

## **The Scramble for Semiconductors: (Mis)managing Trade in High Technology**

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*Mismanaged Trade? Strategic Policy and the Semiconductor Industry.* By Kenneth Flamm. Washington, DC: Brookings Institution, 1996. 500 pp., \$59.95 cloth (ISBN: 0-8157-2846-8), \$24.95 paper (ISBN: 0-8157-2847-6).

*Economic Security and High Technology Competition in an Age of Transition: The Case of the Semiconductor Industry.* By Eric Marshall Green. Westport, CT: Praeger Publishers, 1996. 216 pp., \$55.00 (ISBN: 0-275-95253-3).

The 1980s and early 1990s have witnessed an extraordinary return of mercantilist trade policies. Backed by game-theoretic models, economists have started to argue that trade policy can take on a strategic role in a situation of imperfect competition and scale economies (Brander and Spencer 1985). Given that governments usually possess considerable policy discretion in this domain, they are in a unique position to adopt unilateral measures that effectively lower barriers for domestic firms to enter particular industries. Given appropriate demand and supply elasticities, such interventionist measures might help firms develop credible strategies for obtaining a larger share of profits. Strategic trade theorists have extended this argument and claimed that helping imperfectly competitive industries can also serve the country as a whole. From their perspective, government activities allow a state to capture rents or excess profits that other nations would gather in the absence of the protectionist policy. Indeed, optimal tariffs may be greater than zero even if other states retaliate and punish the free-riding country.

Policymakers on all continents have embraced this new trend in trade theory to some extent. In Japan and Europe, governments mainly perceived it as a confirmation and legitimization of firmly entrenched protectionist practices, ranging from government planning in high technology to subsidies for both emerging and declining industries. The concept of managed trade also partly bolstered the unilateralist temptations that have characterized U.S. trade strategies since the 1980s. However, the ascendancy of strategic trade theorists to the reins of governments also provoked a fierce intellectual debate, especially in the United States with its laissez-faire economy. An early proponent of strategic trade theory has even argued that some self-declared strategic traders have vulgarized the original ideas and overstated the allegedly beneficial impact of government intervention (Krugman 1996).

*Mismanaged Trade?* by Kenneth Flamm and *Economic Security and High Technology Competition in an Age of Transition* by Eric Green reopen this debate and offer some unpolemical middle ground between the competing camps. Flamm, a trained economist and senior fellow at the Brookings Institution, in particular distinguishes between the positive and negative aspects of "managed" trade. Offering a formal and an empirical perspective on the competitive race between the industrialized states, he calls for a multilateral approach that uses

the World Trade Organization to overcome the ever-lurking danger of renewed bilateral disputes between the United States and the strategic traders of the Far East.

Flamm traces the current semiconductor regime back to the 1950s when a fierce competition erupted among Europe, Japan, and the United States. Although the Europeans essentially dropped out of the race, U.S. producers started to complain about the ever-growing market share of their Far Eastern rival. Their lobbying had some effect because the Japanese finally “agreed” to settle the dispute outside of the General Agreement on Tariffs and Trade. In 1986 and 1991, the two rivals concluded two major bilateral semiconductor trade agreements. Somewhat ironically, the U.S. semiconductor industry regained its competitiveness and increased its market share during the same period. Flamm attributes this recovery in part to decreased interventionism in Japan and increased research and development spending in the United States. The role of Sematech, the U.S. producers’ research and development consortium, was especially instrumental in reversing the market structure. The bilateral agreements, conversely, seem to have hurt both Japanese and U.S. competitors to some extent. Temporarily high prices for memory chips allowed South Korea to enter the semiconductor market forcefully. Flamm, however, concludes that the agreements were, at least from a U.S. perspective, successful in opening up the Japanese market.

The ambiguous experience of the bilateral approach seems to be one of the main reasons that Flamm suggests the creation of a global semiconductor conference to overcome the danger that shady strategic practices will arise again in the next global recession. As he rightly points out, such a multilateral endeavor could only be achieved in a piecemeal manner. At the moment, the World Trade Organization does not address some of the issues that motivated the conclusion of the U.S.-Japanese treaties. The establishment of an efficient multilateral regime would ultimately also require that foreign competitors be allowed to participate in another country’s or trade bloc’s research and development programs.

The analytic core of *Mismanaged Trade?* is a formal model that employs some recent innovations in economics and explores the behavior of strategic and non-strategic producers. The model blends the advantages of extant formalizations into a synthesizing framework. It also takes some of the main features of semiconductor production into account, such as the dynamic economics of scale and the temporal constraints on mass production that characterize the industry. One of the main results of the formal analysis is that collusive behavior between government agencies and the semiconductor industry will remain a valid option despite the radical restructuring of the market during the last decade. From a political science perspective, the only important element that is absent from Flamm’s otherwise thorough analysis is a discussion of the redistributive aspects of government intervention, be it in the form of support for a producer cartel or an increase in research and development spending. Political economists would have reason to suspect that the promised high returns of the semiconductor industry will seem attractive to special interest groups. Different sorts of rent-seeking activities will consequently lower the welfare implications of investments in this area. Ample evidence exists to support the hypothesis that the opaque decision-making structures in the European Union and the consequent influence of redistributive coalitions help explain why European competitors failed to catch up with the producers in the United States and the Far East (Vaubel 1994).

*Economic Security and High Technology Competition in an Age of Transition* by Eric Marshall Green, an economist with the Federal Reserve Bank of New York, never

reaches the density and depth of Flamm's excellent study. Green surveys both the theoretical and empirical literature on strategic trade without developing a new theoretical framework or even adding a new intellectual twist to one of the standard models. As in most essentially descriptive studies, the theoretical contribution remains rather vague. The main thrust of Green's argument attempts to link the high technology competition in semiconductors to the U.S. effort to reach "economic security." To this end, he examines the industrial policies of Western Europe and Japan. Green argues that the case for government intervention is overstated as long as domestic firms successfully adapt to the changing conditions of the global market. He consequently advocates a military strategy that ensures the competitiveness of the defense industry. A similar point is made by Flamm, who sees narrow national economic security concerns to be in fundamental opposition to the goal of international competitiveness. Because this dilemma seems unresolvable, however, Green calls for closer coordination of government and private industry rather than outright intervention or government dominance.

Although this pragmatic recommendation certainly makes sense, it relies analytically on the concept of "economic security," which remains vague and unwieldy twenty years after Klaus Knorr (1977) introduced it. From Green's perspective, security is reached if threats "of severe deprivation of economic welfare" are absent (p. 22). As was the case in previous studies, however, such a definition does not help establish a reasonable and operational benchmark for identifying militarily critical technologies. Green does not offer clear criteria for such technologies, but he refers to two current lists that include twenty-two and ninety-four "critical" technologies, respectively. He correctly points out that the definitional ambiguity of "economic security" leads to this discrepancy by inviting political abuse by special interest groups. Green advocates the creation of a nonpartisan, independent evaluation panel as a remedy against these tendencies.

The other side of economic security, the fear that both political clout and economic competitiveness will create a threatening U.S. dominance in key military technologies, is not addressed in Green's analysis. Such one-sidedness is also apparent in Flamm's study. Obviously, the U.S. bias may be partly a consequence of the topic of research. As Krugman (1996) has reminded us, strategic trade theory encourages zero-sum thinking and sharp distinctions between "them" and "us."

Despite their U.S.-centered outlook, *Mismanaged Trade?* and *Economic Security and High Technology Competition in an Age of Transition* do add to the more nuanced evaluation of strategic trade policy in the second half of the 1990s. Flamm has written the definitive work on the economic aspects of the sort of industrial policy that has characterized competition in this high technology area. Green's topical book, by contrast, is more concerned with the broader strategic issues. It seems, however, rather unfortunate that these studies do not sufficiently alert the reader to the limitations of unilateral trade strategies. Although strategic measures or cooperative agreements between two states may occasionally increase the economic well-being of a country, they will most often fail and merely redistribute welfare to well-organized interest groups. Neither book pays sufficient attention to the domestic struggle to shape a country's strategic trade policies or bilateral trade agreements. This gap proves that political scientists can still make unique contributions to strategic trade theory if they rely on their comparative advantage: the sound study of institutions and decision-making procedures.

### References

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