

Economists do not know which of these views is correct. It may be that the Japanese do not really know either. If we assume, for the sake of argument, that government policy was in fact crucial, was it good idea? As in the case of steel, the direct returns on Japan's investment in semiconductors have been quite low. Exact figures are not available, but it is generally believed that Japanese firms have earned a low rate of return on semiconductors since the late 1970s.⁴¹ So any gains from the encouragement of chips must be located in the technological externalities.

Now comes the great uncertainty. Semiconductor production—a highly dynamic industry where knowledge is the main source of comparative advantage—is exactly the kind of sector where the external economy argument should apply. But were the economy wide externalities large enough to justify the social cost? Nobody knows. There exists very little empirical work that quantifies what the extent of spillovers happens to be across industries and countries.⁴²

● U.S. Industrial Policy

The United States has a commitment to free market ideology that would preclude extensive and explicit government direction of the economy such as that of Japan during its early post-War phase. There are some areas, however, in which the U.S. government has had a major role in promoting industries.

The most notable of these areas is agriculture. Here the U.S. government has come closest to the kinds of industrial policy that one might recommend on the basis of the market failure and defensive criteria discussed earlier in section 2, although the picture is clouded by the U.S.'s use of predatory export financing and import restrictions. Recall that the problem of appropriating knowledge can be a reason for intervening in an industry. In agriculture, a farmer who makes a major innovation can be imitated by thousands of others, who derive the benefits without sharing in the costs and risks. To alleviate this problem, the U.S. government has long engaged both in research into agricultural techniques and in the dissemination of improved techniques through the Agricultural Extension Service. Also, the government has taken a leading role in large-scale projects, such as irrigation facilities. These kinds of intervention fit nicely into a market failure framework and are commended even by policy analysts who are sceptical about most industrial policy.

Another major role for the U.S. government is in defence. The U.S. government is by far the world's largest market for military hardware. U.S. corporations dominate the production of military goods such as fighter aircraft that involve large economies of scale. U.S. government spending on military goods sometimes helps U.S. corporations gain economies of

⁴¹ Policy analysts, for or against strategic trade policy, all agree on this point. Take, for instance, Clyde V. Prestowitz, 1988, op. cit., p. 57, "... (in July 1985) the Japanese producers of semiconductors were losing money."

⁴² For some evidence, see Jeffrey I. Bernstein and Ishaq M. Nadiri, "Interindustry R&D Spillovers, Rates of Return, and Production in High-Technology Industries", *American Economic Review*, (78) 1988: 429-34.