Industrial Targeting for High-Technology Industries

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Discussion to Session 3: Industrial Targeting for High-Technology Industries

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Opening the discussion, the Chairman proposed concentration on the main aspects of interest:

1) Why does the state intervene in industrial policy?
2) Why should the state intervene in industrial policy?
3) How can public policy with regard to European Technology Initiatives and Global Competition be made most effectively given that there is good reason for exerting public policy?

In analyzing these questions, Richard Baldwin, David Audretsch, Wolfgang Hager, and the active participation of the discussants have offered valuable insights based upon three distinct approaches illustrative of the dimensionality involved in giving definitive answers to the questions posed by Heinz Hauser. The two papers and a prepared communication deal with questions of Industrial Targeting based upon theoretical (Baldwin), empirical (Audretsch), and political (Hager) perspectives. Although these issues are inevitably interrelated, the focus of the discussion dealt with the deliberations separately.

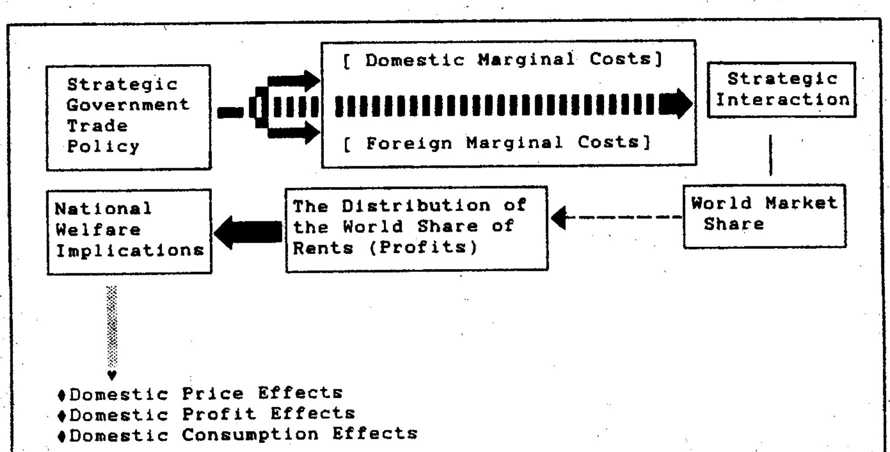
Baldwin: Evaluating Strategic Trade Policies

The debate about the desirability of industrial policies designed to raise the effectiveness of technology policies, industrial targeting, and strategic trade policies has received not only growing attention from policy practitioners in recent years but also a great deal of *theoretical* literature on the subject has evolved. The main impetus of the debate appears to offer new and powerful arguments for industrial targeting in the sense of governmental re-allocation of investment among sectors such that government policy may change the rules of the game being played. As

Richard Baldwin has adeptly analyzed, the actual form of the re-allocation policy covers the spectrum of direct R&D subsidies to non-tariff trade barriers. Much of the power of the new theoretical arguments supportive of tariff protection, export promotion and research subsidies is due largely to the elegant simplicity of the theoretical underpinnings making the logical arguments of protectionist proponents rather accessible to the economic and political decision makers in the international trade game. Basically, as has been pointed out by Richard Baldwin, the essence of strategic trade policy is to help national firms grab as large a share of the international profits as possible. Two main strategic trade policies have come about: profit-shifting subsidy policies and strategic infant-industry protection policies designed in the hope of creating national comparative advantages in the long run.

In general, the structure of the discussion that ensued with regard to all three papers may be graphically illustrated in Figure 1 below.

Figure 1: *European Technology Initiatives And Strategic Government Trade Policy*



As was generally pointed out in the discussion (Christopher Wilkinson, Brian Oakley) basically two types of results may occur: 1) welfare may be reduced or 2) the gains obtained tend to be rather small. Or one may take the more stringent position (David Scheffmann), the so-called *Cock-Up Theory* that this «. . .stuff is very silly!, since we now know a lot more about the role of government and it's effect than a decade or so ago.» As pointed out , governments do not act to cure market failures. Rather it is much more the case that government policy is a *political process* such that «it's really about what employment levels can you get in Cleveland» or any important regional area in the political process. Further support was also found among the discussants (Brian Oakley) in defense of the Cock-Up Theory. Richard Baldwin agreed to the need of considering the political elements that are found in international industrial targeting policy discussions, pointing out however that trade economists are indeed highly sensitive to this in their analysis. The discussion then moved on to the *Rent Seeking Model* as developed by Anne O. Krueger and others. David Scheffmann emphasized that rent seeking activities and industrial targeting activities would simply lead to competition between political constituencies resulting in a waste of economic resources in the final instance. Richard Baldwin countered by expressing the need for a world-wide constitution for free trade in order to implement the true positive effects of trade theory as known from international trade theory. At the moment, a survey of the empirical literature in Baldwin's opinion is evaluating actually what the theorists should be thinking about. It was then pointed out (David Scheffmann) that governments have different abilities and capacities. For example, the literature on the «*New Protectionism*» was largely initiated in the economic field by Brander and Spencer who themselves grew up after World War II and were exposed to the high levels of industrial targeting attempted during this era. *Fortune* magazine then popularized their analysis by putting them on their cover opening the discussion to practitioners.

The question was then raised by Herbert Fusfeld as to «How do you take account of the *foreign content* of trade and it's impact on the rest of the economy?» In the opinion of Richard Baldwin, foreign content should not present too big of a problem since in this type of marginal cost analysis the resources would simply be used somewhere else. Some leakages might occur, however, basically there is very little rent in inputs as compared to the rents involved with the final product. Negative spillovers may arise having a consumer surplus effect as observed through the effects of intermediate inputs in the microelectronic chip industry and the cereal food industry. Technological spillovers are also present, however, as of yet not explicitly included in the framework of the model upon which the discussion has been based. Wolfgang Hager stressed that perhaps one should not worry so much about such spillover effects but rather emphasis should be placed in core technologies and their long term perspective effects in considering policy implementation strategies. Richard Baldwin then raised the question as to «Why should one attempt to obtain such a core technology in this indirect manner, why not subsidize directly?» Brian Oakley then pointed out the significance of the learning curve for the discussion and the «Battle of the Sexes» game of international trade policy, as well as the fact that governments tend to often directly influence purchasers.

If some point of consensus was obtained in the discussion then it was the awareness that the welfare effects of technology policy, industrial targeting and strategic trade policies are *not* in general quite clear cut. For example, increasing the output of inefficient firms leads to higher final commodity prices adverse to consumers. In general, one can only state that positive desirable effects of industrial targeting and strategic trade policy *may* possibly be obtainable after a governmental intervention has occurred. However, in this regard, more theoretical research is required as well as empirical analysis in order to evaluate strategic trade policies of nations.

Audretsch : An Evaluation of Japanese R&D and Industrial Policies

In the cogent paper written by David B. Audretsch a commendable attempt has been made to *empirically* grasp the interactions among Japanese industrial policy, the relative R&D intensities between Japan and the United States, and United States trade policies and their effects upon the bilateral trade flows between both of these nations.

After a short discussion of the conventional economic reasoning contained in the Heckscher-Ohlin model of international trade, Richard Baldwin moved the discussion to the specifics of the standard international trade models combined with those in industrial organization as applied here in the cross-section regression model estimating the balance of U.S. – Japanese trade for 233 four-digit SIC industries for 1977. Baldwin asked for some clarification as to how the capital intensity ratio K/L was defined. Specifically, he raised the question if the ratio is based upon cross-section data? Audretsch remarked that all the measures were industry-specific and so actually K is gross assets and L is the number of workers.

Baldwin then pointed out that the Heckscher-Ohlin Theory is usually formulated in terms of endowments of capital and labor and *not* capital labor usage per industry. Audretsch agreed with this point, but pointed out that in a bilateral context the country only has one endowment. There is only one K/L for the whole country. Furthermore, recent empirical literature has indicated that one can not strictly test the Heckscher-Ohlin Theorem in an industry cross-section context.

In Audretsch's opinion, according to his empirical findings on the bilateral trade flows between Japan and the United States, the possibility of a positive government influence does exist. Consequently, it does make sense to look at what European governments may do in order to promote their comparative advantages. However, as he correctly pointed out, the literature tends only to regard the payoff aspects. At this stage, we still do not really know what the costs of a successful policy intervention will be. Furthermore, the effects of cartelization in Western Europe needs to be more closely examined since some existing strands of arguments point to the fact that technological pressures may not have effected trade flows to the extent commonly postulated.

Baldwin commented that in the empirical trade studies with bilateral trade data, it is often stressed that a need exists to take account of *third country effects*. Especially, the strategic literature suggests the necessity of looking at whether Japan was cartelized or at least to what extent the United States was cartelized. As such, omitted variables would have to be included in the analysis.Baldwin then expressed his surprise that the cartel variable did not possess a negative sign.

Basically agreeing with Baldwin's position, Audretsch suggested that one should remember the way regressions work, such that the factors of production usually predict that the «bad users» will demonstrate a rather bad trade performance. The question is thus, given a bad trade performance, if you cartelize an industry does it get a little bit worse or does it deteriorate even more. Furthermore, industries that are in fact objects of targeting for industrial policy commonly do not exhibit a good trade performance. Yet, relative to what one might expect from orthodox trade theory, the possibility might exist that the «target» would have some positive effect. Baldwin replied that the way he was considering explaining the hypothesis of a negative sign, is that factor endowments do in fact determine costs. If a country is relatively well endowed then its costs should be low giving an edge in all products, but especially in capital intensive products. Cartelization, on the other hand, is addressing what the mark-up price is between costs and price. Given cartelization, the typical price (mark-up) which the consumer sees reflects less the costs of comparative advantage. One would expect therefore more imports. Consequently, the discussion should also include the Helpman and Krugman[1] analysis of «Market Structures» sources of comparative advantages. The more cartelized an industry is, the less comparative advantage is present.

Audretsch expressed his sympathy with this line of argumentation, but mentioned that the Helpman and Krugman analysis is basically dealing, in his opinion, with the price effects of oligopolistic market structures of the cartel. Thus, one should observe that the *intention* of permitting a cartel and subsidizing R&D is to attempt to reduce domestic producer costs. However, whether or not this actually occurs is indeed another question. Finally, Hager stressed the importance of possible «overshooting effects» of subsidizing exports as illustrated by the ship building market, OPEC, the automobile market, etc.

Hager: European Technology Initiatives as Response to Industrial Targeting?[2]

The evolving discussion of Wolfgang Hager's communication concentrated on the motives of the following three *political* players

1) the Brussels Commission
2) the Member States
3) the Industrial Companies

in European technology initiatives as a response to industrial targeting. European (political) technical cooperation efforts were highlighted as well as the economic significance of European R&D cooperation, pointing out that there exist rather different internal mechanisms towards international cooperations as compared to strategies on a national level.

Herbert Fusfeld commented that various positions for technology exist. A country may wish to obtain a position of self-sufficiency in strategically important areas of domestic interest and in between there exists a wide spectrum of potential intra-dependent technological trans-

[1] Elhanan Helpman and Paul R. Krugman (1985), *Market Structure and Foreign Trade*: Increasing Returns, Imperfect Competition, and the International Economy., MIT Press.

[2] Communication not published in this volume.

actions based upon mutual relationships. He further emphasized the technology nationalism, as well as the technology capacity and access aspects, of getting at the relevant underlying question: «What resources do you possess and where do you want to concentrate them?» It was pointed out, that the question of capability and bargaining positions must be separated from the emotional and political issues that have intensified the debate as to the desirability of European technology initiatives without necessarily fruitfully contributing. David Audretsch expressed the view that «What is good for General Motors is good for America!» Given national economies with a lot of big firms , companies do represent national interests. Wolfgang Hager further expressed the opinion that apparent self interests and idealism seem to get rather mixed up. Herbert Fusfeld brought into the discussion the aspect of export restraints and controls and their relationship to independent as well as interdependent technologies and the fact that technological alliances may promote welfare gains. Brian Oakley expressed his belief that there exists a «European Element» which transcends the simple economic logic often put forth in the discussion, which is a very new and important phenomenon in the sense that «What is good for Europe is good for the individual domestic interests also». He went on to state that in the EUREKA program however, their exists an anti-Commission feeling among the dominant countries such that they do not wish that the Commission regulates industrial policy for fear of bureaucratic inefficiencies.

The point was then raised (Herbert Fusfeld) as to why we simply do not allow firms to become so large that the national identities fleece into only one firm. Wolfgang Hager commented that what really is needed is supply side integration, then the procurement protection problem would be solved. Knut Bleicher added that it appears to be as if the discussion is leading to a «European Culture».

Conclusion

The discussion has provided a number of partial answers to the opening questions posed by Heinz Hauser at the beginning of the session. The state *could* have a possible role in designing the three relevant spheres of strategic considerations, organizational commitments and «European Culture» aspects, as well as the difficulties and advances already made in contracting for networking at the European level as categorized in an earlier paper in the conference by Yves Doz. Building up «future mutual trust relationships» through the common implementation of business cultures and industrial policies will reduce the size of the «business commitment problem» as mentioned by Doz. As pointed out by Heinz Hauser, many of the initiatives are basically designed to achieve a step in the direction of a European Common Market and are not explicitly industrial policies in a world sense. It has become evident that not only do individual country motives exist, but also there is a unilateral economic motive under certain conditions for interventionist trade policy. This result contrasts sharply with accepted international trade theory. The two papers by Richard Baldwin, David Audretsch, and the discussion of the communication by Wolfgang Hager have all illustrated the need of a more varied and more realistic role of accounting for the players in the international trade game explicitly in analysis of international trade flows. However, a last word of caution should be made. Based upon the «newness» of the arguments put forth, one should not jump to the immediate conclusion that they are always correct. At the moment, we are not in a position to recommend robust policies which are not independent of the environment. Furthermore, since the empirical evidence existing at the moment suggests that coordinated industrial policies may provide only small potential gains, the answer should lie in further empirical work.