

Chapter 8: Policies and Politics of Offshoring: An International Perspective

The purpose of this chapter is to examine how nations address the problems and opportunities of offshoring through policy. For each of the nations studied in this chapter, we consider such topics as the policy issues of offshoring, how they fit into other national policies and political issues, the principal political players, and positions they take. We do not recommend policies that an individual nation should hold.

We are interested in gaining an international perspective on the politics of offshoring. There are too many nations involved in offshoring as suppliers or receivers to consider them all individually, and these countries resist grouping into neat categories based on their national policies of offshoring. Instead, we have taken five countries for investigation: the United States and Sweden as examples of countries that send significant amounts of work offshore; Australia, which both sends and receives software-related work across its national boundaries; and China and India as examples of countries that are major recipients of offshored work. These five case studies provide an impression of the national policies, and to a lesser extent, of the national politics of offshoring, but they do not give a complete international picture.

8.1. US Policy

Public policy debate about offshoring began in the United States as a result of the wide news coverage of the report in November 2002 by Forrester Research that 3.3 million US jobs would be lost by 2015 as a result of offshoring. Television commentator Lou Dobbs of the Cable News Network (CNN) has, for example, regularly taken corporations to task for sending IT and IT-enabled jobs offshore with predictions that this movement would only compound the pain to middle-class America that had experienced a loss of millions of manufacturing jobs to Asia over the past decade. The 2004 US presidential debates made offshoring an issue with every major Democratic presidential candidate proposing legislation to save American jobs. The Republicans were mostly believers in comparative advantage through free trade but downplayed their position during the elections because it was a message that did not play well in critical swing states such as Ohio and Michigan where many of those manufacturing jobs had once been located. When President Bush's chief economic advisor, Gregory Mankiw, expressed support for unrestricted offshoring, he was lambasted by Speaker of the House Dennis Hastert (R-IL), and President Bush distanced himself from Mankiw's remarks.

Let us digress briefly to consider the situation in Europe in order to better understand that policy action (as taken in the United States) is not the only possible response to job loss through offshoring. Public policy debate in Western Europe came later and has been more muted than in the United States. In Germany and France, the labor unions were strong enough to limit offshoring, and labor laws included provisions requiring companies to compensate laid-off workers who lost their jobs because their company moved their jobs to another country. Also, there are limited numbers of German- and French-speaking educated workers in low-wage countries prepared to take on this offshored work. It was in the United Kingdom where the greatest amount of offshoring occurred in Europe, and also where there was the greatest backlash although Prime Minister Tony Blair twice came out with public statements in favor of offshoring. The public awareness of the potential job loss

through offshoring was heightened in the United Kingdom through a follow-up to the US report by Forrester, projecting the loss of 750,000 UK jobs to offshoring by 2015. Recently, public sentiment against offshoring has begun to heat up across Western Europe as the amount of work sent offshore by companies in these countries begins to rise. For example, in response to public sentiment, the French government has set aside a one billion Euro fund for motivating French companies to keep jobs at home.

One difference between the United States and the United Kingdom has been the response of organized labor. Perhaps the harshest labor criticism of offshoring in the United States has come from the Communications Workers of America especially against IBM. This criticism seems to have modified the way in which IBM went about its offshoring, but it has not deflected them from doing so. Although organized labor continues to have the ear of the US Congress, and it has supported most of the legislation placing restrictions on offshoring sent to Capitol Hill, these bills have not been passed into law. Part of the ineffectiveness of organized labor in the offshoring debates may be that workers in the software and services industries are not all that well represented by American labor unions. In contrast, there have been threatened strikes (e.g., Bank of Ireland) and actual strikes (e.g., at the financial conglomerate HSBC) in English-speaking Europe, and labor unions seem to have a powerful say in public debates.

Instead of labor actions, the United States has seen actions by the executive and legislative branches of the state and federal governments trying to control the loss of jobs through offshoring. More than 20 federal bills have been introduced. About three quarters of the states either introduced bills or recorded executive directives from their governor. For example, John Kerry (D-MA), the unsuccessful 2004 Democratic presidential candidate, introduced a bill in the US Senate that would require call center workers to disclose their location at the beginning of each session with a caller. This bill had the rationale of giving the caller information that would help him to decide how much private information to divulge to the call center employee in Mumbai or Manila, but presumably it was also intended to encourage customers to put pressure on companies not to use non-US locations for call centers. Senator Hillary Rodham Clinton (D-NY) introduced legislation paralleling the European data protection laws that limit personal data that can be shipped across national borders. Some state bills and executive orders preclude foreign-owned companies from bidding on contracts paid for with public funds, require all workers on these contracts to be US citizens or hold green cards, or tilt the contracting process in favor of companies located within the state.

Most of these laws have not been passed or tested in the courts. One exception is the Thomas-Voinovich Amendment. The Bush administration introduced a new policy, through the Office of Management and Budget Circular A-76, to encourage greater competition and outsourcing of federal work to private contractors. Senators Craig Thomas (R-WY) and George Voinovich (R-OH) introduced an amendment to appropriations legislation that the Bush administration modified slightly, and it passed into law (with a one-year sunset clause) in January 2004 as part of the Omnibus Appropriations Bill. The amendment stated that work contracted out under the rules of Circular A-76 may not be performed by contractors outside the United States to any greater extent than it had been in the past. This law remained in effect for the 2004 fiscal year only. The extent to which it limited offshoring is unknown.

There are reasons to question the legality and efficacy of such restrictions. Some legal scholars believe that most proposed state laws and executive orders will be ruled unconstitutional because of the Commerce Clause of the Constitution that leaves control of international commerce agreements in the hands of the federal rather than the state governments (see Klinger and Sykes 2004). These legal scholars also believe that proposed federal legislation on offshoring may break existing international agreements. There is also

a risk of retaliation by other countries to protectionist American legislation. In fact, it may be the risk of retaliation that is most persuasive in limiting available legislative and regulatory actions.

Tax law is another approach that received significant attention in Congress and in the 2004 presidential debates especially from the Democrats. The goals were to change US tax law so that there is no tax incentive to move jobs overseas, and to normalize tax rules between the United States and other countries so that US-based multinationals would have incentive to repatriate earnings to the United States earned in other countries. The United States taxes revenues of companies operating in the United States no matter where the revenue is earned (giving a tax credit to the company for taxes paid in other countries on this same revenue). Many companies reduce US taxes paid by keeping revenues overseas until they have an operating loss in the United States against which they can offset this foreign revenue. Democratic presidential candidate John Kerry recommended a change in the law that would require companies to pay US taxes in the year the revenue was earned, not the year when the revenue was brought into the United States. Another kind of change that has been proposed is to place greater US government control on organizations such as the Overseas Private Investment Corporation which helps the Federation of Indian Chambers of Commerce to encourage American companies to relocate to India and which helps to encourage investment in Indian banking and computer companies that are possible competitors of US firms.

Another place where debates have arisen over protection of jobs for American workers has concerned US visa policy. Ron Hira, a public policy professor at Rochester Institute of Technology and vice president of Career Activities of IEEE-USA, has been a driving force in the IEEE-USA's efforts to protect jobs and wage levels for American engineers. He has made a detailed study of the strategic use of H-1B and L-1 visas by Indian offshoring companies (Hira 2003; 2004; to appear). The companies use a blended strategy of placing some workers on site at their US client's facilities and other workers back in India to make offshoring more amenable to the client and make the work flow and work management more convenient. Sometimes these visas are used simply to replace a US worker with a lower-paid Indian worker who works in the US office alongside the client's other employees. Hira argues that the current visa policy reduces the competitive advantage of physical presence in the United States that the American worker would otherwise have, and he suggests that this use of visas by Indian companies may constitute dumping (the selling of goods at less than fair market value), in violation of US international trade agreements. Several laws have been introduced in Congress to curb this practice. None has passed, and many of them are broad-sweeping and may have unintended consequences that harm US interests such as reducing the creation of new jobs for Americans or weakening US technological competitiveness. Hira admits that some proposed legislation has these problems but argues that legislation that more carefully limits use of these temporary visas, such as that co-sponsored by Senator Christopher Dodd (D-CT) and Representative Nancy Johnson (R-CT), can protect American workers, while still allowing temporary visas for legitimate reasons such as skilled specialty work when US workers are unavailable (H-1B) and legitimate intra-company transfers (L-1).

There have been several side issues related to these temporary visa programs in the United States. Since the H-1B visa program began in 1991, there has been an annual cap on these visas, typically 65,000, but much higher for several years during the dot-com boom because of pressure exerted by the American business community. The US immigration service (USCIS) has a poor track record for accurately counting the number of H-1B visa applications granted each year. IEEE-USA has been a watchdog of the USCIS, for example, sending out a press release in March 2005 that USCIS has exceeded its 65,000 visa quota for the year by 10,000. In a related issue, under pressure from the business

community in December 2004, Congress allocated for this fiscal year an additional 20,000 H-1B visas specifically set aside for workers holding advanced degrees from US universities. However, critics argue that USCIS has used stalling tactics, such as reinvestigating the criteria for these visas and holding off action until publication in the Federal Register, to prevent having to process and award these visas. As expected, these actions angered the US business community that favors few or no restrictions on temporary work visas. (The USCIS did eventually issue guidelines on how the 20,000 additional visas should be used.) Industry is unhappy with some other practices of the USCIS, and there are unsupported claims that these practices are driving companies to send work directly overseas rather than use the temporary visas to keep work in the United States even if some of it is done by foreign workers. Such practices include an increase in the H-1B application fee from \$185 to \$2185 in December 2004, an additional charge of \$1000 for expedited processing (which is a necessity when there are more applications than the annual cap as has been the situation recently), and glitches in the new Program Electronic Review Management system that must be used by H-1B workers who want to apply for permanent (green card) status.¹

A different policy approach has focused not on protecting American jobs but instead on providing support to Americans who lose their jobs through offshoring. Workers not only lose their jobs; in many cases, they lose access to their pension and health care benefits. Moreover, studies indicate that workers who have lost jobs over the past several decades have taken wage cuts on average in their new jobs, and people who lost jobs because of trade have taken a larger than average wage cut (Kletzer 2001).

In 1962, the US Congress passed the Trade Adjustment Assistance Act (TAA) to offer job training and extend the length of time of unemployment benefits to American workers who lost their jobs through trade (Storey 2000; Graney 2005). This legislation was directed principally at manufacturing workers. Perhaps most directly significant here is the politics of whether the Trade Adjustment Assistance Act applies to software workers. When the Bush administration came into office, it took the position that the act, which in Section 222 limits the legislation to workers who produce an article, applies only to manufacturing workers. Laid-off programmers filed a class-action suit against the Department of Labor that it had illegally denying 10,000 programmers benefits under the act (still pending as of publication of this report) (Loftus 2004). The Department of Labor argued that the programmers do not qualify because software and IT services do not qualify as products or articles as specified in the act. When the act was reauthorized in 2002, Democratic lawmakers tried to include software and service workers under the act, but the Republican majority blocked it, arguing that broadening coverage would be too costly (despite big increases in funding of the program in FY 2003 and FY 2004).

To some degree, alliances in favor of or opposed to applying TAA to software workers were regional rather than drawn along party lines. For example, delegations in the manufacturing states, notably those in the Midwest, were generally not supportive of the extension of TAA to software workers because the funding was already stretched thin and there were many manufacturing workers to support with the state's allocation of TAA funds. However, in the state of Washington, with its many software workers, Democrats and Republicans alike (such as Representative Jennifer Dunn (R), a former IBM systems engineer who represented the Seattle suburbs that included Microsoft headquarters) were in favor of extending coverage to software workers. In 2004, Senators Max Baucus (D-MO) and Richard Durbin (D-IL) and Representative Adam Smith (D-WA) all introduced bills that

¹ As this report was going to press, the Senate Judiciary Committee was discussing an increase in the number of H1-B visas by 60,000 per year for five years. The IEEE-USA is mounting a campaign among its members to write to their representatives to block this increase.

would provide coverage for software and service workers, but none has yet been passed and signed into law. There has been a recent set-back for the Bush administration. After being remanded twice for reconsideration by the Department of Labor, the United States Court of International Trade ruled that software development work at Ericsson in Brea, California, did involve creating a product and thus their former employees who had lost jobs when this work was moved to Canada were eligible to apply under the Trade Assistance Act (Federal Register, v. 70, No. 25, February 8, 2005).

A number of groups and scholars have called for new policies to protect workers who lose their jobs through trade. These policies include requiring companies to provide three months of notification to workers whose jobs are to be eliminated because of trade, extension of the term length of unemployment benefits, wage insurance paid for by the companies that offshore work as a means to make up some of the drop in wages typical in the displaced worker's next job, improved retraining and reemployment services, temporary health care and mortgage assistance, and multi-year income averaging on federal taxes, as well as extension of the Trade Adjustment Assistance Act to software and service workers. Some of these groups also call for legislation to help American communities hit hard by offshoring, such as more effective government-sponsored regional development programs and funding to create alternative outsourcing destinations within the United States especially in rural communities where wages are already relatively low and unemployment high.

One of the policy initiatives for which support is growing rapidly is to improve the innovation base for the United States. The basic idea is that, although some jobs will undoubtedly be lost to low-wage countries, America can create a substantial number of new jobs, including many that are high on the value chain, through policies that create a climate of innovation.

There is a widely held belief that American prowess in science and innovation is slipping. The Task Force on the Future of American Innovation is a politically active group with representation from industry, research organizations, and universities. Members include, among others, IBM, Microsoft, Texas Instruments, Hewlett Packard, Intel, the Council on Competitiveness, the National Association of Manufacturers, the Semiconductor Industry Association, and most of the major professional societies (including ACM) from the physical sciences and computing disciplines. In February 2005, the task force published a benchmark report that showed serious problems in the American innovation base (The Task Force on the Future of American Innovation 2005). A sample of their findings include the following.

- The US share of worldwide science and engineering degrees at both the undergraduate and doctoral levels is declining.
- The percentage of US citizens enrolled in US science and engineering graduate programs is dropping.
- Asian students, once a leading part of the graduate population studying science and engineering in the United States, are increasingly less likely to study in the United States.
- The US share of science and engineering publications worldwide is declining.
- US patent applications from Asia are growing seven times as fast as applications from the United States.
- Government investment in research and development is growing much more rapidly in many countries than in the United States.

- There is a 30-year decline in support for basic research in engineering and physical science in the United States as a percentage of GDP.
- There is a 20-year decline in the US share of worldwide high-tech exports.
- The United States has had a high-technology trade deficit every year since 2001.

Richard Florida, a professor of economic development at Carnegie Mellon University, and his colleagues have identified factors associated with regions that have high levels of creative economic growth (Florida 2004). They include large populations of talented individuals, a high level of technological innovation, and a tolerance of diverse lifestyles. Measured by these factors, Sweden rates higher than the United States; Finland, the Netherlands, and Denmark are close behind; and the United Kingdom and Belgium are also doing well. Based on these same measures, Sydney and Melbourne are doing as well as Washington, DC, and New York City. Vancouver and Toronto best New York City, Miami, and Los Angeles in the number of immigrants. Clearly, the unchallenged lead of the United States in the creative wars is no longer assured, according to Florida.

Generating the large numbers of talented individuals called for by Florida has become a problem for the United States. Many of the engineers and entrepreneurs who drove the build-up of Silicon Valley and the dot-com boom were foreign-born. But the number of visas applications for immigrants to work in the United States has dropped significantly since 2001. For example, 163,600 H1-B visas were issued in 2001 but only 79,100 in 2002. Not all H1-B visas are awarded to scientists and engineers, but they receive the largest percentage of these visas. There has been a similar drop in foreign applications to study science and engineering disciplines in US graduate schools with applications from India and China down by about a third to a half. This could be in part because there are increasingly competitive educational opportunities in China and India (Griffiths 2005). But it also could be because of events in the United States, such as

- anger over US government actions in Iraq and other parts of the world,
- tightening of the visa process by USCIS,
- a weakening of the US computer industry with the dot-com bust,
- fewer opportunities for graduate research assistantships with DARPA redirecting some funds from academia to industry,
- stricter classification requirements on research sponsored by the federal government,
- the Real ID Act which makes it harder for foreigners to obtain valid identification,
- newly proposed Commerce Department restrictions on dual-use technologies which may make it harder for foreigners to gain access to the laboratory equipment they need.

There is also a problem attracting US students to prepare for IT and other science and engineering careers. According to the Computing Research Association Taulbee Survey, the number of students declaring computer science majors has dropped 39% since 2000 (Vegso 2005). Women and ethnic minorities remain seriously under-represented. To get some perspective, in 2002, China graduated between 200,000 and 300,000 engineers (sources vary on the exact number), compared to fewer than 70,000 in the United States. There are apparently multiple reasons for this lack of interest in technical subjects among American students. They are ill prepared by their K-12 education for science and engineering majors in college. The dot-com bubble bursting and the flight of some jobs out of the country through offshoring (overblown by the press) appear to have caused students to believe there are not opportunities for good careers in IT. Many complex interacting socio-cultural

and economic factors contribute to the under-representation of women and minorities in the IT field.

Much of the high-tech community has been critical of the Bush administration which is perceived by them to be hostile to science. (For a response from the Bush administration, see OSTP 2005.) While the Bush Administration proposed a small increase for NSF in FY 2005, Congress ended up cutting its budget by 1.9 percent. This was the first cut since 1996. This year, much to the displeasure of the high-tech community, the Administration only requested a slight increase to \$5.6 billion, which is \$100 million below its request from the previous year and only slightly above the 2004 level – and approximately \$75 million of that increase is from shifting maintenance responsibilities for two Coast Guard cutters over to the agency. In high-profile cases, the Bush administration has decided that it is not worth the job losses to sign on to international treaties on global warming for which there is scientific evidence, and it has decided there is greater value in policy that protects the life of embryos than in making fetal tissue available for important medical research. With the notable exception of Samuel Bodman, many of the senior Bush advisors are from old-technology industries such as railroads, and none of them is seen as a particular advocate of high technology. The role of the national science advisor has been downgraded in comparison to previous presidencies. The Bush administration was slow to make appointments to the President's Information Technology Advisory Council and has recently subsumed it under the Presidential Council of Advisors on Science and Technology. In these and other ways, the academic science community believes the Bush administration has demonstrated a lack of interest in promoting high-tech as an economic driver.

Thus there has been skepticism in the scientific community as to whether the Bush administration would support an innovation policy. However, at least in Congress, there has been growing bipartisan support for an innovation policy. (For more background, see Wilson 2005a; National Academies 2005.) Even ardent free trade supporters in Congress believe there is value in making the United States more competitive in the world market. For example, Representatives Frank Wolf (R-VA), Vern Ehlers (R-MI), Sherwood Boehlert (R-NY), and Don Manzullo (R-IL) have called for an Innovation Summit to be held in late 2005 to address the loss of US leadership in science and innovation. (R&D funding is only one aspect of innovation strategy. The history of Japan's auto industry, for example, shows that leadership may come from production and scale. In this case, the most important matters are human resources management, inventory management, and quality. Russia provides another example where research does not equal innovation and economic leadership, given that Russia has been a leader in basic research but has had limited production and scale.)

Political responses to these innovation problems generally encompass four elements: making it more attractive for foreign students and scientists to work in the United States, improving the educational system in the United States, attracting US citizens to the science and engineering disciplines, and increasing federal support for research and development. For example, Representative Wolf has called for tripling federal funding for basic research in the physical sciences, including computing; legislation to forgive loan interest for math and science majors; and the national innovation summit. As this report was going to press, in the fall of 2005, two pieces of legislation were working their way through Congress. One is an education bill, the College Access and Opportunity Act (H.R. 609), which passed the

House Education and Workforce Committee in July and is now pending before the House of Representatives. (For more information, see Wilson 2005b.) One of its provisions is for awarding mathematics and science scholarships and allowing a partial waiver of interest on student loans; in both cases, the student is required to work in a related field of science or engineering for five years after graduation. The other legislation is an amendment to the Defense Authorization Bill for FY2006, introduced by Senators Ted Kennedy (D-MA) and Susan Collins (R-ME) and receiving wide bipartisan support. (For more information, see

Harsha 2005.) This amendment would increase funding for basic research coming from defense department agencies and introduce a new scholarship and fellowship program to attract students to science and engineering fields.

Several non-profit organizations have suggested detailed platforms of reform that would encourage innovation as a means to create jobs and prosperity in the United States. The elements include R&D investment, tax credits, infrastructure improvement, and educational reform. Educational reform concerns both the incumbent and future workforces. The platforms for the Computer Systems Policy Project, which is a group of CEOs from leading IT companies such as IBM, Intel, Hewlett Packard, Dell, and Motorola, and from the Progressive Policy Institute are outlined in Table 1.

Table 8.1: Two Policy Platforms for US Economic Development Through Innovation

Computer Systems Policy Project

Promote innovation through:

- A permanent and improved R&D tax credit
- Increased federal funding for university-based research in the physical sciences
- A series of policies to support the chain of innovation in areas such as customer service, price and productivity
- Invest in infrastructure through:
 - A new infrastructure investment act that shortens depreciation schedules for IT assets, provides a tax moratorium on Internet access and eliminates multiple and discriminatory Internet taxation, and reforms international tax rules that include double taxation of foreign-source income
 - Provide a national plan for increasing broadband access
 - Expand the e-government initiative to make government operation more efficient
 - Improve US education and training through:
 - Greater funding for existing federal and state education priorities
 - Enhanced federal funding for math and science education programs
 - Support greater access to and use of IT
 - Improvements in teacher preparation and performance through higher pay, flexible certification requirements, professional development opportunities, and support for graduate and continuing education
 - Incentives for employers to train and hire highly skilled workers
 - Training programs for displaced workers

Progressive Policy Institute

Boosting Innovation through:

- An additional \$10 billion per year to fund advanced cyberinfrastructure, industry-university alliances, innovation infrastructure grants to universities, a productivity enhancement research fund, and doubling the NSF budget
- Fund a revenue-neutral incremental tax credit for investment in information-processing equipment, software, and industrial equipment
- Develop a national information technology strategy to accelerate the transformation to a digital economy, e.g tax credits to get individuals to move to high-speed broadband service, sectoral initiatives to transform health and financial services through innovative uses of IT, and improved e-government services
- Expand federal support for early-stage company financing, such as the Small Business Innovative

Research Program

- Boosting skills through:
 - Reorganization of existing federal employment and training programs into a more effective national skills corporation
 - Fund math and science education
 - Make it easier for foreign math, science, and engineering Ph.D. graduates to become US citizens
 - Correct abuses in the L-1 and H-1B visa programs

Sources: *Atkinson 2004; Computer Systems Policy Project (2004)*

There are some other policies that are not directly about offshoring but have a bearing on it. These include issues of privacy, data security, national security, and intellectual property protection. These topics are covered in Chapter 6, so they will not be discussed here. There are also issues having to do with open markets, in an attempt to provide a level playing field in the global marketplace. Consider the case of China. The Chinese government has adopted a standard for wireless communications devices that is different from the international standards, presumably in order to keep foreign competition out of its domestic market. China waives value-added tax on exports from its domestic semiconductor manufacturers. It is planning procurement rules that require foreign companies to establish joint ventures and share proprietary technologies with Chinese companies if they wish to sell in the Chinese domestic market. China is also planning on allowing its government agencies to buy software exclusively from domestic sources.

Finally, there is the question of currency manipulation. China presents the best example. (For more background information, see Areddy et al. 2005.) Over the past few years, the Chinese yuan has been seriously undervalued against the US dollar, perhaps by as much as 40%. This makes it less expensive for manufacturers to locate production in China. Were the exchange rate at true market value, in some cases it would be more cost-effective for companies to locate production facilities in the United States; it would also price Chinese-made products more fairly in the international marketplace. The US government has placed pressure on China to revalue the currency to a more realistic level. In growing frustration at the lack of Chinese action, Senators Charles Schumer (D-NY) and Lindsay Graham (R-SC) introduced an amendment in 2005 to a State Department spending bill that would place a 27.5% import duty on all Chinese imports into the United States if China did not agree to revalue its currency. China had been considering doing so for several years and agreed to act, but only if its action was not seen as a direct result of US pressure. So the US Senate agreed to table the vote on the Schumer-Graham amendment until August 2005, and China announced in July that it was going to adopt a managed floating exchange rate tied not to the US dollar but instead to a basket of currencies. The yuan began immediately to rise in value against the dollar, but how far the Chinese government will allow it to rise is an open question. So far, the amount has been small.

8.2. Australian Policy

Australia presents an interesting case study in the politics of offshoring in that it is a country that has benefited greatly from free trade, both in terms of its important export markets for wheat, wool, coal, wine, education, and tourism, and for the range of products that are available as imports to its citizens. In the early 1980s, the Australian government lowered tariffs significantly. This caused some job loss, and individual companies and industries had to go through significant adjustments. There was some public outcry as a result, but the Australian government stuck with its liberalized trade laws, and, by 2004, the economy was strong, inflation was consistently low, overall unemployment was a favorable

6%, and approximately 20% of Australian jobs were related to exports. Australia also serves as an interesting case study because it is subject to job loss by sending IT work overseas, and it is a destination for IT work (onshoring) because of its English-speaking population, strong infrastructure, political and economic stability, and large talent pool especially in financial services.

Debates over free trade arose again in 2004 in the context of offshoring. These were stimulated in part by the concerns of the American about American job loss to offshoring, the high profile this issue was given in the US presidential election, the fact that Australia was experiencing its first high levels of unemployment in the computer and telecommunications sector (12.4% in 2002 and 10.6% in 2003), and the high profile the press gave to a \$75 million contract the Australian telephone company, Telstra, awarded to the Indiana offshoring company, Infosys, in 2003 which was expected to cost 180 Australian jobs. There was sharp criticism from the opposition Labor Party, for example, from Senator Kate Lundy, the Shadow Minister for Sport, Tourism, and IT, of the lack of policies protecting Australian jobs and workers from the government of John Howard. (See Lundy 2003.)

In May 2004, the Australian Computer Society released the ACS Policy Statement on Offshoring (www.acs.org.au). Interestingly, it took basically a free-trade position and did not call for protectionist measures. Instead, it called for improvements in existing government programs to help displaced workers with retraining and retooling, check lists that would educate Australian companies on the cost-benefit analysis of offshoring so that they would not rush headlong into it, and changes in industrial policy to enhance Australian research and development. Not all the members of the professional society were happy with this position, but the leadership stood firm. (See Montgomery 2004.)

The sitting Howard government was pleased with the ACS report. In a response to the report by Daryl Williams, the Minister for Communications, Information, and the Arts, it was argued that "The Howard Government's approach is that we don't need protection" and at another point "Globalisation is not a one-way street." (See Williams 2004.) Williams outlined the initiatives being taken by the Howard Government to address offshoring:

- Make more readily available government services for displaced workers
- An insourcing initiative, known as Invest Australia, which had been started in 1997 and had a strong focus on IT (and which had led to \$12 billion in foreign direct investment in Australian IT)
- An education and training program focused on general computer literacy, with a curriculum published by the government in 2003 under the title "Learning in an Online World"
- A proposed national assessment of IT skills of 6- and 10-year olds
- Additional funding for the Australian Quality Teacher Program

Recently, the Australian Computer Society has changed its position somewhat on immigrant workers. Numbers released in 2005 by the Australian Department of Immigration Multicultural and Indigenous Affairs (DIMIA) indicated that almost half of all temporary skilled worker visas for IT workers were held by Indians and that almost one third of all 457 visas were being used for people doing programming work at a time when there was an abundance of programmers in Australia. The 457 visa program, which is similar to the H1-B visas in the United States, is intended to enable Australian companies to bring skilled workers to the country to fill skill shortages and to help companies to set up operations in Australia. These visas are specifically not to be used to bring low-wage workers into the country to displace Australian workers. Critics of the 457 visa program

have used the new DIMIA statistics as ammunition in their assertions that the 457 system has been employed to undercut local wages by importing workers from low-skill countries.

In response, the Australian Computer Society has taken positions on both the skilled temporary visa program (457) and on a permanent residence visa program known as the General Skilled Migration Program. While still endorsing the basic immigration policy of the Australian government, ACS has called for adjustments in the 457 system to make it fairer. In particular, ACS has called for (quoted verbatim from ACS's press release)

- DIMIA to collect and publish information on the skill set and specialization of 457 visa applicants to determine any mismatch between those roles/skills in short supply and those in oversupply.
- Mandatory skills assessment for 457 visas to verify the skill sets of 457 Visa applicants....
- DIMIA should publish regular data on actual salaries paid to 457 visa holders in ICT occupations, compared to the DIMIA approved salaries.
- DIMIA should publish data showing which companies employ 457 visa holders on an annual basis compared to their initial sponsoring employer.
- The minimum threshold salary for 457 visas be set at the prevailing market rate for each particular ICT specialty and reviewed annually.
- Employers sponsoring 457 visas be required to include 'no displacement undertaking' as part of their obligations covering the three months before and after Visa hiring. When making the application, the employer should sign a declaration that in hiring the 457 visa applicant they are not displacing an Australian incumbent.
- 457 visa holders who change positions or employers should be required to transfer to a class/specialisation and level of job no lower than that for which they were sponsored....

With respect to the permanent residence program, the ACS called for the General Skilled Migration Program to be substantially reduced until (quoting directly from the ACS press release):

- the market can absorb the level of ICT graduates from Australian universities;
- the intake to ICT courses stops declining and begins to increase;
- the unemployment rate for ICT professionals falls to levels in line with that of all other professionals in Australia.

8.3. Swedish Policy

Sweden is a small, highly internationalized and technologically advanced country in the European Union. Swedish policy in relation to globalization and offshoring should therefore be of considerable interest to other countries.

Although part of the European Union, EU policies do not directly affect Sweden and Swedish offshoring. The Lisbon Agenda, a ten-year plan agreed to in March 2000 by the European heads of state to make the European Union the most competitive knowledge-driven economy, is an important EU manifesto; however, it is primarily directed to the EU member states, where the actual economic and political power in Europe still resides. It should be noted that the European Union is not a federal entity yet and comparatively small resources for action are available at the EU level. Any advancements of importance have to

be generated by the individual member states. Therefore, it is necessary to focus on nation-level innovation strategies and their possible combined effects if EU policies of relevance for EU competitiveness are to be understood. Swedish policy is an interesting part of that story.

The Swedish economy and welfare have benefited greatly from a long tradition of free trade which, in fact, was one of the fundamental pillars of the long-term Swedish economic growth that started in the late 19th century and continued into the early 1970s. Part of this successful macro-economic policy was the general agreement in the early 1930s between the central employer and worker associations on the basic principles for setting wages. A key principle in this agreement was related to a common commitment to overall Swedish industrial competitiveness in relatively knowledge-intensive and high-wage industries. From a wage perspective, this was reflected in internationally high and continuously increasing low-wage floors. As a consequence, Swedish industrial competitiveness had to be based on increasing productivity levels through industrial rationalizations that were rapid by international standards. At the same time, Sweden had to reduce the amount of simple production retained domestically (Marklund 2004).

Two sets of important consequences have resulted from the general Swedish industrial macro-economic policy related to industrial dynamics. First, Sweden has experienced high long-term economic growth which made it possible for the country to afford for decades one of the largest public sectors in the world. In relation to its size, Sweden has generated one of the biggest high-tech industries in the world; and it has one of the highest rates of investments in research and development and outputs in terms of scientific publications and patenting. Second, Sweden has become one of the most internationalized economies in the world. Sweden is one of the countries with the highest dependence on foreign trade for its Gross Domestic Product. It has probably experienced one of the most rapid industrial rationalizations in the world of which a considerable part has taken place through offshoring to countries with lower production costs. Sweden also has one of the most internationalized domestic industries in the world in terms of foreign ownership (Marklund 2004).

Thus, Swedish policy has generally been highly free-trade oriented, based on the across-the-political-board faith in the long-term benefits free trade has for growth and employment. This policy has been possible because of ambitious labor market insurances for individuals facing unemployment and regional policy measures for regions facing severe industrial restructuring. On several occasions, specific industrial policy measures have been taken by the Government to support industries with low and decreasing international competitiveness. The three most important examples are the steel, clothing, and marine industries. In the 1970s, considerable industrial support was given to these industries when they faced large-scale failures, with the resulting unemployment and regional effects. These measures all turned out to be futile, and today Sweden does not have any clothing or boat industries worth mentioning, and the mining industry now focuses on specific niches of specialty steel. Another important policy initiative aimed at strengthening the general Swedish industrial competitiveness was taken in the late 1970s when the Swedish currency was depreciated. However, the overall impact of this measure was wage-driven inflation which quite rapidly decreased the cost advantage sought for by the currency depreciation. The effect of the policy initiatives in these three industries on large-scale industrial policy projects has been substantial. Today, all political camps regard both the industrial policy initiatives and the currency depreciation as huge failures and based on the wrong political principles.

As a consequence, Swedish policy has, to a large extent, returned to the basic policy principles on which the long and successful industrial and growth history prior to the 1970s was based. Thus it is not particularly surprising that the Swedish policy attitude towards the current globalization trends is almost completely free from protectionist arguments and direct job-protection arguments. In addition, Sweden has, as have most developed

countries, joined the international monetary agreements that rule out monetary policies that are radically different from the rest of the world.

Nevertheless, growing political awareness of the recent trends towards offshoring of knowledge-intensive services and service jobs, including research and development, has rapidly moved up on the political agenda. This has been spurred by Swedish jobless growth, that is, stagnating job creation despite one of Europe's most rapid economic growth rates in the recent five-year period (although the direct relationships to the trend towards increasing service offshoring is unclear and probably far from direct). A growing sense of a trend towards decreasing Swedish technological competitiveness has generated increasing uneasiness within the Swedish policy establishment.

As a consequence of the growing policy concern, a number of initiatives have been taken to improve Swedish competitiveness and counteract the negative impact of offshoring. Although they are all related to a new national innovation strategy advanced in the spring of 2004, the overall policy is not based on explicit political targets. The Swedish policy initiatives combine three fundamental points (Swedish Government 2004).

- Technology development and research and development as the key to Swedish competitiveness.
- Specific industrial-focused investments in large-scale public/private partnerships to achieve centers of excellence in research and development.
- Major institutional restructuring and increased funding of early-stage R&D-based start-ups and R&D-based small and medium-sized enterprise growth.

So far, three industries have been addressed in order to develop high-technology centers of excellence.

- Automotive. This has generated a public/private development program based on a total of one billion Euros in public financing over 10 years, including investments in research and development and infrastructures (Swedish Government 2005).
- Biotech. This is currently under discussion and is based on an analysis and a proposal for a national strategy that has been worked out with commitments from important agents in the Swedish biotech industry. (VINNOVA 2005a)
- Security. This is currently under discussion, based on an analysis and a proposal for a national strategy that has been worked out with commitments from important agents in the Swedish security industry (VINNOVA 2005b).

Industry-related discussions with similar purposes are currently taking place in other important Swedish industries such as telecommunications, steel, and pulp and paper. These discussions may lead to new initiatives with a focus on technological competitiveness (Swedish Government 2004).

The software industry is not a specific focus in the current policy discussions and initiatives. The basic reason is that the major part of Swedish software development and production is primarily embedded in different important manufacturing or service-providing value chains. Sweden does not have a significant independent software industry.

Apart from these initiatives oriented to the long-term and with a focus on the technological competitiveness of key Swedish industries, the government has increased its focus on improving Swedish rates of R&D-based start-ups and growth. As a consequence, there has been a large structural reform of Swedish public support for pre-seed, seed, and growth capital, drawn from a total capital fund of about 200 million Euros. This initiative

addresses a widely felt weakness in the Swedish innovation system in terms of generating new firm and small- and medium-sized enterprise-based industrial renewal.

The Swedish policy discussion has been quite general and has not had a particularly strong focus on educational reform. There has been an ambitious drive during the last decade to increase university enrollment and expand doctoral programs, and these efforts have greatly increased the share of young people going to university and then on to doctoral studies. Currently, the debate is focused on how the emerging excess supply of highly-educated people should be employed; and some important voices are arguing for decreasing the education ambitions because of the increasing numbers of highly-educated people who are facing meager job opportunities (Marklund 2004).

8.4. Indian Policy

India has the most rapidly growing offshoring industry, and there have been significant policy issues at the national and state levels that have shaped the climate for this industry. This section considers regulatory policy as it affects foreign direct investment, taxation, building an infrastructure, protecting intellectual policy, data protection and privacy, and education and training policy.

The *regulatory history* is the longest and most detailed of all Indian policies affecting offshoring. When India achieved independence in 1947, it set out to establish a democracy with a socialist economic policy. In the 1950s, 1960s, and early 1970s, much of the economic policy focused on identifying ways for domestic companies to replace imports. An industrial policy reform in 1973 targeted the influence of foreign investors and multinational companies in key Indian industries. The Foreign Exchange Reduction Act of 1973 forced foreign companies to reduce their equity in Indian companies to no more than 40%. In protest, both Coca Cola and IBM left India (in 1978). Due to the lack of domestic capital, little competition, and other reasons, local manufacturing industries were able to grow only modestly in this policy environment during the 1970s and 1980s.

The Microcomputer Policy Act of 1978 permitted companies in many different industries to obtain licenses to manufacture systems that embedded computer hardware. Foreign brand names were not permitted in the products that were developed, and foreign know-how was not permitted except in a few special cases, such as peripherals. Because of the government's fear of job loss through automation, there was no effort to push either the computerization of Indian society or the development of a domestic computer hardware industry.

Government policies in 1984 and 1986 promoted the development of a domestic computer hardware industry. The Computer Policy of 1984 made microcomputers more readily available and encouraged software exports which it regarded as a growth industry. The Software Policy of 1986 identified software as one of India's most promising export fields and allowed import of foreign-built software and software tools.

India was forced to liberalize its economy in 1991 in the face of a balance of payments crisis. The new industrial policy reduced licensing requirements in most industries, allowed foreign companies to hold a majority interest in Indian companies in many industries, provided for automatic approval for hiring foreign technicians and foreign testing of technologies developed in India, and reduced restrictions on the ways in which mergers and acquisitions could take place.

In addition to regulation, *tax policy* had a shaping effect on the Indian software industry. In 1981, the Indian tax code was revised to establish tax-free zones on profits and gains for manufacturers. The law was written broadly enough that it applied to software

manufacturing. In 1993, changes in the law broadened the tax-free zones to include Science and Technology Parks which had been established by federal law three years earlier and also to include Electronic Hardware Technology Parks. Under the law, profits and gains from the export of software were exempt from taxes for ten years (and the exemption was subsequently extended). Beginning in 2005, this law was further broadened to include all Indian software export, not just that done from the technology parks

Another policy that shaped the software industry was *infrastructure policy*. Most laws and executive orders that were intended to build a favorable infrastructure for the software industry were set by individual state governments, mostly in the southern part of India. The one infrastructure issue subject to federal governance was telecommunications policy. The Indian telecommunications sector was wholly-owned by the government until 1984 and “was characterized by underinvestment, outdated technology and unfocused growth” (Thakker, 8). A Centre for Development of Telematics was established in 1984 by the government to handle switching and transmissions research. In 1986, two public sector firms were established to promote the introduction and use of new telecommunications technologies. Beginning in 1991, the telecommunications sector experienced a series of deregulations: telecommunications equipment manufacturing (1991), cellular phone service (1992), basic telephone service (1994), Internet service (1998), long-distance telephone service (2000), international long distance and Internet telephony (2002), and broadband service (2004). These changes enabled the Indian software industry to have access to a completely modern telecommunications system with a capacity and cost that enabled the offshoring service companies to be internationally competitive.

The state infrastructure initiatives were taken primarily to make them competitive in recruiting and retaining software companies. These initiatives take a number of different forms. Labor laws were modified to permit women to work night shifts, all employees to work on national holidays, and offshoring companies to operate round the clock all year long. Science and technology parks, made possible by federal regulation, were funded by state governments. They gave companies tax breaks, good facilities (such as uninterrupted electrical power), reduced bureaucracy (such as in filing for permits), and other benefits. Access to good land to build their offices and reductions in land taxes were also common.

There were numerous educational and training reforms. These are discussed in Chapter 7. There were also political actions concerning privacy, data security, and intellectual property protection, which are covered in Chapter 6.

8.5. Chinese Policy

China provides an interesting contrast to India. China is a policy-driven society, and one sees much more significant intervention of the state in the economic development of the software industry in China than in India. The national software strategy in India has been focused on the export service market, while the Chinese are interested in capturing their domestic software product and service markets as well as participating in the export market.

China’s economic history plays an important role in understanding what is going on in its software industry. Until the 1980s, there were only local, not national companies in China; few companies operated more than five kilometers from their headquarters. Much of the capital available to businesses was tied in one way or another to the state, and many of the capital decisions were made at the local level. Since then, internal trade barriers have been dropped, and companies have been building scale and moving into neighboring markets. In recent years, the national government has promoted economic reform through competition among provinces and growth for individual companies by providing access to capital through

the national stock market. In at least a few industries, notably consumer electronics, there has been intense competition and a desire to play in the international market, and this has driven consolidation so that today, for example, three companies control half the domestic market for personal computers. This shakeout has not yet occurred in the Chinese software industry. As of 2002, there were over 6,000 software firms in China, and only 19 of them had sales exceeding \$120 million. The average firm is small, employing only about 25 software developers.

Chinese policy towards forming technological capabilities has changed over time. From 1978 to 1985, the focus was on central planning and state control. In the period 1985 to 1991, the focus was on enhancing the innovation system through greater state support for both public and private research and development. Since 1992, the focus has been on enabling market-oriented reforms to improve the quality of research and the skills of the workforce and to broaden the focus on development beyond the defense and heavy technology industries.

One area in which the government has taken a strong hand is the development of trained personnel for the software industry. The Chinese government set a national goal to increase the number of software engineers from the actual number of 250,000 in 2002 to 800,000 by the end of 2005. The Ministry of Education directed all higher education institutions to establish software schools, use international textbooks, and invite experts from China and elsewhere to teach in these programs. As of early 2005, 90% of Chinese universities had established programs in computer science or software engineering. The government has also been attempting to concentrate highly-skilled software talent into particular locales and, to that end, has directed government institutions to facilitate the transfers of skilled software personnel to these places, including providing accommodation for their spouses and children. The Chinese government has also provided incentives for overseas Chinese software workers, especially managers, to return home through such incentives as cash payments, cars, houses, and promotions. One third of the Chinese who went abroad to study since 1980, have returned to China.

Another area of government policy in support of the software industry is support for research and development in universities, research institutes and, to some extent, industry. The best known of these was the Ministry of Science and Technology's High Technology R&D Program, known more commonly as the "863 program" which has provided more than a billion dollars of government funding for basic research since 1986, with an equal amount of matching funding from other sources. However, there have been a series of other programs to provide research support, including the Development Fund on Electronic Information Industry, an R&D Fund on Industrial Technology, and a Technological Innovation Fund. Although the government has continued to support important state research institutes such as the institutes of the Chinese Academy of Sciences, there has been an effort to make them less dependent on the state (smaller state subsidies) and to encourage them to reach out to obtain external funding sources. In fact, the CAS Institute of Software decreased its staff from 500 to 125 in the period 1999 to 2001. The government has changed the research and tenure system, forcibly retiring some older researchers and replacing tenure with renewable five-year contracts for most researchers. The government has also been attracting foreign companies to establish R&D centers in China, and, in some cases, foreign firms are pressured to bring R&D activity to China if they want access to cheap labor.

Another government initiative to develop high technology was the Torch Program which provided over \$3 billion between 1988 and 1999. Much of the support went to IT areas. Among other activities, the Torch Program supported the establishment of nineteen software parks around the country that were tied closely to regional development of the software industry.

Research is also being promoted through some large government-sponsored projects to improve the use of information technology in government operations. There are 12 so-called *Golden* projects, including Golden Bridge to build a high-capacity Internet, Golden Card to get millions of Chinese citizens to use electronic funds, and Golden Tax to computerize the tax collection system.

In addition, the government has taken steps to improve the competitive environment for its firms. China does not have a long history of regulating anti-competitive behavior in the technology sphere, and it has thus had to pass a series of acts that protect a competitive environment, making illegal certain kinds of behavior such as impugning another company's reputation, bribing, threatening, and dumping. The government has awarded targeted tax reductions to companies that meet certain sales and export figures. Exporting firms have been given favorable terms on bank loans, export insurance, and taxes and duties.

China has one of the world's worst software piracy problems. The Chinese government has taken a series of steps to try to curb piracy. In addition to the general copyright law, China has passed several laws targeted at fighting organized crime that manufactures and distributes copies of pirated software. Government organizations are coordinating anti-piracy campaigns and are being encouraged to be model citizens by not using pirated software themselves. A registry system has been established under which owners who register their copyrighted software are given extra protections under the law. However, software piracy remains a big issue. (There are also concerns about data privacy in China. For more about risks to data privacy and intellectual property through offshoring, see Chapter 6.)

8.6. Conclusion

There is a limited amount that one can conclude from five brief case studies, but some patterns do emerge. Politics is one of the ways (together with education and labor action) that nations have responded to the offshoring phenomenon. The general movement has been to avoid protectionist legislation. Sweden has completely espoused free trade even though it risks some level of unemployment for its IT workers. Australia has not objected directly to offshoring, but it has recently begun to seek restrictions on the use of both temporary and permanent skilled immigrants, positions that are often used by Indian offshoring companies as part of a blended strategy of doing some of the work offshore and some of it on the client's premises. In recent years, India has moved far from its protectionist and isolationist politics of the 1960s and 1970s. At both the state and federal level in the United States, protectionist actions have been suggested, but most of these efforts have not been enacted into law, and there are today many people calling for the United States to enhance its competitiveness (through enhanced innovation) rather than to protect its jobs by legal and economic barriers. Perhaps China is the most protectionist of the countries studied here in terms of trying to protect its emerging domestic IT market from foreign competition.

All of the countries understand that they have to make their national laws conform to some degree with global practices if they want to be players in the global marketplace. Thus China, for example, has been willing to revalue its currency despite the short-term gain from keeping it artificially low; India has eased many of its trade barriers; the United States has entered into numerous international trade agreements; and Sweden has conformed to international monetary policies.

All of the countries we studied recognize that there are certain risks of sending software work across national boundaries. These include questions of intellectual property, privacy, and data security. Europe has taken the lead in strong privacy policy, and India has seen

the economic value in meeting European and US standards on privacy. China is not so far advanced in managing these risk issues as India is, but there is every reason to believe it will have to do so, especially concerning intellectual property protection if it wishes to continue to attract international business. (See Chapter 6 for a detailed discussion of these risks.)

For the developed countries that send work offshore, a common political approach is to build new jobs and prosperity through policies that increase innovation. Sweden is increasing government support for research and development, and there are many calls for the United States to do so as part of a future innovation policy. However, the US financing has not been there; with the notable exception of health and defense-related programs, federal funding for fundamental research in the physical sciences has been flat for some time. The two countries differ on other parts of the innovation platform. Sweden currently has an abundance of highly-educated workers so it is not particularly interested in ramping up its educational system. The United States is facing decreasing numbers of foreign scientists studying and working there as well as declining numbers of American students studying these technical disciplines, so an integral part of the innovation platform for the United States is likely to involve improving the education system and making it more welcoming for foreign workers and students to come to the United States (to the degree this is compatible with national security goals). So far, national security goals have won out.

India and China have a number of similar policies for developing their offshoring industries. Both are interested in ramping up their educational systems to supply an adequate number of skilled workers for their IT companies. Both are concerned about having adequate infrastructures (power, transportation systems, telecommunications) to provide good service to their IT companies. Both have adopted a series of policies intended to attract foreign investment. India is more experienced than China in its government planning for an export software industry, but China is advancing rapidly and has a more centralized government planning model in place.

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