, and when, China becomes the leader of an Asian economic bloc, China is unlikely to shape it into a protectionist trade bloc, unless the European Union and the Free Trade Area of the Americas (FTAA) are already closed trade blocs.

Southeast Asia has welcomed the formation of an ASEAN-China FTA because this will increase, one, its access to the increasingly important Chinese market, two, the possibility of lengthening the production chain to permit ASEAN to occupy some niches in the manufacturing process, and, three, the inflow of FDI from China to offset the loss to China of FDI from other countries. (The reader interested in the quantitative effects of the various combination of free trade areas within East and Southeast Asia should consult Cheong (2003).)

Economic Impact on the Developed Economies in East Asia, Western Europe, and North America

For the developed economies, the integration of China yields net positive benefits from the more refined global division of labor. This is most clearly seen in how the industries in Hong Kong, Japan, Singapore, South Korea, and Taiwan have preserved their competitiveness by shifting the labor-intensive manufacturing components of their production chains to China, and by expanding at home the higher value added components of research and development, and of marketing and distribution; e.g. see Abe (2003). The reason why my empirical work does not find much impact from China's emergence on the export and GDP levels of these five developed East Asian economies is because they were already in the stage of their product cycles where they were beginning to relocate their labor-intensive industries abroad. The emergence of low-wage China simply meant that more of these industries would be shifted to China instead of to the ASEAN-4.

Tain-Jy Chen (2003) has pointed out the possibility that the China challenge might be more difficult for Taiwan than for the other developed economies. Because Taiwanese, unlike Japanese and Koreans, incur minimal adjustment costs in fitting into the social and cultural life in mainland China, this means that the entire production chain, not just the manufacturing component, might move from Taiwan to China in the medium run.

The fact that the total value of the international trade of Western Europe and North America are not affected significantly by the rise of China is not surprising. These developed economies are now exporting a larger proportion of their capital-intensive goods and high value added services to China and a lower proportion to the other Asian economies, and importing a bigger share of labor-intensive goods from China and a smaller share from the other Asian economies. This shift in the destination of Western European (North American) exports and in the sources of Western European (North American) imports is why there are noticeable changes

in the composition of bilateral trade between Western Europe (North America) and individual Asian countries, but no noticeable change in the composition of overall trade between Western Europe (North America) and Asia.

Conclusion

Our analysis suggests that the full integration of China's huge labor force into the international division of labor could cause the ASEAN-4 to face the possibility of de-industrialisation. However, this dismal outcome is by no means inevitable. This will happen only if the ASEAN-4 economies allow the drop in FDI inflow to lower the rate of technological diffusion to their economies. If the ASEAN-4 can prevent themselves from falling behind technologically, then they can also find lucrative niches in the lengthened production chains in manufacturing activities. This finding suggests that the ASEAN-4 must give the highest priority in deepening and widening their pools of human capital by speeding up the diffusion of new knowledge to their scientists and managers, and providing appropriate retraining programs for the displaced workers.

The common challenge to the governments of the developed economies from the rise of China as a major manufacturer is how to upgrade the workers who had lost jobs in their manufacturing sectors. This challenge is no different from the structural adjustment that is needed to accommodate improvements in technological innovations. Just as one should not oppose technological progress in order to save obsolete industries, one should also not oppose free trade in order to save non-competitive industries. It is a failure of political will and of economic policy when governments in the developed economies impose protection instead of funding trade adjustment programs to assist the workers in the trade-impacted sectors.

The entry of China to take its place in the international economic system will permit further specialisation of tasks in the workplace, and this is a wealth-creating outcome. The country that can provide its workforce with the depth and range of scientific training required in the new workplace will be in line to receive some of the newly-created wealth. The country that is slow in building up its scientific and technological capability is one that does not understand the right remedy for the constant structural adjustment forced by globalisation.

What has been unmentioned so far is that the fulfillment of the projected scenarios of China's impact on the global economy will necessitate China to undertake even bigger economic structural adjustments than any of its trade partners. My estimate is that the wide-ranging economic deregulation package that China agreed to implement for its WTO accession will cause at least a fifth of its labor force to change jobs over the coming decade, and this could be a politically destabilizing process if not handled adeptly, and if external shocks were to slow down economic growth.

The tradeoff between stability and restructuring that is so starkly brought to the forefront by China's admission into WTO is really not a new tradeoff. What China's WTO membership has done is to accentuate an existing dilemma and not introduce a new one. The government has always realized that the soft budget constraint of the inefficient state-owned enterprise (SOE) sector is a constant threat to price stability, and the diversion of resources to keep this sector afloat is a drag on economic growth. But serious restructuring of SOEs means much more than facing higher urban unemployment, it also means confronting the politically powerful industrial-military complex and the industrial-bureaucratic complex. Economic rents now pose a bigger obstacle to restructuring than ideological sentimentality, and, unlike the latter, they constitute a problem that the mere passing of time (i.e. the death of the remaining Stalinist sentimentalists)

will not resolve. Because the greatest challenge to the deepening of economic reform and opening in China comes from the entrenched interests within the ruling structure, Woo (2001) has suggested that China's "WTO accession could be seen as an attempt by reformers to lock economic policies on to a course for further marketization and internationalization that is costly to reverse."

While the WTO benefits to China are likely to be immense, e.g. McKibbin and Woo (2003a) shows that China's GDP in 2020 could be higher by as much as 20 percent, the WTO shocks could well stretch Chinese economic management to the limit. The granting of national treatment to foreign banks within the next three years will require China to re-capitalize the insolvent state-owned banks (SOBs) a second time since 1996, and to apply a financial tourniquet on the losses of the state-owned enterprises (SOEs) to attenuate the creation of non-performing loans. Because the reforms of the SOBs and SOEs are very expensive (in addition to being very difficult), they are likely to push China's fiscal position to the edge of unsustainability; see Sachs and Woo (2003). The outbreak of an AIDS pandemic, for example, could mean a large-scale public health program that would bankrupt the government.

Developments external to China could also prevent the fulfillment of the scenarios projected by our analysis. External conflicts over North Korea, Taiwan, islands in the South China Sea, and Tibet could see a dramatic decline in FDI, and hence in the diffusion of technology, into China. Even a vastly less dramatic external event like the acceleration of economic deregulation in English-speaking India and its greater opening to inward FDI could reduce the FDI flow into China, and China's exports of labor-intensive industrial products. In short, the realization of the potential for greater common prosperity created by China's

integration into the world economy will require more than good economic management by China and its trade partners, good sense by all as well as good luck for all are also required.

Appendix

A Technical Outline of Asia-Pacific G-Cubed Model

Full details of the model including a list of equations and parameters can be found online at: http://www.msgpl.com.au/msgpl/apgcubed46n/index.htm . The AP-GCUBED is based on the GCUBED model (described in McKibbin and Wilcoxen, 1998), which is in turn an expansion of the MSG2 model founded by McKibbin and Sachs (1991). There have been many studies of trade reform in China but most studies ignore the role of capital flows and dynamic adjustment, e.g. Wang (2002). There are three significant qualitative differences between the AP-GCUBED model and the standard general computable equilibrium (CGE) model:

1. The AP-GCUBED is based on explicit *intertemporal* optimization by the agents (consumers and firms) in each economy. In contrast to static CGE models, time and dynamics are of fundamental importance in the AP-GCUBED model.
2. There is an explicit treatment of the holding of a range of financial and real assets in the AP-GCUBED model (money, bonds, equity, household capital, physical capital etc). Money is introduced into the model through a restriction that households require money to purchase goods. The model distinguishes between the stickiness of physical capital within sectors and within countries and the flexibility of financial capital, which immediately flows to where expected returns are highest. This important distinction leads to a critical difference between the *quantity of physical capital* that is available at any time to produce goods and services, and the stock market *valuation of that capital* as a result of decisions about the allocation of financial capital. So the AP-GCUBED model has linkages between the financial markets and the real sectors, unlike the usual CGE models, which have real sectors only.

3. In AP-GCUBED, the behavior of agents is modified to allow for short run deviations from optimal behavior either due to myopia or to restrictions on the ability of households and firms to borrow at the risk free bond rate on government debt. The model also allows for short run nominal wage rigidity (by different degrees in different countries) and therefore allows for significant periods of unemployment depending on the labor market institutions in each country. The deviations from intertemporal optimizing behavior take the form of rules of thumb, which are chosen to generate the same steady state behavior as optimizing agents so that in the long run there is only a single intertemporal optimizing equilibrium of the model. The AP-GCUBED model's assumptions hence differ from the market clearing assumption in most CGE models.

References

Abe, Shigeyuki (2003), "Is 'China Fear' Warranted? Perspectives from Japan's Trade and Investment Relationships with China, " *Asian Economic Papers*, Vol. 2 No. 2, Spring/Summer, pp. 106-131.

Chen, Tain-Jy (2003), "Will Taiwan be Marginalised by China?" *Asian Economic Papers*, Vol. 2 No. 2, Spring/Summer, pp. 78-97.

Cheong, Inkyo (2003), "Regionalism and Free Trade Agreements in East Asia," *Asian Economic Papers*, Vol. 2 No. 2, Spring/Summer, pp. 145-180.

McKibbin W.J. and J. Sachs (1991), *Global Linkages: Macroeconomic Interdependence and Cooperation in the World Economy*, Brookings Institution, June.

McKibbin Warwick and P. Wilcoxen (1998), "The Theoretical and Empirical Structure of the G-Cubed Model" *Economic Modelling* , 16, 1, pp 123-148 (ISSN 0264-9993)
(working paper version: http://www.msgpl.com.au/msgpl/download/struct.pdf)

McKibbin, Warwick and Wing Thye Woo (2003a) "The Consequences of China's WTO Accession on its Neighbours," *Asian Economic Papers*, Vol. 2 No. 2, Spring/Summer, pp. 1-38.

McKibbin, Warwick and Wing Thye Woo (2003b), *The Global Economic Impact of China's WTO Accession*, Technical Working Paper, Trade Directorate, Organisation for Economic Co-operation and Development, Paris, France.

Okabe, Misa (2002), "International R&D Spillovers and Trade Expansion," *ASEAN Economic Bulletin*, Vol. 19 No. 2, August.

Perkins, Dwight Heald and Wing Thye Woo (2000), "Malaysia: Adjusting to Deep Integration with the World Economy," (with Dwight Heald Perkins) in Wing Thye Woo, Jeffrey D. Sachs, and Klaus Schwab, editors, *The Asian Financial Crisis: Lessons for a Resilient Asia*, MIT Press, pp. 227-256.

Qin, Julia Ya (2003), " "WTO-Plus" Obligations and Their Implications for the World Trade Organization Lecal System: An Appraisal of the China Accession Protocol," *Journal of World Trade*, Vol. 37 No. 3, pp. 483-522.

Sachs, Jeffrey D., and Wing Thye Woo (2003), "China's Growth after WTO Membership," *Journal of Chinese Economics and Business Studies*, January, Vol.1 No.1, pp. 1-33.

United Nations Conference on Trade and Development (2002) *World Investment Report 2002: Transnational Corporations and Export Competitiveness*.

Wang, Zhi (2003), "WTO Accession, the "Greater China" Free Trade Area, and Economic Integration across the Taiwan Strait," *China Economic Review*, Vol. 14, pp. 316-341.

Woo, Wing Thye (2001), "Recent Claims of China's Economic Exceptionalism: Reflections Inspired by WTO Accession," *China Economic Review*, Vol. 12, No. 2/3, pp. 107-136.

World Economic Forum (2000), *The Global Competitiveness Report 2000*, Oxford University Press.

Zainal Aznam Yusof (2003), "Malaysia's Response to the China Challenge," *Asian Economic Papers*, Vol. 2 No. 2, Spring/Summer, pp. 46-73.

Fig 1: Change in Real GDP in Other Countries -- Naive Case

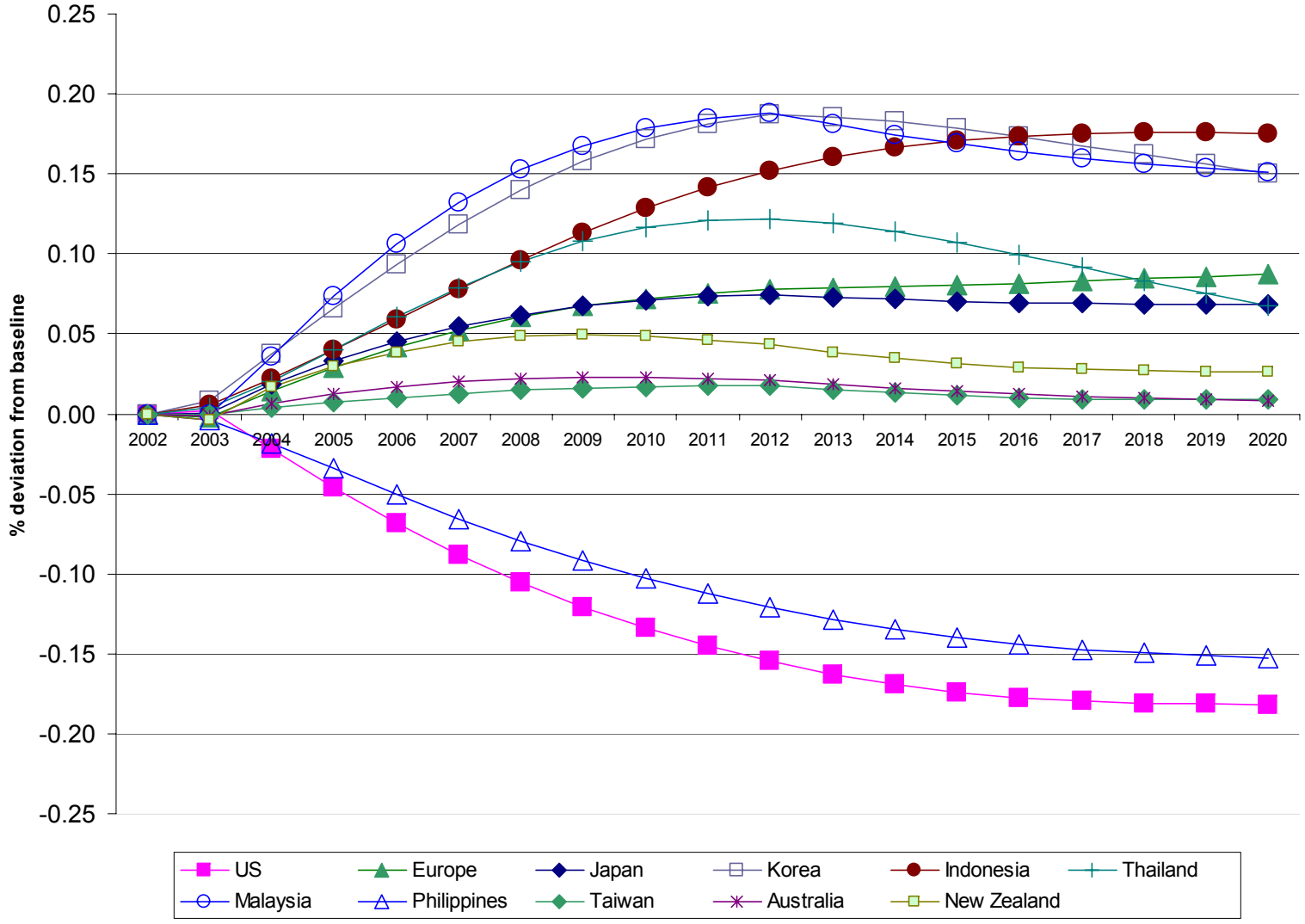

Figure 2: Change in Exports -- Naive Case

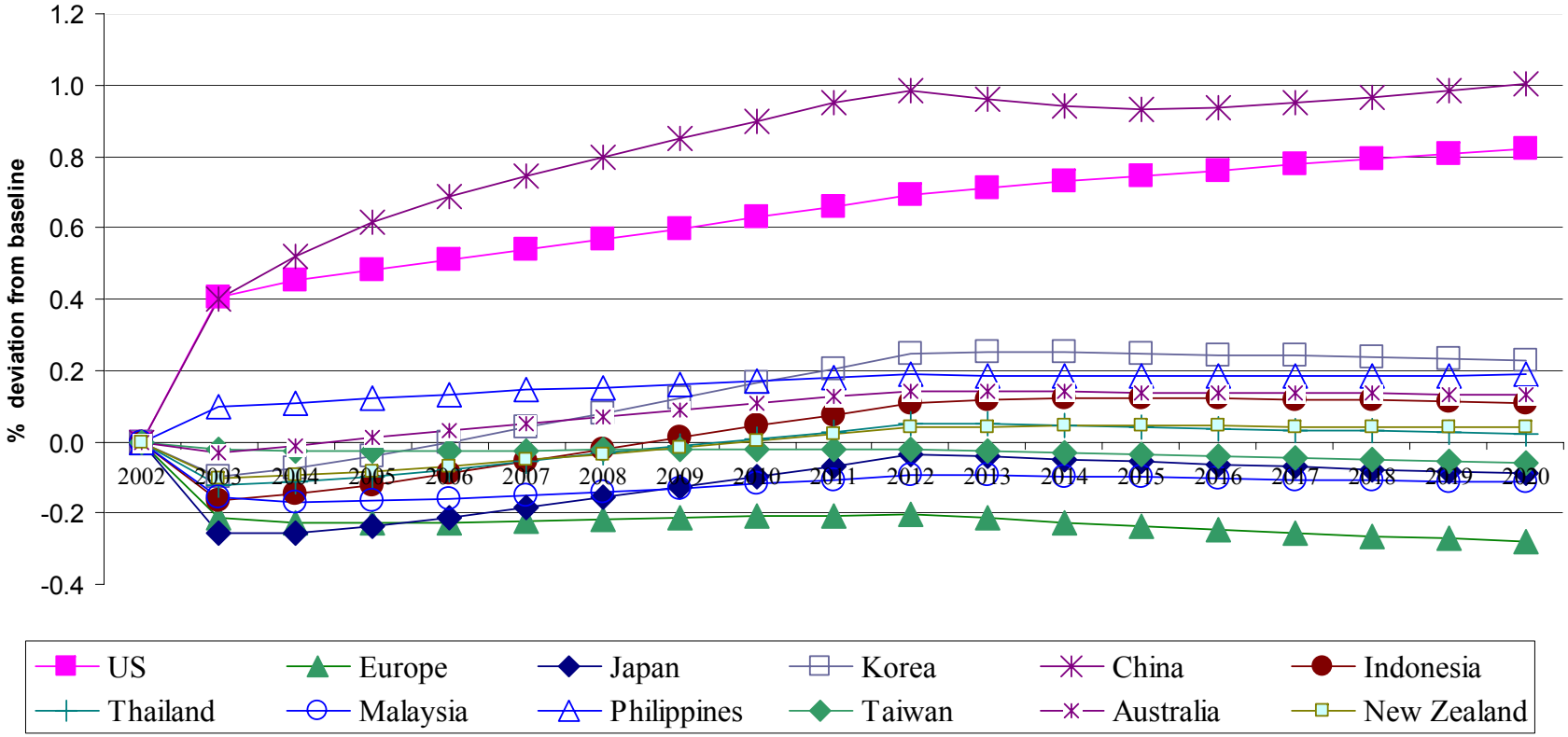

Figure 3 :Change in Real GDP in Other Countries - FDI Diversion Case

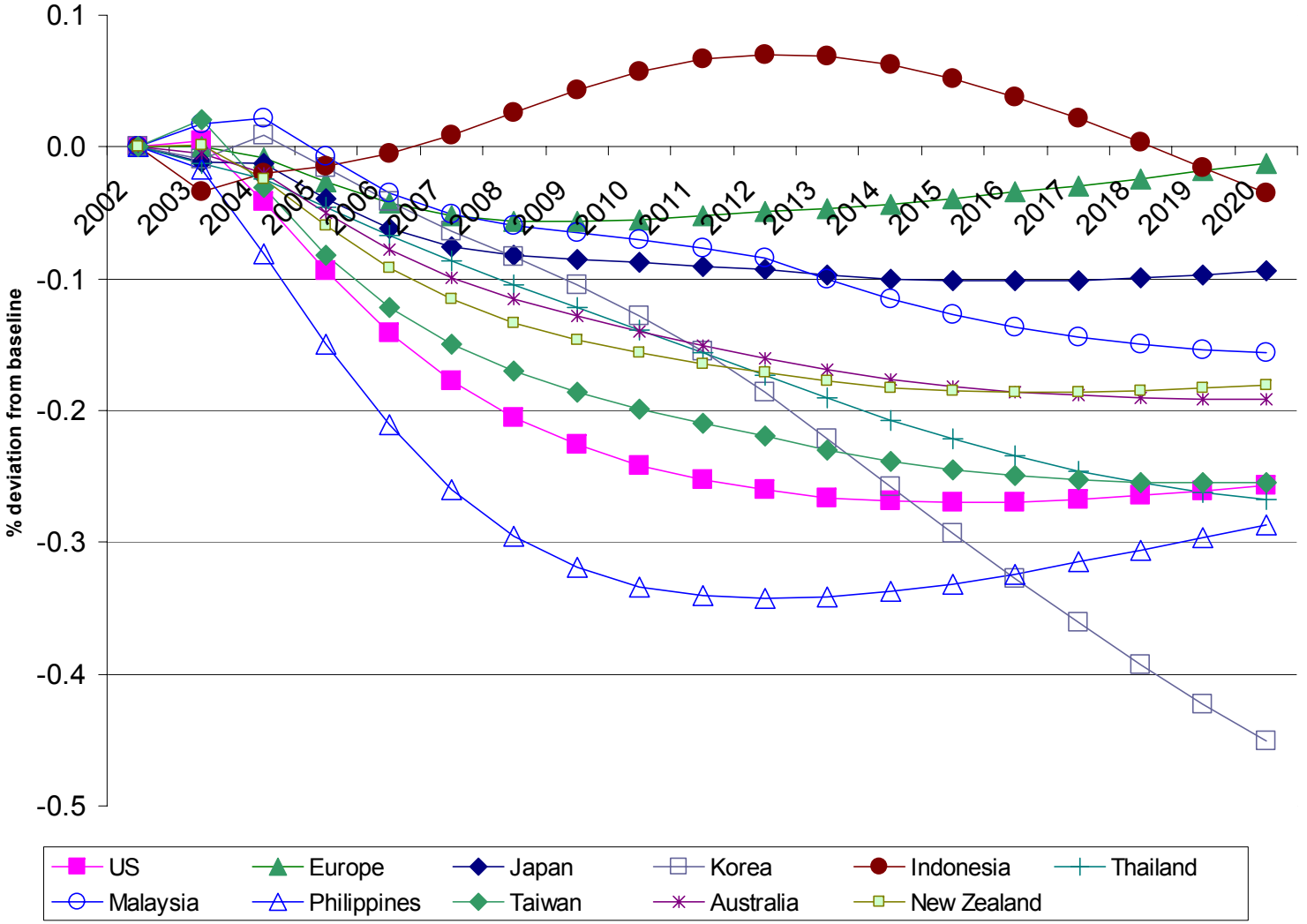

Figure 4: Change in Exports -- FDI Diversion Case

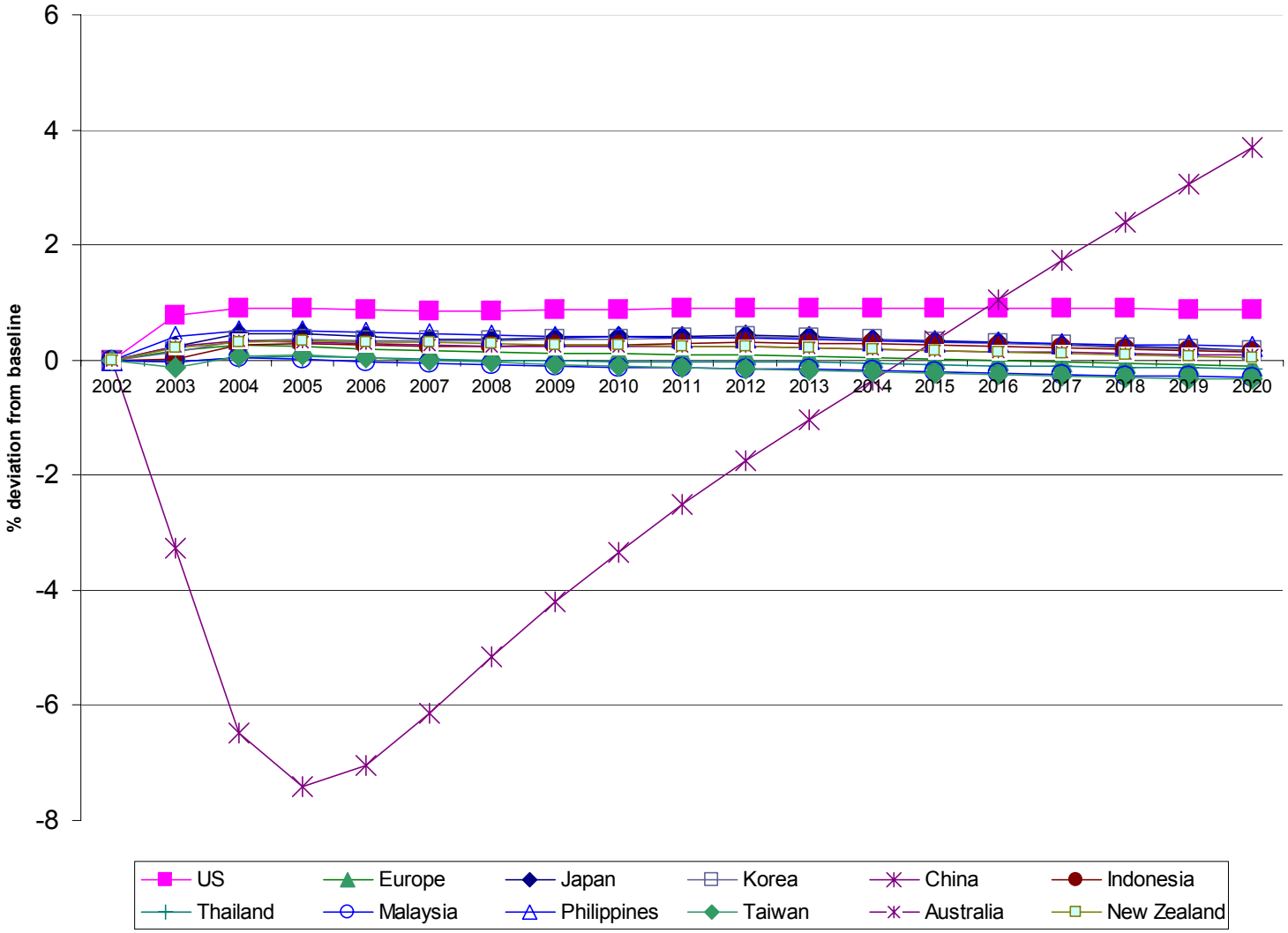

Figure 5: Change in Real GDP in Other Economies - Case of FDI with Technological Spillovers

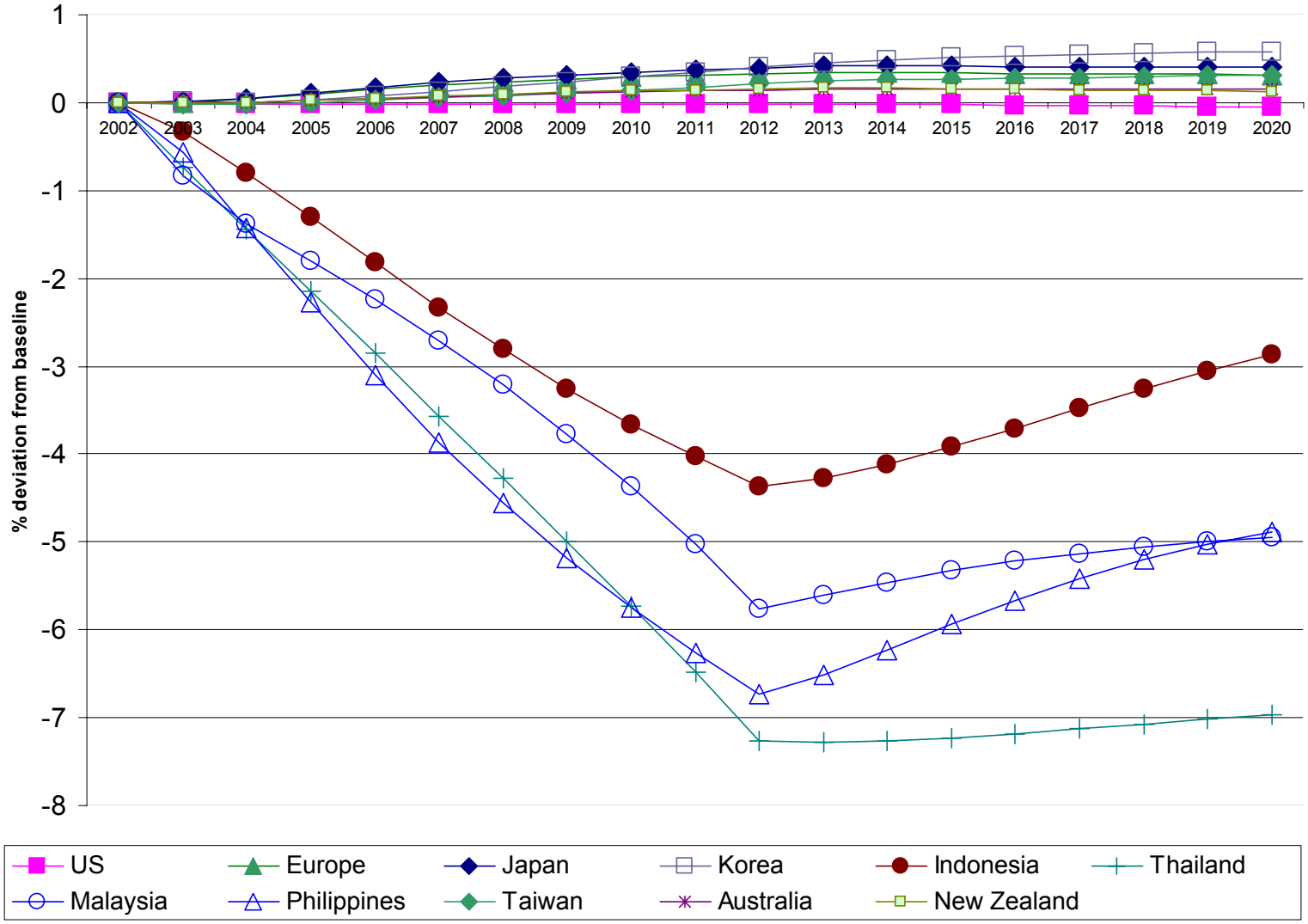

Figure 6: Change in Exports -- Case of FDI with Technological Spillovers

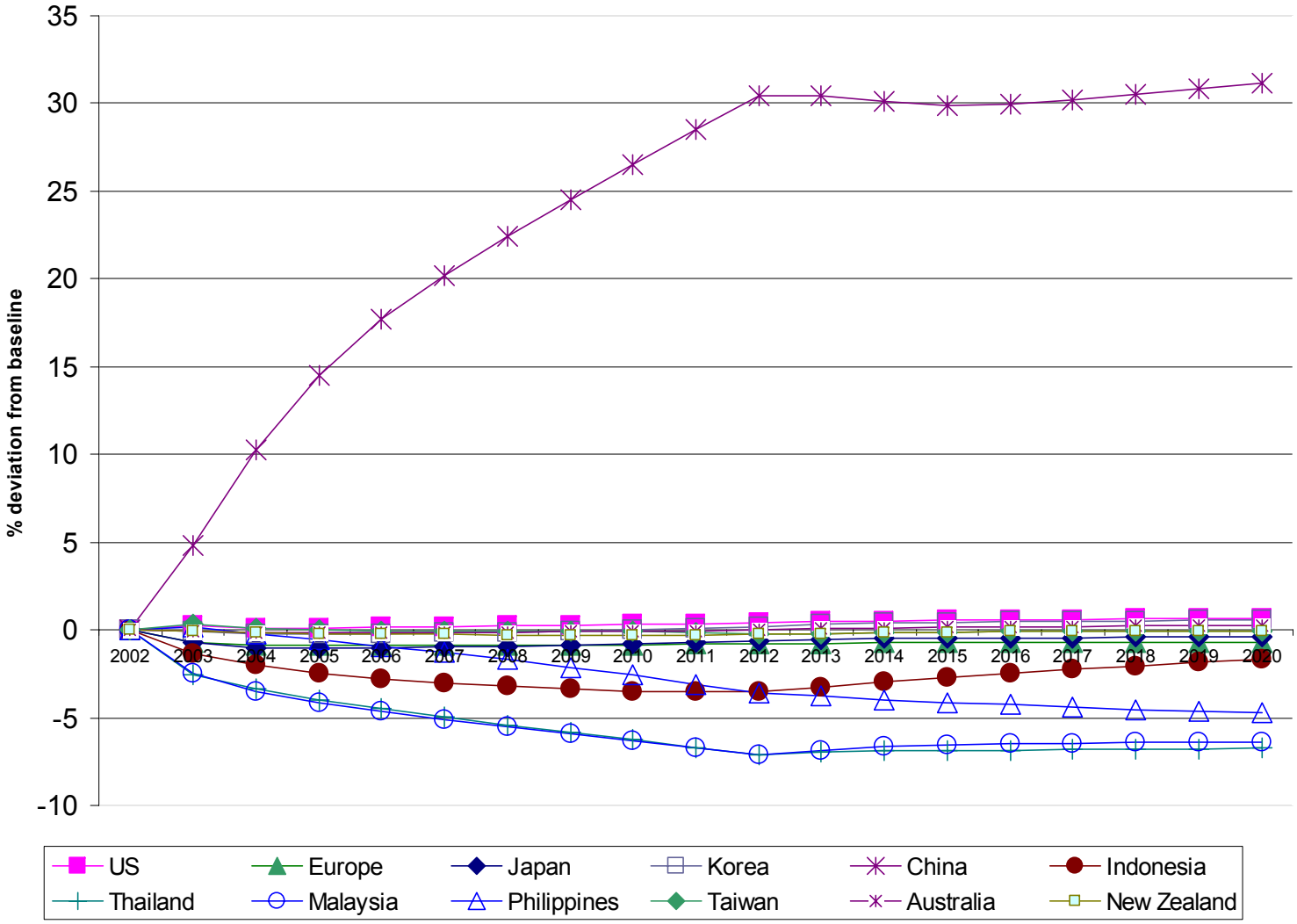

Table 1: The 10 most promising destinations for manufacturing FDI by Japanese TNCs over the next three years
(frequency, expressed in percent, that the country is identified by Japanese firms responding to annual surveys conducted by Japan Bank for International Cooperation, JBIC)

Rank	1996 survey	Ratio	2000 survey	Ratio	2001 survey	Ratio
1	China	68	China	65	China	82
2	Thailand	36	United States	41	United States	32
3	Indonesia	34	Thailand	24	Thailand	25
4	United States	32	Indonesia	15	Indonesia	14
5	Vietnam	27	Malaysia	12	India	13
6	Malaysia	20	Taiwan province of China	11	Vietnam	12
7	India	18	India	10	Taiwan province of China	11
8	Philippines	13	Vietnam	9	Rep. of Korea	8
9	Singapore	10	Rep. of Korea	9	Malaysia	8
10	United Kingdom and Taiwan province of China	7	Philippines	8	Singapore	6

footnotes:
a The share of firms that consider the country as promising in total respondent firms (multiple responses).
b Fiscal year.

Source: United Nations Conference on Trade and Development (2002)

Table 2: Indices of Indigenous Ability to Innovate, Technology Transfer from Abroad, and Overall Technological Capacity

Index of Indigenous Ability to Innovate	
USA	1
Finland	2
Germany	3
Switzerland	4
Japan	5
Singapore	14
Taiwan	16
South Korea	22
Hong Kong	27
Malaysia	30
China	34
India	38
Philippines	47
Thailand	50
Indonesia	55
ASEAN-4(average)	*46*

Index of Ability to Get Technology Transfer from Abroad	
Singapore	1
Ireland	2
Luxembourg	3
Malaysia	7
Taiwan	12
South Korea	13
Hong Kong	17
Philippines	19
India	26
Thailand	36
Japan	39
China	43
Indonesia	45
ASEAN-4(average)	*27*

Index of Overall Technological Capacity	
USA	1
Finland	2
Singapore	3
Ireland	4
Germany	5
Switzerland	6
Japan	7
Malaysia	18
Taiwan	24
Korea	25
Hong Kong	30
Philippines	32
India	37
Thailand	43
China	48
Indonesia	50
Ecuador	58
Bolivia	59
ASEAN-4(average)	*36*

The Indigenous Innovation Index and Technology Transfer Index are the two components of the Overall Technology Index.
The Overall Technology Index is combined with the Startup Index (relative ease in establishing a new firm) to produce the Economic Creativity Index
The Growth Competitiveness Idex is constructed from the Economic Creativity Index, the Finance Index (relative efficiency of the financial system), and the International Index (degree of integration into the international economy).
These are the index values in 2000

Source: World Economic Forum (2000)

Table 3: Deviation of Exports from Baseline in 2020

	China	Indonesia	Malaysia		Philippines	Thailand
Simulation of FDI Diversion						
Deviation of total exports from baseline, in percent	*3.70*	*0.34*	*-0.04*		*0.12*	*-0.04*
Contribution to deviation from baseline, in percentage points						
Energy	0.11	0.64	0.01		0.04	0.00
Mining	0.01	-0.02	0.00		0.01	0.00
Agriculture	-0.10	-0.02	0.08		0.04	0.12
Durable Manufacturing	1.44	-0.01	-0.08		0.02	-0.01
Nondurable Manufacturing	0.87	-0.14	0.01		0.02	-0.02
Services	1.36	-0.10	-0.06		-0.01	-0.13
Simulation of Diverted FDI with Technological Spillovers						
Deviation of total exports from baseline, in percent	*32.64*	*-3.20*	*-6.95*		*-5.22*	*-8.09*
Contribution to deviation from baseline, in percentage points						
Energy	0.77	0.19	-0.02		0.02	0.00
Mining	0.16	0.00	0.00		-0.01	0.00
Agriculture	0.57	-0.20	-0.30		-0.11	-0.47
Durable Manufacturing	14.34	-0.07	-4.59		-3.05	-3.94
Nondurable Manufacturing	13.11	-3.28	-2.14	0.97	-2.36	-3.41
Services	3.69	0.15	0.10		0.28	-0.26