

# *Expanding California's Technology Sector*

*Jon D. Haveman*  
*Research Fellow*  
*Public Policy Institute of California*

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**Public Policy Institute of California**

500 Washington Street, Suite 800 • San Francisco, California 94111

Telephone: (415) 291-4400 • Fax: (415) 291-4401

info@ppic.org • www.ppic.org

## Expanding California's Technology Sector

Given the recent downturn in demand for high-technology products, and the decline in trade volumes in particular the following policy options are worth exploring:

- Targeted investment tax credits
  - Such an approach would increase domestic demand for technology products. Through the stimulation of demand domestically, it is possible to stimulate the economies of major trading partners.
- Pursuing the expansion of the 1996 Information Technology Agreement (ITA)
  - This agreement liberalized trade in the products of much of this \$500 billion market. Including more countries in this agreement would help jump-start the global market for information technology products.
- Target technology products in the ongoing Doha Round of negotiations
  - The WTO is the vehicle through which the ITA could be expanded and through which countries not wishing to participate in the ITA, notably China, can be encouraged to open their markets to these products.
- Push ahead with the Free Trade Area of the Americas
  - Although this agreement shows more promise than potential, liberalizing trade in this hemisphere could be instrumental in growing and stabilizing the economies of the region, many of which are likely participants in the high-technology sector.

Good afternoon, and let me thank you for inviting me to participate in this event. During times such as these for the technology sector, it is very important to take a step back and assess what is working and what is not working and to explore policy options for improving matters.

It is part of my role as a research fellow at the Public Policy Institute of California to investigate trends in California trade and to explore the effects of international trade policy options on California's exports. In that capacity, I will speak to the issue of California's exports of high-technology products, the barriers that stunt their growth, and policy options that might facilitate their future expansion.

In my preparation for this event, I reviewed a number of recommendations as to how best to define high-technology products. The definition I will use comes from the Board of Governors of the Federal Reserve System in Washington, DC., and it includes the following industrial sectors and subsectors:

<b>Major Industrial Sector</b>	<b>Sub-Sectors</b>
Chemicals and Allied Products	Industrial Inorganic Chemicals
	Plastics Materials and Synthetics
	Drugs
	Soap, Cleaners, and Toilet Goods
	Paints and Allied Products
	Industrial Organic Chemicals
Computer and Office Equipment	Agricultural Chemicals
	Electronic Computers
	Computer Storage Devices
	Computer Terminals
	Computer Peripheral Equipment
Communication Equipment	Calculating and Accounting Equipment
	Telephone and Telegraph Apparatus
Electronic Components and Accessories	Radio & TV Communications Equipment
	Electron Tubes
	Semiconductors and Related Devices
	Electronic: Capacitors, Resistors, coils and transformers, and connectors.
Instruments and Related Products	Search and Navigation Equipment
	Measuring and Controlling Devices
	Medical Instruments and Supplies
	Ophthalmic Goods
	Photographic Equipment and Supplies
Computer and Data Processing Services	Watches, Clocks, Watchcases & Parts
	Prepackaged Software
	Computer Programming Services

I have data on the trade of these products at the state level beginning in 1988 and continuing through the second quarter of 2002. Looking back, we find that between 1988 and 2000, trade in this sector roughly tripled, both for the state of California and the United States as a whole. By 2000, California's high-technology exports accounted for approximately 22 percent of the U.S. total for these sectors. This is a higher fraction than California's share of all exports, which is approximately 16 percent. This is also an increase from 1988, when California's exports of high-technology products amounted to just over 18 percent of total U.S. high-technology exports. California's exports in this sector are increasing not only in sheer value, but in their share of overall U.S. exports as well.

Beginning in early 2001, U.S. exports of high-technology products fell precipitously, with California's exports taking the brunt of the burden. Between the fourth quarter of 2000, a peak in California's high-technology exports, and the second quarter of 2002, California's exports of high-technology products had fallen by more than 36 percent. Though there was a general decline across countries, declines in trade with Mexico, Japan and Canada were the largest in value terms. Other countries, Korea and Taiwan in particular, experienced larger percentage declines than did these three.

Country	Average Annual Growth (%) High-technology Exports from California		Projected Average Annual Growth (%)
	2000-2001	1997-2001	2001-2005
Mexico	-11.5	10.4	5.9
Japan	-12.4	-4.0	5.7
Canada	-27.7	0.9	3.8
Taiwan	-28.4	0.6	8.4
Korea	-41.4	-7.0	7.7
China	34.4	37.4	15.5
Germany	-14.9	-0.9	6.1
Singapore	-11.5	-8.1	6.2
Hong Kong	-8.3	7.3	7.4
Malaysia	-14.2	-3.5	8.5
France	-26.1	-3.2	6.1
Australia	-19.2	-0.4	6.2
Philippines	12.2	4.3	7.3
Thailand	-15.8	-5.7	6.9

The recent economic experiences of Asian countries are quite varied, with the effect on imports of high-technology goods equally so. Although trade in high-technology products has fallen generally, there are several notable exceptions; China, Hong Kong, and the Philippines have experienced significant growth in their imports of

high-technology products. China, in particular, has seen its imports of California high-technology products grow in excess of 30 percent per year since 1997. This is remarkable growth and points to China as a very important market for California's high-technology products.

Despite the recent downturn for many of the Asian countries, the future looks reasonably bright. Forecasts of growth in the demand for technology products in Asian economies are quite high. For most of these countries, the forecast is for growth in high-technology imports of between 5 and 7 percent per year. For China, the forecast is in excess of 15 percent per year. If these forecasts are even reasonably accurate, they portend a dramatic turnaround in the international market for technology products.

Given the interrelatedness of the global economy in the early 21<sup>st</sup> century, perhaps the best way to ensure that our trading partners will regain their economic footing is by regaining our own. In my opinion, a domestic stimulation package handed down from Washington would do wonders not only for the domestic economy and foreign economies, but the technology sector in California as well. What sort of a program would be best? That is not clear, and it is really not what I am here to talk about this afternoon, but changing the temporary nature of the 2001 tax cuts will really have very little effect. This approach is very much like the trickle-down policies of the 1980s, for which there is little evidence that it did much to stimulate the economy.

From the perspective of the technology sector and, given the nature of the recent downturn in the entire U.S. economy, an appropriate policy might be targeted tax credits. Unlike virtually all other recorded recessions, this downturn has been largely the result of changes in investment patterns by industry. Therefore, tax credits targeted to stimulate investment in the economy are likely to bring dividends. Given the nature of production these days, that approach also means tax credits that stimulate investment in high-technology capital goods.

I have now spoken a bit about policy options outside of the international arena, expressing views that are well-grounded in economic theory and held by most mainstream economists. Now I will turn to my specialty, international economics, and begin a discussion of policy options in that realm.

As I mentioned earlier, California is a major exporter of high-technology products. The bulk of these exports are destined for California's three largest trading partners: Canada, Mexico, and Japan, in that order. The United Kingdom is also a major importer, buying only slightly less from California than do any of the big three. Taiwan, China, and Korea are (after Japan) the primary Asian markets for California's high-technology exports. Germany, the Netherlands, and Australia round out the top ten.

Thanks in part to the Information Technology Agreement of 1996, the foreign barriers to exports of technology products are quite low. In 2000, the most recent year for which the data are available, California's exports faced tariffs of 1.3 percent on average. This agreement eliminated tariff barriers on a wide range of technology products in countries that accounted for 80 percent of the trade in these products in 1996. With the exceptions of Mexico and China, all of the top ten destinations for California's high-technology products signed onto the agreement. Not surprisingly, China currently imposes tariffs on the trade in these products that are substantially above average. Mexico doesn't because of the NAFTA. Other countries that maintain significant barriers to importing high-technology products include Brazil, Argentina, and Chile. Korea also has high barriers, but it has recently signed onto the ITA, and its barriers will fall in the next couple of years.

Currently, only 27 percent of California's high-technology exports face a tariff. Among significant trading partners that have not signed onto the ITA, however, over 99 percent of all California's exports are subject to a tariff. In China, for example, only \$31 million out of \$7.3 billion in exports enter duty free. In Brazil, 100 percent of all U.S. exports of technology products are subject to duty.

<b>Average Tariff Imposed on California's High-Technology Exports</b>		
<b>Country</b>	<b>Percentage of Trade Subject to Duty</b>	<b>Average Tariff</b>
Korea	98.7	5.0
Thailand	97.5	2.8
China	99.9	13.4
Brazil	100.0	11.9
Argentina	98.7	8.6
Chile	100.0	9.0

Note: Excludes products that are not subject to duty.

Bringing these countries into the ITA fold would go a great distance towards eliminating these barriers. Although trade in products not covered in the ITA would often be subject to high barriers, the adherence to the provisions spelled out in the ITA would eliminate barriers completely on over one half of California's high-technology exports to these countries, leaving only 13 percent subject to a tariff. Of the six countries listed above, only Korea and Thailand have subscribed to the provisions of the ITA. As the tariff liberalizations are phased in gradually, it may take time for exports to respond. Help is nonetheless on its way.

In the late 1990s, there was also talk of expanding the ITA to cover a broader array of technology products. These talks have failed, and it seems unlikely that they

will be revived. It is not clear, however, that expanding the product coverage would accomplish a great deal. Most participating countries already have very few tariffs on these products. It might also inhibit the membership of other countries in the agreement. The best path is probably one of expanded entry rather than expanded product coverage.

Aside from the ITA, there are several additional items in the U.S. liberalization agenda that could yield significant benefits for exporters of technology products. These include the negotiation of the Free Trade Area of the Americas (FTAA), an agreement that would completely liberalize trade among countries in North and South America, and the Asia Pacific Economic Cooperation Forum (APEC), which includes all but one of the countries bordering the Pacific Ocean. (Colombia is the exception.) The U.S. government is also pursuing an array of preferential trade agreements with individual countries; among them are such important markets for technology products as Taiwan and Australia. Additionally, the Doha Round of negotiations under the auspices of the World Trade Organization is currently under way.

Of these opportunities, the APEC forum may hold the greatest potential but also the least promise. Its potential for the high-tech sector lies in the fact that, of the ten countries with the largest value of technology imports subject to a tariff, six of them are members of APEC. Its lack of promise comes from the fact that the forum has moved away from a key aspect of the original mandate, the complete elimination of tariffs in member countries by 2010. This forum holds little promise largely because the annual meetings have come to be less about reducing barriers to trade and more about foreign policy generally.

Holding more promise, yet less potential, is the FTAA. The promise lies in the apparent ambition of the initiative. The goal of the FTAA negotiations is to finalize an agreement by 2005 that spells out the terms under which trade in the Americas will be liberalized. Of the 34 countries participating in the FTAA, only Canada and the United States have signed on to the ITA. Of the remaining countries, excluding Mexico, which has already liberalized vis-a-vis the United States in the NAFTA, only one, Brazil, ranks in the top ten countries with a significant value of trade subject to tariffs. Four others rank in the top 25, but taken together, their dutiable technology imports cumulatively account for less than 4 percent of California's total technology exports. Therein lies the lack of potential for this agreement to significantly stimulate trade in California's technology products.

Neither the Doha Round nor the bilateral trade agreements hold much potential for improving the trade climate for California's technology products. The outcomes of multilateral negotiations tend to be characterized by great breadth rather than depth. Significant trade liberalization could result from the Doha Round, but only when you add up the implications for all sectors. It is unlikely to be a panacea for any industry in

particular. As for the bilateral trade agreements, they are not being conducted with countries that are important export markets for the United States as a whole or for California's tech sector in particular. (The exception is Taiwan.)

In sum, we have seen a dramatic decline in California's exports of technology products. This decline stems as much from a sagging domestic economy as it does from economic declines among important trading partners. The best way to set about solving the problem is to invest in growth at home. Through global production chains and other interactions, this growth will then fuel foreign markets. The second-best approach is to address the remaining barriers to exports of high-technology products. Both of these approaches involve lowering the cost of technology products to consumers, both private citizens and corporations, which is the only way to expand demand for them on a broad enough basis to overcome the current slackness in the technology sector. The tools with which to liberalize many of those markets are readily accessible. The vigorous pursuit of liberalization abroad, it would seem, could not help but provide some added impetus to growth in California's stalled technology sector.

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**PUBLIC POLICY INSTITUTE OF CALIFORNIA**

500 Washington Street, Suite 800 • San Francisco, California 94111

Phone: (415) 291-4400 • Fax: (415) 291-4401

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