

Can Industrial Policy Be Good Policy?

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Abstract: Can industrial policy be market-ensuring (e.g. via antitrust or enforcement of property rights) and market-conforming (non-distorting)? Can it provide a political second-best solution by creating a smaller market distortion to prevent a larger one that results from political ferment? This paper explores issues of the definition of industrial policy, discusses market failure vs. government failure in specific industries, contrasts the options for industrial policy in the regulatory state with those available in developmental states, and provides examples from previous research on HDTV, flat panel displays, semiconductors, software, and cellular phones to illustrate arguments about what makes good policy.

Introduction

Industrial policy has always been controversial because the reallocation of resources across industries by government in ways that do not conform to market signals is market distorting and therefore generally considered to have bad (allocatively inefficient) results. But this may be too narrow a way to conceptualize industrial policy. In this paper I will examine the broad array of policies that are considered to be “industrial” and review the arguments for and against them. Similarly, I will review the debates about industrial policy in developmental states. The term “developmental state” refers to a type of government that is comfortable with the use of industrial policies as a way of catching up with more advanced industrial nations, particularly in high technology industries. I will contrast the developmental state with the regulatory state that we have come to be familiar with in North America and Western Europe.

I have argued elsewhere, with my colleague Aseem Prakash, that theories of strategic trade have been used to justify a wide variety of industrial policies that we called

strategic trade and industrial policies (STIPs).¹ We criticized this rationale for neglecting to consider adequately the potential for international retaliation, special pleading by narrow interests, and government failure. We did not tackle in that article the broader questions that I will attempt to address in this paper.

The argument that I would like to pursue here, after discussing the broad range of policies that are lumped under the rubric of industrial policy, is that industrial policy can be market-conforming and market-ensuring and that the best kind of industrial policy helps markets to work better. The premise that I will not defend further here is that markets fail occasionally for the usual reasons (the presence of externalities and collective goods, information asymmetries, imperfect competition, etc.) and that governments do not always fail when they try to compensate for market failures.

What is Industrial Policy?

I will define an industrial policy as any policy that affects a subset of industries differentially from the remaining group of industries. I will define an industry as a set of firms competing in a specific and identifiable market. A specific and identifiable market is characterized by the types of goods and services that are offered for sale by the firms in that industry. Firms may participate in more than one market and thus may be in more than one industry.

Given this definition of industrial policy then any tax, subsidy, trade measure, antitrust enforcement measure, standard-setting policy, etc., that affects industries differently can be considered an industrial policy. Here is a list of examples focusing on a single industry (automobiles):

- A tariff on automobiles that is higher than tariffs on other goods or services.
- A government subsidy to the automobile industry for research and development that is not matched by subsidies to other industries.
- A preference given to the automobile industry for low-interest loans from government-controlled banks (a form of government subsidy).
- A change in the rules governing depreciation for tax purposes that affects only the automobile industry and not others.
- An imposition of an import quota to protect the automobile industry from import competition.
- The forced breakup of a large, monopolistic automobile firm in compliance with a ruling of an antitrust tribunal.
- Announcing of a new set of automobile safety standards that emphasize results rather than technologies used to obtain those results.
- Establishment of an R&D consortium jointly funded by government and private business to advance the state of the art in automobile technology.

¹ Jeffrey Hart and Aseem Prakash, "Strategic Trade and Investment Policies: Implications for the Study of International Political Economy," (with Aseem Prakash) *The World Economy*, 20 (July 1997), 457-476.

You can see from the above list that some of the examples are clearly market distorting, while others are not necessarily market distorting even though they apply only to a single industry. Some industrial policies are protectionist; others are not. Some policies, notably antitrust policies, may affect a single industry with the intention of correcting the bad consequences of imperfect competition. The intentions of such policies are to make markets work better. Similarly, a change in depreciation rules that reflects actual practices in investments in a particular area more realistically can be more market-conforming and less market-distorting than a previous set of depreciation rules that is based on unrealistic assumptions about investment practices. Consider a change from rapid depreciation to slower depreciation rules for investments in long-term fixed assets like buildings.

The Developmental State vs. the Regulatory State

One of the reasons for the increase in interest in industrial policies is the growth of the literature on “developmental states.” Pioneered mostly by political scientists like Chalmers Johnson, this literature focuses on the recent increased competitiveness of firms in East Asia and attributes this change to relationships between the state and society that permit the government to reallocate resources within the economy toward industries that have a potential for rapid growth in production and exports. The developmental state is a “catch-up” state that is attempting to reduce the gap in wealth between its population and those of more wealthy societies. Johnson and others consider countries like Japan and South Korea to have developmental states and frequently advise countries like the United States to adopt some of the practices of developmental states in order to maintain their international competitiveness.

Sangbae Kim and I have written a number of essays in which we contrast the developmental state as described above with a “regulatory” state that eschews frequent government interventions in specific industries, favoring instead a reliance on macroeconomic policies and regulatory policies – particularly antitrust and intellectual property policies – to promote healthier and more competitive industries. We have argued that a modified regulatory state seems to perform better in certain high technology industries than the developmental states because some industries thrive under a more decentralized form of governance that is impossible to nurture in a “catch-up” environment. Examples of such industries are: software, advanced microelectronics, HDTV and digital television, biotechnology, and nanotechnology. We argue further that certain types of industries, where knowledge creation plays a lesser role and high-volume manufacturing is the key problem, firms in developmental states may outperform firms in regulatory states because of the extra help they get from governmental assistance.

The Potential Impact of Globalization

Defining globalization as the combination of increased flows of factors of production internationally with increased reliance on geographically dispersed supply chains, and identifying the last decade or so as a period of increased globalization of industry, one can argue that globalization is likely to have an impact on what sorts of industrial policies may or may not have desirable results. If supply chains are becoming more global, then efforts to promote industries by insisting that supply chains be national are unlikely to

succeed. To the extent that the developmental state requires this, then it might not be so successful in a more highly globalized world economy.

Similarly, one might argue that one of the more successful competitive responses of regulatory states to the recent successes of developmental states has been to promote greater flows of productive factors and the establishment of global production networks. Thus, the change in the global economy is more the result of conscious governmental policies than of, say, changing technology or reduced barriers to trade, investment, and movements of people.

Since there is likely to be some variation across industries in the extent to which they are subject to globalizing forces (whatever their roots), one can use this variation to test propositions about the impact of the degree of industry globalization on the success of various industrial policies. One proposition that I will be examining below is that increased globalization is likely to mean that government policies are generally less important than firm strategies in influencing industrial outcomes. Another is that industrial policies that ignore globalization in highly globalized industries are very likely to fail.

The Case of the Flat Panel Display Industry

Stefanie Lenway, Thomas Murtha, and I spent the last five years or so trying to understand firm strategies and industrial policies in the global flat panel display industry. The research we undertook started from the premise that the U.S. flat panel display industry was much weaker than it needed to be if the U.S. computer industry was to maintain its competitiveness in light of the growing competitiveness of firms based in Japan, Korea, and Taiwan. We decided to examine the relative importance of firm strategies and industrial policies in the four countries (the United States, Japan, Korea, and Taiwan) to see if – first of all – industrial policies made any difference and, if so, could the United States benefit from judicious copying of the industrial policies of East Asian countries.

What we found was that, as one would expect in a globalizing industry, firm strategies were more important than government industrial policies in determining which firms did well in this market. However, firms that were successful were able to leverage certain advantages that existed in a given national economy because of certain types of government policies.

Japan was the location of the first round of large investments in high-volume flat panel manufacturing. The three main investors in this early period were Sharp, Toshiba, and IBM Japan. Subsequent investments were undertaken by the other Japanese electronics firms, including Matsushita, Mitsubishi, NEC, and Hitachi. One small firm, Hosiden, invested with guaranteed purchases from Apple Computer. Our research showed that government policies had very little to do with any of these investments beyond the usual favoring of high technology investments via accelerated depreciation and other tax breaks. The amount of direct subsidization of research or manufacturing by the Japanese government was relatively small.

One of the key reasons for locating initial investments in Japan was the ability of Japanese firms to move from small televisions to camcorders to laptop and notebook computers as the size of the displays that could be manufactured reliably increased. The preexisting strength of Japanese firms in these consumer electronics markets was an important factor in the early advantage of Japan as a location for the first round of major investments. It is not surprising then that the technology and manufacturing activity would spread from Japan to its two main rivals in consumer electronics in East Asia: Korea and Taiwan.

One worrisome aspect of Japanese policies in this regard is the restrictions that continue to exist on inward foreign investment into Japan. If it had been easier for foreign firms to invest in Japan, it is possible that there would have been more competition in the industry. One of the results of restrictions on inward investment may have been the more rapid diffusion of flat panel display technology to other countries (because the lower level of competition within Japan made it more attractive for non-Japanese firms to enter the market).

In Korea, the practice of encouraging government-owned or –controlled banks to provide low interest loans to high technology investments of the *chaebol* (large Korean conglomerates) and of not enforcing antitrust laws created a favorable environment for the *chaebol* to make the large and risky investments connected with setting up large-scale manufacturing plants for TFT liquid crystal displays. The down side for *chaebol* was that after 1997, the general weakness of the financial sector of the Korean economy that was due to the absence of adequate regulation of banks and other financial institutions in the wake of the opening of the Korean economy to international financial flows became a drag on the ability of firms to make further investments in the industry. In other words, what was a competitive advantage due to government policy prior to 1997 became a disadvantage after 1997.

In Taiwan, the government policy of favoring smaller firms over larger firms in order to reduce the influence of native Taiwanese in the political system initially made it difficult for the smaller Taiwanese firms to enter the flat panel display market simply because they could not match the ability of either Japanese or Korean firms to throw money and engineers at the problem of developing high-volume manufacturing plants for TFT LCDs. After 1997, however, the generally sound management of the Taiwanese financial system insulated Taiwan from the problems that faced Japan and Korea and permitted the larger Taiwanese firms to enter the market despite the large and risky investments required. It helped a lot that the Taiwanese government wanted to reduce the dependence of Taiwanese laptop computer manufacturers on imports of displays from Japan and Korea and thus was willing to provide some subsidies to the new industry.

In the United States, specific government policies were adopted by the Clinton administration to encourage the growth of the domestic flat panel display industry. The funds allocated were relatively small, given the size of investments that had already occurred in East Asia, however, and were divided among many small firms located in

diverse regions. A number of U.S. firms were already active in the industry: Corning Glass produced much of the specialty glass for flat panel manufacturing in Asia, AKT (a joint venture between Advanced Materials in the US and Komatsu in Japan) produced the chemical vapor deposition equipment for many Asian manufacturers, and IBM was a joint venture partner with Toshiba in the second largest producer of flat panels in Japan, Display Technology, Inc. (DTI). In short, U.S. industrial policies were both too small and focused too much on the wrong goals to have had an impact on the competitiveness of U.S.-located firms. One can argue that the predominant business environment in the United States, involving a general bias against industry subsidization and toward strict enforcement of antitrust together with a robust and well-regulated financial system produced correct decisions by U.S. firms with regard to entering this highly risky industry, especially given the locational advantages possessed by East Asian producers.

One way to draw a conclusion from this case is to say that industrial policies of the “pick winners and losers” variety either did not work (in the U.S. case) or were not attempted (in Japan or South Korea). But a more convincing case can be made for the argument that industrial policies that were consistent with a country’s overall economic system became part of the environment for business decision-making and that those businesses who correctly matched their business strategies to their local business-government environment were the ones most likely to succeed in the flat panel display industry. Thus IBM, an American firm, could succeed in Japan by leveraging the advantages of its Japanese location. Similarly for AKT and Corning, the key was locating those activities that were necessary for adequately servicing their Asian customers in Asia. The small display firms based in the United States did not have this option and some U.S. government policies actually restricted rather than widened their range of options.

The Case of HDTV and Digital Television

High definition television (HDTV) and digital television (DTV) have been the focus of much speculation about the efficacy of industrial policies. Standard-setting is one subcategory of industrial policy that is generally thought to be important because of the very large coordination problem connected with getting manufacturers, TV broadcasters, and TV program producers to agree on next-generation TV technology standards. What we have here is a market with many informational asymmetries and with a lot of collective goods qualities, combined with a large and complex infrastructure of signal delivery. Very large market failures can occur in such an environment.

Attempts by the Japanese public broadcaster NHK and the European Commission to solve the coordination problem by top-down imposition of standards failed dramatically in the late 1980s and early 1990s. An attempt by some political forces in the United States to set up a large subsidy program for HDTV as a response to the perceived threat of increased competition from Japan was defeated in the late 1980s.

In the 1990s it was fashionable for a while to say that the regulatory approach of the United States, focused on the Federal Communications Commission (FCC) as the locus for setting national standards, produced the best policy. The record of the last ten years, however, suggests otherwise. The FCC decided not to decide on the video formats that

broadcasters and manufacturers would have to support in the transition to DTV. The resulting confusion among both producers and consumers has greatly slowed the transition. The FCC and the U.S. made things worse by loaning the broadcasters an extra channel during an interim period of transition from NTSC to DTV standards, but created perverse incentives by allowing broadcasters to keep the extra channel until over 90 percent of the public could receive DTV signals. In my view, this was not good industrial policy.

In contrast, in Western Europe, the European Union took a much stronger stand on DTV standards but made sure that the standards adopted made it possible for consumers to have a choice between a variety of DTV providers and for the signals to be distributed via terrestrial antennas, satellite broadcasting, telephone networks, and cable networks. It paid careful attention to potential restraints on competition that might occur by the dominance of certain firms over electronic program guides (EPGs) or proprietary encryption for pay TV. Finally, the EU was smarter than the US government on the question of whether to require broadcasters to move quickly to sharper signals or to let the market decide how much consumers valued higher picture quality. As a result, the new technology is being deployed more rapidly in Europe than in either the U.S. or Japan.

The Case of Software

The case of computer software starts from the observed fact that firms based in the United States lead the world in the development and sales of advanced packaged software. The rapid increase in the market for personal computer software meant that there were major advantages for firms who were close to the PC industry. The most successful firm in this regard was Microsoft, but the PC platform was designed to encourage the growth of many independent software developers and to give to users a wide range of choice in suppliers of applications. One could argue that a whole new type of competition arose with the growth of the PC industry, an architectural competition in which firms competed for defining the rules for the next wave of innovation.

European and Asian firms did not do well overall in markets for packaged software from the early 1980s on. There were a few exceptions: for example SAP in Germany, Softbank in Japan. But the basic problem in both regions was that it was difficult to establish startup firms and so large integrated computer firms dominated the regional software markets. In Japan, for example, NEC was the main provider of PC operating systems until it was finally defeated by Microsoft after IBM developed a solution to the display of Japanese characters on PC screens in a Windows environment. In addition, and especially in Japan, a lack of strong intellectual property protection for software programs was a disincentive for investments in software creation.

This case illustrates the advantages of the relatively decentralized regulatory state approach over the developmental state. The Japanese government tried to promote the software industry there by setting up a program for “software factories” using as a model its support of the semiconductor industry. The problem was that software made in factories was not competitive with the operating system software made in huge firms like

Microsoft or the applications software created in smaller and more nimble firms like Electronic Arts that were highly responsive to market demand.

The Europeans again were more successful than the Japanese eventually by reforming their financial systems to make a larger space for the venture capitalists who could fund startup firms. Doing this in Japan was difficult because of the overwhelming dependence on banks.

The Case of Cellular Phones

The case of cellular phones is similar to that of HDTV and DTV in that the cellular phone business depends on the setting of network infrastructure and the establishment of standards to reduce producer and consumer confusion about questions of interoperability.

We are currently in the third generation of cellular phone technology. The winner of the first round of competition was the United States. The deregulation of the telephone industry created a space for the establishment of analog cellular phone networks that were partially in competition with the local land-line carriers. The public ownership of telecommunications service providers tended to slow the development of the cellular phone industry in both Europe and Japan.

In the second generation, Europe made a special effort to concert forces to develop a uniform standard for the entire region called GSM. In the United States, in contrast, no agreement could be obtained on second generation standards. In addition, the European cell phone companies found a variety of pricing schemes that were much more attractive than those available in either the United States or Japan. Thus, deployment of second generation phones was most rapid in Europe.

In the third generation, the Japanese had a major success with a product from NTT DoCoMo which allowed Japanese consumers to download information from the Internet via their cell phones at a reasonable price. In the United States, a complex agreement divided the third generation market into national and regional segments with different standards in different regions and nationally and pricing schemes that were better than earlier generations but still relatively costly in comparison with those in Europe and Asia.

Some experts argue that the Europeans and the Japanese were trying to compensate for their slowness in competing with the US in Internet services via PCs by using mobile phones as the main platform for accessing those services. But it is fairly safe to say that the top-down styles of regulation in both regions made it easier for them to impose uniform standards on the region than it was for the United States. In this case, the ability to impose standards reduced key uncertainties that would have otherwise slowed deployment of the technology.

Conclusions

It is difficult to draw any definitive conclusions from this limited set of cases, but there are some common themes that I would like to call to your attention. First, the desirable form of industrial policies and industrial governance more generally seems to depend on

the type of industry. Some industries are by their nature, sometimes partly by design, highly decentralized and require a regulatory governance style with highly entrepreneurial managers and flexible financial systems to prosper. Other industries lend themselves more to top-down decision-making both by firm managers and by governmental industrial policy makers. The developmental states do well in the latter; the regulatory in the former.

Second, firms learn to cope with the advantages and disadvantages of the prevailing form of industrial policies in different national environments. Globalization means that firms operating in more than one nation can leverage the advantages or compensate for the disadvantages of placing activities in a given national location. In this globalizing environment, industrial policy shifts from attempting to compete head to head in all industries to making sure that the current environment permits a range of industrial activities that allows the country to continue to prosper and that preserve access to technologies from other countries and regions that are needed for maintaining or enhancing existing strengths. Therefore, industrial policies that ignore the growing importance of multinational enterprises and the emerging international specialization that is a natural consequence of more open trade and investment flows are doomed to fail. This still leaves room for many types of industrial policy – particularly antitrust policies, intellectual property protection, and the encouragement of startups – that are either market-ensuring or market-conforming.