

Chapter 12

High Technology Policies

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The end of the Cold War and Asia's phenomenal growth have stimulated a fundamental rethinking of U.S. high technology policies and business practices. With the decline in military spending, the U.S. government is actively promoting defense conversion and export promotion programs. The Asian Pacific region, once relegated to bilateral security issues, is taking on growing importance for the U.S. high-tech industry. Not only is the Asia Pacific Economic Community (APEC) a major source of science and engineering talent, but its fast-growing markets offer new business opportunities for U.S. companies.

For Asian Americans involved in high technology industries, these changes present major opportunities and challenges. On the one hand, federal commercialization and export promotion policies favor U.S. high-tech companies expanding into Asian Pacific markets. Asian Americans with strong business contacts throughout the Asian Pacific region stand to benefit from this industry shift. On the other hand, the existence of "glass ceilings" in government, universities, and business, combined with widespread corporate layoffs, have reduced job opportunities domestically. While many Asian American scientists and engineers (S&Es) have responded by retraining and starting their own firms, increasing numbers of Asian-born S&Es are returning home where career opportunities are greater.

This chapter explores the impact of changing U.S. government high-tech policies, global high-tech industries, and workforce changes on Asian Americans in high technology sectors. It identifies emerging issues and recommends policies.¹

Global High Technology Trends

The U.S. high technology industry is undergoing major structural changes in the post-Cold War era, paralleled only by the massive demobilization after World War II. As shown in Table 1, these changes require fresh, new thinking by educators, business leaders, and policymakers. Traditional notions about U.S. high-tech competitiveness are rooted in an era of plentiful funding and limited foreign competition. Today, faced with growing pressure from global competitors and defense cutbacks, U.S. high-tech companies can no longer afford to conduct "business as usual." They must rapidly evolve or face extinction. Corporate hierarchies are giving way to global networks of "virtual" corporations.

The decline in military spending has hit the high-tech industry particularly hard. Defense contractors, especially on the West and East Coasts where Asian Americans are concentrated, are laying off thousands of employees. These cutbacks will continue throughout the 1990s, sharply reducing career opportunities in aerospace, electronics, and other defense-related industries. Older professionals are retiring, while younger engineers are shifting to high-growth industries. To cushion the impact of defense cutbacks and base closures, the U.S. Department of Defense is encouraging defense contractors to commercialize their technologies and develop new dual-use technologies for commercial and military sectors. But finding new market opportunities is a slow, difficult process due to the specialized nature of military technologies. Many smaller contractors, especially in Southern California, are going out of business. Large numbers of Asian American professionals are affected by these cutbacks.

Fortunately, fast-growing Asian Pacific markets offer opportunities for U.S. high-tech companies that are diversifying from shrinking military programs and slow-growth markets in the U.S., Japan, and Europe. To assist U.S. high-tech companies to make the conversion from defense contracting, the National Institute for Standards and Technology (NIST) and Advanced Research Projects Agency (ARPA) are expanding their high technology research and development (R&D) funding, while the U.S. Department of Commerce is promoting exports, especially to Asia and Latin America.

Table 1. Science & Technology Trends

	<u>Cold War (1950s-1980s)</u>	<u>Post-Cold War (1990s)</u>
<u>Global Trends</u>		
Government	Increased defense spending SEATO military umbrella	Flat defense spending (US & Europe) Increased defense spending in Asia
University	Strong basic research Heavy military R&D Strong corporate support	Declining basic research funding Declining military R&D Declining corporate funding
Industry	Atlantic Basin focus (NATO) Hardware focus	Rise of Pacific Rim (APEC) Shift to software & services
<u>U.S. Trends</u>		
Government	Defense-oriented	Commercialization & dual-use
Universities	Rapid increase in Asians (1980s) Admission quotas	Heavy concentration of Asian Americans in science & engineering
Industry	High U.S. industry growth Rapid electronics growth	Slowing U.S. industry growth Shift to biotechnology & software
Corporations	Increasing percentage of Asian Americans Monocultural management	Heavy concentration of Asian Americans in engineering Diversity training
Asian American workforce	"Brain drain" to U.S. Mostly Japanese-, Chinese- and Filipino-Americans	"Reverse brain drain" to Asia Arrival of Korean, Thai, Vietnamese, and other Asian-Pacific workers
Labor status	Strong discrimination	Declining discrimination, but "glass ceiling" persists for key management positions
Entrepreneurialism	Few Asian American high-tech ventures	Proliferation of self-funded and Asian-funded ventures
Asian American women	Few scientists & engineers	Increasing number of professionals and students

These global trends are favorable for Asian Americans, especially those knowledgeable of Asian Pacific markets. Since the early 1980s, Asian American enrollment in university science and engineering departments has grown quickly. In 1990, Asian Americans accounted for 7 percent of all S&E students. At the corporate level, Asian American S&Es now account for over a quarter million high-tech employees. Increasingly, Asian Americans are opening their own high-tech startup companies. This influx of Asian American and U.S.-educated Asian scientists and engineers has enabled U.S. high-tech companies to maintain their global competitiveness.

However, the increasing "Asianification" of U.S. science and engineering is raising debate over questions of equal opportunity, diversity, and quotas. Although viewed as assets by companies pursuing Asian Pacific trade, Asian American S&Es now find themselves on the other side of the equal opportunity debate. This situation requires a fundamental rethinking of S&E policies, especially as the U.S. economy becomes more ethnically diverse and interdependent with foreign markets.

Government High Technology Policies

During World War II and the Cold War, the U.S. government pursued "supply-side" or mission-oriented high-technology policies. Federal laboratories were expanded to develop nuclear and non-nuclear weapons to strengthen national security. U.S. defense research and development (R&D) accounted for one-third of all public and private R&D conducted in OECD nations (Branscomb, 1993, p. 12). By the late 1980s, federal labs received about 70 percent of the \$20 billion in federal research funding. This military effort became what former President Eisenhower called the "military-industrial complex" — a dense, interlocking network of defense contractors, suppliers, and advisors who became accustomed to large cost-plus contracts and top-secret research. U.S. research priorities were heavily influenced by U.S. participation in NATO, SEATO, and U.S.-Japan and other mutual security agreements. Commercialization of military technologies was actively discouraged to avoid giving advanced technologies to Communist Bloc nations.

In 1957, the launching of Sputnik accelerated the nuclear arms race. Fears of Russian nuclear missile attacks led to rapid mobilization of national security programs ranging from highway programs, student scholarships, and university-based contract research to heavy funding of top-secret military research and intelligence programs. Internet, which is now widely used by universities and businesses around the world, was initially funded by the Defense Area Research Project Agency (DARPA) to ensure back-up communications in the event of a nuclear attack.

In 1961, President John F. Kennedy's call for "putting a man on the moon" led to the formation of the National Aeronautics and Space Administration (NASA), which provided thousands of jobs for American scientists and engineers. Combined with the nuclear arms build-up and construction of the national highway system, these U.S. government programs fully mobilized scientists and engineers. Universities expanded their science and engineering programs to meet the demand from industry and government.

Although Asian American engineers and scientists joined high-tech companies, very few reached top-level management positions and policymaking positions. Citizenship requirements, tight security clearances and blatant racial discrimination effectively eliminated Asian Americans from positions of critical importance. Scientists and engineers with any family or personal ties with enemy nations such as China, Vietnam, or North Korea were viewed with suspicion, especially after the McCarthy "Communist witchhunt" hearings. Japanese Americans had experienced similar discrimination during World War II.

The few opportunities available were in non-military university positions in science and engineering departments, especially away from the anti-Asian climate along the West Coast. It was common knowledge that Asian American researchers could not find good jobs and advance very far in California during the 1950s and 1960s. Many Asian American scientists and researchers moved to the Midwest and the East Coast where they were usually concentrated in areas of basic research not requiring security clearances.

During the early 1970s, many Asian American scientists and

engineers began returning to the West Coast due to more liberal social attitudes and equal opportunity legislation. The liberalization of immigration laws in 1965 opened the door to Asian professionals whose numbers grew rapidly during the 1970s. By 1980, Asian Americans accounted for 4 percent of all scientists and engineers in the U.S. labor force. During the 1980s, President Reagan's rapid military build-up accelerated the immigration of top-flight researchers who were sought by the booming aerospace, defense and electronics industries. Taiwan, Hong Kong, South Korea, and the Philippines supplied most of the Asian-born researchers.

Since the fall of the Soviet Union, U.S. science and technology policies have been changing dramatically. Under the Clinton administration, defense spending is gradually being reduced and military bases are being closed. Defense contractors are being urged to commercialize their technologies and develop dual-use technologies to serve both commercial and military sectors. The U.S. government is taking a more activist stance in promoting high technologies. According to White House science advisor Jack Gibbons, President Clinton has discarded the Cold War generation's view that science funding produce "serendipitous" commercial development. Instead, administration officials are encouraging companies to develop and commercialize federally-funded R&D, especially defense contractors. This is a major reversal of federal R&D funding policies.

The Clinton administration's budget for the 1994-1997 period calls for a gradual decline in spending for defense, agriculture, community development and flat spending for science, space, technology, energy, environment and natural resources. By contrast, large increases are planned for commercial research programs managed by the National Institute for Standards and Technology (NIST), Area Research Projects Agency (ARPA), Technology Reinvestment Program (TRP), and the "information super-highway" or High-Performance Computing and Communications (HPCC). NIST and TRP, the nerve centers of U.S. industrial policy, will receive the biggest increase as the Clinton administration seeks to strengthen high-tech sectors and create new jobs (Davis, 1994).

What impact will changing U.S. science and technology

policies have on Asian Americans? Technology policies of the Clinton administration will have an impact on Asian Americans in four major areas (*New Technology Week*, 1993, p. 4). One, the federal government is directly supporting the development, commercialization, and deployment of new technologies. Asian Americans are eligible for the new federal R&D programs and university research grants related to defense conversion, such as the Technology Reinvestment Program (TRP). However, most funding is being awarded to large R&D consortia involving corporate, university, and government researchers. Since most Asian American-owned high-tech companies are small businesses aimed at commercial markets, they are usually unqualified to compete individually for these federal R&D programs. Greater effort should be made to educate Asian American researchers and companies about these programs and encourage them to join larger R&D consortia to improve their chances for federal funding. Conferences and on-line bulletin boards are two ways to spread the word.

Two, the administration is attempting to create a world-class business environment for innovation and private-sector investment. Asian Americans are heavily concentrated in high technology regions such as Silicon Valley, Los Angeles, Seattle, Denver, and New York City, which are closely tied to global financial markets. Many highly-skilled Asian American engineers and businesspeople have access to U.S. and Asian private investors, venture capital, loans from families and friends, and bank credit lines. Industry trade groups such as the Asian American Manufacturers' Association (AAMA) are instrumental in introducing prospective investors to Silicon Valley startup companies. However, seed capital is limited, often focused on tangible assets instead of intellectual property, and usually obtained through friends and family connections. Moreover, Asian American venture financing tends to be "ghettoized." To tap into large pools of talent and capital, Asian American financiers need to work with outside investors when establishing new venture capital funds. These funds could specialize in funneling investments from Asian Pacific and other international investors into domestic high-tech companies.

Three, there is a major push to develop an information super-highway. High-speed communication networks will

open the doors for many Asian Americans, especially for trade with Asian Pacific markets, but lack of access among poorer families will remain a major problem. Asian American community groups should work closely with government, industry, and schools to ensure that all Asian Americans have equal access to computer networks. Moreover, proficiency in the English language and Asian languages should be promoted to enable Asian Americans to communicate with others over networks, both in the United States and Asia Pacific. Vice President Al Gore has stressed "universal access," but this concept needs to be made concrete and practical.

Four, as a part of "reinventing government," the administration is reforming government procurement policies. The shift toward dual-use technologies will create opportunities for leading-edge high technology companies supplying U.S. government agencies. During the 1980s, many Asian American-owned high-tech companies benefitted from Section 8a programs designed to help minority-owned businesses win federal procurement contracts. The federal government will award grants to R&D consortia under the Technology Reinvestment Program (TRP). To ensure that Asian American businesses have equal access to these programs, greater effort should be made through Asian American chambers of commerce, the Asian American Manufacturing Association (AAMA), and other trade associations to educate businesses about these opportunities.

Manpower Issues

Since the liberalization of immigration laws in 1965, Asian American enrollment in university science and engineering programs has been strongly influenced by the rapid increase in Asian immigrants. In 1990-91, 166,460 students from five Asian nations were enrolled in U.S. university S&E departments. Graduate enrollment was highest for students from China, India, Singapore, South Korea and Taiwan — countries where demand far exceeds available seats.

The large number of Asia-born S&E students has several implications for Asian Americans. First, their presence gives the impression of higher Asian American enrollment in S&E departments than is actually the case. As foreign-born

enrollment increases, there may be growing public demands for quotas on Asian American enrollment. This situation could be exacerbated as universities actively recruit foreign students to compensate for declining U.S. student enrollment, since foreign students are usually charged higher tuition fees.

In the past, these U.S.-educated Asian scientists and engineers stayed in the United States after graduation because of better employment and housing opportunities. Due to slow U.S. job growth, the "glass ceiling," and rapid Asian economic growth, many Asian-born professionals are returning home, leading to a "reverse brain drain" of top-flight engineers, scientists, and technology managers. Most of these professionals have years of experience at leading U.S. high-tech companies, so their return is transferring leading-edge U.S. technologies to Asia. Once viewed as a one-way ticket to the United States, U.S. universities are increasingly viewed as training grounds for the next generation of Asian technocratic elites. In a recent report, the National Science Foundation outlined several implications of Asian S&E enrollment in U.S. universities (National Science Foundation, 1993):

Asian countries continue to rely on U.S. higher education since they cannot meet the demand for higher education fast enough.

Foreign enrollment will help maintain U.S. S&E doctoral programs, which are growing faster than non-science and engineering fields. In 1991, 3,204 foreign-born Asian students received doctoral degrees (China 940, Taiwan 906, South Korea 673, India 612, and Japan 73)

Asian countries will compete with the United States for the Asian-born graduates of U.S. universities. Though some will stay in the U.S. labor force, more will probably return to Asia.

Besides a "reverse brain drain," the United States also faces increasing high-tech competition from Asian nations due to their large university S&E enrollments. Asian nations granted three times more S&E bachelor degrees than the United States

and nearly 70 percent more doctoral degrees. U.S. universities still lead the world in high-quality S&E education, but the large number of Asian S&E graduates will contribute to faster high-tech growth in Asia. Moreover, diminishing job opportunities in the U.S. high-tech sector are likely to depress U.S. S&E enrollment, further weakening U.S. high-tech competitiveness.

While "reverse brain drain" exists, it is a minor phenomenon. The vast majority of Asian American scientists and engineers work in the United States and contribute enormously to the development of technology in this country. Asian Americans are a growing portion of the U.S. high-tech workforce. They constituted 7 percent of all high-tech workers in 1990, up from 4 percent in 1980. Asian Americans represent a higher percentage of U.S. high-tech employees with higher levels of education, which accounts for the large number of Asian Americans in research positions.

By contrast, very few of these scientists and engineers have been promoted into upper management. In Chapter 8, Ong and Blumenberg report that Asian Americans are only two-thirds as likely to be in a management position as non-Hispanic whites. Although racial discrimination is often cited as the main reason for the "glass ceiling" phenomenon, there are other possible reasons. The majority of Asian American high-tech workers tend to be younger, more recent immigrants, thus lacking the work experience for these positions. Corporate downsizing is eliminating many mid-level management positions, eliminating promotion opportunities for Asian Americans. Asian Americans lack the "old boy" network of friends in top management positions or the know-how to develop a support network. Many Asian Americans, especially those not comfortable with American culture or fluent in English, are reluctant to seek management positions, which require extensive contact with outside investors, stockholders, the press, and the public. Even if considered candidates for management positions, many talented Asian Americans get impatient and quit to start their own ventures. Recently, excellent job opportunities in Asia are attracting top-level Asian-born scientists and engineers.

In many high-tech companies, Asian professionals often cluster together because of common background and interests. While it may ease their transition to American society, it also

limits their promotion opportunities since they do not mix with predominantly Caucasian managers. Unless individuals make a special effort to overcome racial stereotyping and clustering, it is easy to remain in non-management roles. Part of this will change over time as Asia-born professionals become acculturated to the United States.

The meteoric rise of Asia raises serious questions about some of the assertions made for the lack of Asian Americans in high management. If Asians lack leadership skills, how does one account for the competitiveness of many Asian companies? Chinese high-tech entrepreneurs, for example, are major players in California and Asia (Kao, 1993). Although these companies operate mostly within Asian markets, these companies are compelling evidence that Asian American high-tech professionals can excel if given the opportunity.

Trade and Investments

Rapid economic growth in the Asia Pacific Economic Community (APEC) is perhaps the best opportunity for Asian American high-tech professionals. Two-way investments between the United States and APEC nations exceeded \$300 billion in 1992. Since 20,000 to 30,000 high-tech jobs are created for each billion dollars invested in the U.S, the \$147 billion in APEC direct investments in the United States in 1992 accounted for over two million jobs (new or retained). Although not limited to high-tech investments, these investments are indirectly creating job opportunities for scientists and engineers on both sides of the Pacific.

U.S.-APEC trade flows are significant. In 1991, exports from NAFTA (North American Free Trade Area) to APEC nations reached \$136.9 billion, while imports were \$219.3 billion. Exports to APEC thus accounted for about four to seven million jobs in 1992. These figures are forecast to grow rapidly in the future.

The rise of Asia creates numerous business opportunities for Asian American high-tech professionals. Whereas Asian Americans were dependent upon Caucasian-run companies in the past, many Asian Americans now have the option to start their own company, join an Asian company, work in Asia, or head an Asian Pacific operation in a large multinational

corporation. Although the "glass ceiling" is still a problem at older high-tech companies, more management opportunities are available to Asian Americans because of trade in the Pacific Rim.

Growing U.S. high-tech trade with Asia is a two-edged sword for Asian American high-tech workers. On the one hand, Asian language and cultural capabilities are a major asset for doing business in Asian Pacific markets. High-tech joint ventures, technology exchanges, mutual licensing agreements, and joint R&D with Asian Pacific companies are proliferating. For native Asian language speakers, overseas jobs and technical marketing positions in export-oriented high-tech companies are plentiful. For U.S.-born Asian Americans fluent in the language of their ancestry, cultural familiarity makes it easier to do business. Asian Americans with strong family and personal connections in Asia have a clear advantage doing business there.

On the other hand, growing U.S.-Asian trade friction will heighten anti-Asian sentiment among people hurt by Asian imports. The Vincent Chin beating and Los Angeles riot attacks on Korean businesses are examples of anti-Asian crimes triggered by economic factors. As trade imbalances increase, trade friction and anti-Asian violence are likely to increase. This is particularly true with major exporting nations such as Japan, Taiwan, South Korea, China and India.

Rapid militarization in Asia resulting from increasing wealth will become a major issue for Asian Americans. For example, Japan's remilitarization or border clashes between China and India could heighten anti-Asian sentiment as well as antagonisms between Asian American communities. As Asian Americans become more politically active, these Asian rivalries will translate into public controversies and competing lobbying efforts in Washington D.C. These rivalries could be manipulated by local politicians and foreign governments for their own advantage to the detriment of Asian American communities involved.

Policy Recommendations

Asian Americans are frequently overlooked by policy-makers and industry leaders because of prevailing "model minority" stereotypes and the belief that "Asians take care of themselves." These misconceptions ignore the enormous dif-

ferences between Asian American groups and their different roles in high-technology sectors. Unlike other industries, high-tech industries are non-unionized so it is difficult for politically weak groups to organize. As a result, Asian American politicians and community organizations play a significant role in addressing policy issues affecting Asian Americans. The following sections address emerging policy issues facing Asian Americans.

RETRAINING AND CAREER PLANNING

Although there are no specific figures for the number of Asian Americans recently laid off due to corporate downsizing and defense cutbacks, high-tech industries along the West Coast and New England areas have been hit hard in recent years. Asian American groups particularly vulnerable to prolonged unemployment are semi-skilled, high-tech assembly workers whose jobs are being transferred to low-cost countries. Layoffs create enormous stress on families and communities. However, Asian Americans are often reluctant to take advantage of federal retraining and social programs for social, cultural, and legal reasons.

To overcome these problems, there must be an effort to identify the impact of layoffs on Asian American high-tech workers by region and determine the usage of federal and state retraining, unemployment, and social programs. Where there are serious problems, active campaigns need to be developed to educate Asian American high-tech workers about their program eligibility and rights. The analysis should also identify social and family problems caused by recent layoffs and develop community-based programs to help individuals and families during the transition to re-employment. The findings should serve as the basis to develop retraining and career planning programs tailored to specific Asian American communities affected by defense cutbacks and corporate downsizing.

MULTICULTURAL & MULTILINGUAL TRAINING

The rapid increase in Asian Pacific high technology trade promises major opportunities for Americans with multicultural and multilingual capabilities. This is particularly true at fast-growing high-tech companies partnering with Asian Pacific

companies and marketing their products and services throughout the Pacific Rim. Although total fluency is not required to conduct business, a minimum level is necessary to maintain close customer ties. There are a large number of Asian immigrants and second-generation Asian Americans who have maintained their language capabilities to this level. For U.S. high-tech companies seeking employees able to work comfortably with Asian Pacific customers and partners, these Asian Americans provide the largest pool of potential candidates.

However, the precipitous decline in foreign language instruction and cultural training in U.S. public schools and universities has ill prepared the high-tech labor force for these opportunities in Asian Pacific. Many high schools and universities have reduced or eliminated altogether foreign language competency from their graduation requirements. It is difficult to find American-born high school graduates who are passably fluent in a foreign language, especially the more "difficult" Asian languages.

Even universities with Asian language departments generally do not offer technical language courses suitable for science and engineering students. The exceptions are leading universities such as Stanford, UC Berkeley, MIT, Wisconsin, University of Texas, University of New Mexico, and Michigan, which are receiving U.S. government funding to provide technical Japanese language training under the Defense Conversion Act of 1991. However, there are no programs for other Asian languages and no guarantees that the technical Japanese language programs will continue.²

To bolster U.S. high-tech competitiveness in the Asian Pacific region, the U.S. government, local school districts, and universities should implement the following recommendations. One, they should offer Asia Pacific language courses at the primary, secondary and university levels. These courses could be co-sponsored with local Asian American community organizations offering language instruction. Two, there is a need to institute technical Asian Pacific language instruction at all junior colleges, state universities, and private universities and to develop new computer-aided Asia Pacific language and cultural instruction using the latest technologies, including CD-

ROMs, voice recognition and synthesis, machine translation, and interactive video.

Also, there is a need to promote the use of Asian Pacific television programming in schools and universities as part of foreign language instruction. Funding from Asian Pacific corporations and foundations could be sought to implement these programs.

THE "GLASS CEILING"

The "glass ceiling" prevents many highly-qualified Asian Americans from fulfilling their career potential or reaching top management positions in high-tech companies. Asian Americans are usually excluded from top management positions despite their experience and qualifications. Cultural differences, leadership skills, and language difficulties are often cited by non-Asian executives as reasons for this low representation. These obstacles are especially true for Asian American women, who face a double barrier as women and minorities. Although U.S. companies are gradually adopting new management practices to cope with the highly-diverse multicultural work force, "diversity training" is still the exception, not the rule.

Changes will come about as Asian Americans become more proactive. Asian American civil rights organizations should maintain telephone hotlines to monitor and document cases of racial discrimination. Statistical records should be released to the press and open to public scrutiny. However, individual records should be kept confidential. Asian American organizations and training companies should provide multicultural awareness and assertiveness training for Asian American high-tech employees, especially new immigrants and women. Asian American organizations should encourage high-tech companies to implement diversity training programs and give awards to companies that show the greatest leadership in introducing innovative global, multicultural management methods.

TRANS-PACIFIC TIES

Rapid Asian economic growth and continuing layoffs in U.S. high-tech industries have encouraged many high-tech professionals, both Asian American and non-Asians, to seek

employment in Asia. This reverse "brain drain" may be positive in the short-term for the U.S. high-tech labor markets, but it accelerates the flow of U.S. technologies abroad, thereby weakening long-term U.S. industrial competitiveness. Reversing labor mobility is difficult because of the numerous factors involved. At best, Asian American associations might develop informal "talent banks" of scientists and engineers to assist U.S. companies seeking Asia Pacific expertise.

Migration is not the only form of trans-Pacific ties that should be addressed. The number of Asian American engineers and scientists "commuting" between Asia and the United States is increasing. These trans-Pacific workers are known as "astronauts" among high-tech circles. Besides the physical and emotional stresses of separation, Asian American families in this situation are prone to more family problems: social isolation, juvenile delinquency and crime, school problems, divorce, etc. Over a period of time, this desire to have "the best of both worlds" is likely to lead to family breakdown. Asian American community groups should work closely with these families to prevent their isolation.

Concluding Remarks

Asian American scientists and engineers are rapidly becoming a major factor in U.S. high technology industries. No longer the minority in many companies, these professionals are in the enviable position of choosing their career paths. While the "glass ceiling" remains a barrier at more established companies, the rapid pace of high-tech industries ensures that new startup ventures are emerging weekly. Experienced, entrepreneurial Asian Americans have the opportunity to move quickly into key management positions. With the rise of Asia, employment opportunities look bright, especially for Asia-born engineers.

By contrast, Asian Americans in declining defense industries and manufacturing companies will find themselves in difficult times, especially older workers and less-educated assembly workers. Unless Asian American community organizations ensure that these people find retraining and new job opportunities, their families are likely to suffer.

Moreover, the success of Asian Americans and Asian

countries is likely to breed envy and resentment among other American workers hurt by Asian imports. Unless proactive steps are taken early, anti-Asian violence is likely to increase as Asia becomes more powerful. Thus, high technology is likely to become a two-edged sword. It can create wealth and jobs, but at the same time political friction and social discord.

Notes

1. There are related issues of importance that are not addressed in this paper. For example, there has been an increasing number of high-tech robberies in Silicon Valley committed by Asian American gangs. According to law enforcement officials, these gangs are predominantly Chinese and Vietnamese and believed to be overseas crime syndicates stretching from Silicon Valley to Hong Kong. The crimes are targeted at high-tech products because of their compactness, high value, and difficulty in tracing. These crime syndicates also deal in counterfeiting, prostitution, extortion, and drug dealing. In response to the growing crime wave, the U.S. attorney for Northern California is building a coalition of police and prosecutors on the West Coast to share information and crack down on Asian gangs (*San Jose Mercury News*, 1994).
2. These universities receive two-year federal grants that decline over time as an incentive to encourage industrial funding.