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Review

Flawed policy

Mismanaged Trade: Strategic Policy and the Semiconductor Industry,

by Kenneth Flamm. Washington, D.C.: Brookings Institution, 1996, 472 pp.

Jeffrey A. Hart

In the late 1980s, Kenneth Flamm, an economist at the Brookings Institution, published two highly influential books on government's role in the development of the computer industry. In *Targeting the Computer* (1987) and *Creating the Computer* (1988), Flamm made a persuasive case that--contrary to the arguments of authors such as George Gilder and business executives such as T.J. Rodgers of Cypress Semiconductors--government had played a significant role in creating the computer industry as well as other high-technology industries in the United States.

Now, in this long but ultimately rewarding book, Flamm examines the role of government in the contentious semiconductor trade disputes of the 1980s and doesn't like what he finds. Indeed, he believes that the 1986 Semiconductor Trade Arrangement (STA) between the United States and Japan need never have happened and that it imposed costs that were greater than the benefits derived from the opening up of Japan's semiconductor markets to foreign trade.

Flamm writes that it was only after the development of large-scale integrated circuits in the United States took the fledgling Japanese computer industry by surprise in the early 1970s that the Japanese government and industry focused on developing indigenous

technologies for semiconductors. A series of joint government-industry projects succeeded by the end of the 1970s in enabling the Japanese semiconductor industry, or at least the part of it that produced DRAMs (dynamic random access memories), to become fully competitive with the U.S. industry.

Since demand for integrated circuits was expanding rapidly in the late 1970s and early 1980s, the U.S. semiconductor industry was willing to share the market with Japanese producers. Beginning in 1984, however, a sharp downturn in demand for semiconductors resulted in a shakeout in the industry, but only U.S. firms left the market while Japanese producers kept producing and selling at substantially lower prices. This led to the filing of antidumping petitions on the part of U.S. producers, upon which the Department of Commerce and the International Trade Commission ruled favorably in 1985 and 1986.

Flamm claims, however, that Japanese pricing during this period could be explained as "a predictable outcome of normal market forces" and that U.S. antidumping laws were not designed--as they should have been--to take forward pricing behavior into account. Forward pricing is pricing below average costs in the short term so that demand for a firm's products will allow it to increase production in the long term, eventually reducing average costs so that they are below market prices. Forward pricing is rational for industries that have steep learning curves--that is, where average costs descend rapidly with cumulative production. For example, Texas Instruments priced its scientific calculators lower than average costs in the early 1970s to gain market share vis-a-vis its main competitor, Hewlett Packard, but still made money later on when its costs declined and prices stabilized.

The successful antidumping petitions filed by U.S. firms against Japanese firms led to a major trade dispute and eventually to the STA of 1986. Under the STA, Japanese firms agreed to a system of floor prices for sales of their semiconductors in the United States and third-country markets, the Japanese government agreed to collect statistics on semiconductor production costs and prices, and the Japanese pledged to increase the sale of foreign-made semiconductors in Japan from 10 percent to 20 percent of the market.

A cartel emerges

The main argument of Flamm's book is that U.S. trade policy in the dispute was flawed, that it confused rational forward pricing with

dumping (with a predatory intent) and that, importantly, it unintentionally encouraged the formation of a Japanese semiconductor cartel, first under the administrative guidance of the Japanese government's Ministry of International Trade and Industry (MITI) and later as a purely private affair among Japanese semiconductor firms.

Flamm does an excellent job of proving that this is indeed what happened by analyzing a variety of data series on prices and costs and juxtaposing this with summaries of press reports and interview data. He shows, in particular, that there were wide regional differences in spot market prices in North America, Western Europe, and Asia that probably had their origins in the reduced investments in Japanese productive capacity

engineered first by MITI and later by the industry itself to defuse the trade dispute.

The cartel imposed major costs on U.S. and Japanese consumers and on U.S. firms that were heavily dependent on Japanese components for finished products by raising the prices they had to pay for DRAMs. Although Japanese semiconductor firms enjoyed higher profits, especially after demand revived in 1988, Flamm argues that the net benefits to Japanese semiconductor producers that came from higher prices were much less than the net costs to final equipment producers and consumers of that equipment. In short, Flamm says, this did not have to happen and would not have happened if the U.S. government had not pushed for the STA, which gave MITI the chance to promote a cartel.

Flamm acknowledges that U.S. semiconductor firms increased their market share in Japan after 1986, so this part of the STA was a success. He shows, however, that greater U.S. access to the Japanese market was not due to a shift in Japanese demand toward products that U.S. firms specialized in, as some critics of the STA argued, but rather that there was an across-the-board improvement in U.S. sales of all types of devices. If the increase in U.S. exports to Japan had been purely a result of increased demand for products such as microprocessors, where U.S. firms had a clear competitive advantage, then it could be argued that the STA had nothing to do with increased exports. Nevertheless, it is still possible that other factors, such as the creation of Sematech (a U.S. research-and-development consortium funded jointly by the government and industry to support the development of state-of-the-art semiconductor production technologies), were primarily

responsible for improved export performance.

Prescription for change

On the basis of his analysis of the semiconductor dispute, Flamm recommends three main policy changes: (1) using marginal costs rather than average costs as the basis for antidumping rulings; (2) encouraging stricter enforcement of antitrust laws in foreign countries; and (3) increasing the number of countries involved in future, similar negotiations as a means of developing multilateral rules for high technology more generally. All of these recommendations are worthy of serious consideration, with the third the most likely to be successfully implemented.

The first recommendation makes sense from the standpoint of economic theory, but Flamm himself acknowledges in his book that it is "always difficult to find data that allow one to say anything reasonable about marginal cost." In his research for the book, Flamm had to go to considerable lengths to assemble the price data series and production models that he used to measure marginal costs. If a fine economist like Flamm has trouble marshalling credible data on marginal costs, think of the problems the Commerce Department might have. Still, if this recommendation were implemented, it would make it more difficult for the enforcers of antidumping laws to rule in favor of antidumping petitions, especially in high-technology industries and might thereby prevent unnecessary and undesirable trade frictions among the major producing nations. Since antidumping laws and petitions have proliferated in recent years, this recommendation merits careful study.

The problem with pressuring foreign governments to enforce antitrust laws--to prevent the formation of cartels--is that there is no multilateral forum for such efforts. Thus, bilateral disputes inevitably occur. According to Flamm, "Foreign companies can go to national authorities with complaints, but if anticompetitive behavior is tolerated by custom or law, or if national laws are selectively enforced by national authorities, or if bureaucrats issue undocumented guidance to manufacturers, there is no framework for

resolving grievances except government-to-government negotiation." Still, it is quite likely that U.S. pressure on Japan and Western Europe to enforce antitrust laws that are already on their books has had the desirable effect of increasing the bargaining power of local supporters of stronger enforcement. It is always

helpful when battling for domestic reforms if one can point to some form of international pressure or support.

Flamm's third recommendation--that U.S.-Japanese semiconductor negotiations be multilateralized--should be urgently heeded. The General Agreement on Tariffs and Trade and its successor, the World Trade Organization (WTO), have not begun to adequately address problems posed by trade in high-technology products. Even after the Uruguay Round of trade negotiations, WTO has remained silent on issues involving antidumping laws and the relationship between trade and antitrust enforcement.

Going overboard

The book does have a few flaws. First, Flamm tries too hard to score points against other scholars -- most notably Laura D'Andrea Tyson, chair of the President's National Economic Council--sometimes at the expense of stretching his arguments too far. The title of the book suggests that he is going to present an argument against "managed trade" or what Tyson calls "cautious activism" in her book, *Who's Bashing Whom?* However, a lot of evidence presented in Flamm's book vindicates important parts of Tyson's argument--for example, the importance of bargaining hard to open up foreign markets to U.S. exports and of pressuring foreign governments to beef up enforcement of domestic antitrust laws.

Flamm also dismisses too easily the idea that the semiconductor industry should be considered strategic--and thus more worthy of government support--because of its technological linkages to other important industries. In a somewhat self-contradictory manner, Flamm acknowledges the potential importance of technological spillovers or externalities and favors policies to promote domestic industries that generate such externalities independently of the strategies of foreign firms and governments. But he continues to oppose any serious effort to identify strategic industries or to institutionalize programs that provide public support to those industries on the basis of technological linkages.

Mismanaged Trade is a provocative book that will help to promote a more meaningful debate about the politics and economics of high-technology industries. The reader may find the book a bit long-winded and tiring in parts-- thoroughness being sometimes the enemy of readability--but will emerge at the end with a better understanding of some of the key issues that governments have been grappling with in recent years. No future discussions of the semiconductor industry and its relation to the politics of

competition in high technology can ignore this book.

Jeffrey A. Hart is a professor of political science at Indiana University.